APPLICATION

Study field "Seafaring" for assessment

Study field	*Seafaring*
Title of the higher education institution	*Rīgas Tehniskā universitāte*
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Self-evaluation report

Study field "Seafaring"

Riga Technical University

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1. Information on the Higher Education Institution/College

1.1. Basic information on the higher education institution/ college and its strategic development fields,.

Riga Technical University was founded in 1862 as Riga Polytechnic, later Riga Polytechnic Institute, and is the oldest technical university in the Baltic States. Following the restoration of the Republic of Latvia in March 1990, Riga Polytechnic Institute was renamed Riga Technical University (RTU). Over years RTU has become the leading centre of higher engineering education and science in Latvia, obtained a positive assessment of international experts and has been accredited by the Supreme Education Council of the Republic of Latvia.

RTU values include sustainable development, quality, openness and cooperation, creativity, academic freedom, motivation to explore and discover.

Until 2024 there were nine faculties at RTU (Faculty of Architecture; Faculty of Civil Engineering; Faculty of Computer Science and Information Technology; Faculty of E-Learning Technologies and Humanities; Faculty of Electronics and Telecommunications; Faculty of Electrical and Environmental Engineering; Faculty of Engineering Economics and Management; Faculty of Mechanical Engineering, Transport and Aeronautics; Faculty of Materials Science and Applied Chemistry). Since 2024 an academic and scientific staff of approx. 1,200 people work at four faculties (Faculty of Construction and Mechanical Sciences, Faculty of Natural Sciences and Technologies, Faculty of Computer Science, Information Technology and Energy, as well as Faculty of Engineering Economics and Management), at the Institute of Architecture and Design, four RTU Study and Science Centres in Cēsis, Liepaja, Ventspils and Daugavpils, and structural unit Latvian Maritime Academy, carrying out high-quality academic activities and scientific research at a contemporary level. RTU is the second largest university in the Republic of Latvia in terms of student number and has educated and trained more than 160,000 graduates in total.

RTU carries out active study and research work, acquiring new partners worldwide, working together on project implementation, student exchange and the development of joint study programmes. Active development of a student campus is underway in Ķīpsala, where new faculty buildings are being built, while those built during earlier years are getting a new look, modern content and design.

Many research and scientific projects are being carried out in cooperation with RTU partners, which result in both new patents and successful business activities. RTU successfully develops cooperation to strengthen its role in the development of higher engineering education in the world and in the development of Latvia.

RTU has defined its mission – we are building a competitive, educated, innovative and creative future, the vision – an internationally competitive, dynamic and modern university of science and technology.

Accredited RTU study fields and number of study programmes in January 2024:

Study field	Number of study programmes
Architecture and Construction	18
Economics	3
Energy, Electrical Engineering and Electrical Technologies	8
Physics, Materials Science, Mathematics and Statistics	5
Internal Security and Civil Defence	6
Information Technology, Computer Engineering, Electronics, Telecommunications, Computer Control and Computer Science	26
Chemistry, Chemical Technology and Biotechnology	5
Mechanics and Metalworking, Thermal Energy, Thermal Engineering and Mechanical Engineering	30*
Manufacture and Processing	4
Translation	2
Management, Administration, Real Estate Management	21
Environment Protection	3
Transport Services	3
Total:	**134**

* incl. 10 study programmes of Latvian Maritime Academy, which will be transferred to the study field "Seafaring" or will be closed.

The offer of RTU study programmes is in compliance with the forecasts with regard to the needs of the labour market in both Europe and Latvia in the coming decade. RTU study programme offer ensures education and training of the specialists in information and communication technologies (ICT), engineering, management, services and humanities, for which a significant shortage in the labour market is predicted.

In recent years, the number of foreign students studying to obtain a degree or qualification in Latvia has increased. In addition, international student mobility growth is projected to continue also in the future. RTU has great opportunities to further increase the number of foreign students. It also provides an appropriate offer of RTU study programmes in English – 18 Bachelor study

programmes, 31 Master study programmes, and 10 Doctoral study programmes, moreover, this list is updated from year to year.

Dynamics of the number of students in RTU during the evaluation period:

Academic year	Total number of students
2013/2014	14,452
2014/2015	14,797
2015/2016	14,997
2016/2017	14,672
2017/2018	14,322
2018/2019	14,383
2019/2020	14,006
2020/2021	13,237
2021/2022	13,326
2022/2023	12570
2023./2024.	13066*

* In October 2023 at RTU tentatively 9,680 studied at undergraduate study programmes, 2,941 studied at graduate Master degree programmes and 445 – at the Doctoral study programmes.

The guiding principle of RTU Strategy for 2023–2027 is the proactive link between the activity of the university and the needs of the national economy, focus on high quality and effectiveness. The basis for the activity of RTU is the study process built on science, innovation and in cooperation with the industry, which ensures preparation of specialists required by the Latvian national economy, thus serving as a foundation for sustainable growth of Latvia. RTU’s strategy for the new programming period is a consecutive continuation is the previous strategy of the university for 2021-2025. It has been developed in compliance with the objectives and priorities defined in Latvian development planning documents.

According to the National Development Plan for 2021-2027 of Latvia, fundamental changes are planned in the near future in four directions – Equal Rights, Quality of Life, Knowledge Society, and Responsible Latvia, in the achievement of which a high-quality study process, excellent research, as well as sustainable innovation and commercialization activities play an important role, which are important elements in RTU's vision to become an internationally competitive, dynamic and modern university of science and technology.

Keynote of the RTU Strategy: High quality and effectiveness – proactive link between the activity of RTU and the needs of the national economy. RTU is one of the leading science and technology

universities of the Baltic and Nordic region, which is acting based on a study system built on research, innovation and cooperation with the industry. RTU prepares European and global-level engineers – leaders: developers of new technologies.

In order to implement RTU's vision to become an internationally competitive, dynamic and modern university of science and technology, RTU's strategy defines four main objectives for the next programming period, three of which are related to the implementation of basic university functions: excellent science, quality studies and sustainable valorisation. The fourth, institutional excellence, is related to the university support function and the development of internal governance in the six areas: digitalisation, sustainable development, effective financial and administrative action, internationalisation, communication and cooperation, human resources development. For all the objectives identified in the strategy define specific tasks to be performed and result indicators to make it possible to follow the implementation of the strategy so that RTU can realise its vision.

The implementation of the RTU Strategy is approved by a decision of the RTU Senate. Following the approval of the Strategy, RTU Rector once a year ensures definition of the annual RTU aims and tasks with clear performance indicators set at the level of each RTU unit. RTU Strategy is implemented, and the results achieved are analysed annually with regard to the defined tasks.

RTU Strategy is published at https://www.rtu.lv/en/university/strategy.

The Latvian Maritime Academy (hereinafter LMA) started its activities in 1989 as a faculty of Riga Technical University. As an independent training institution, the LJA opened its doors on January 8, 1993. LJA is a continuation of ancient maritime education traditions in Latvia.

LJA is the first and only educational institution in Latvia to prepare the highest level of maritime specialists. The quality of maritime education is internationally assessed for its compliance with the requirements of the International Convention on the training and certifi ation of Seafarers and Watchkeeping (hereinafter referred to as the STCW Convention) and the Code, as well as for the implementation of relevant EU requirements related to these IMO regulati ons, visits by the European Maritime Safety Agency (hereinafter referred to as EMSA) to the EU Mem ber States are carried out.

As a state university, LJM has contributed to the inclusion of Latvia in the IMO "White List", which is a confirmation that all the requirements of the STCW Convention and the Code binding Latvia have been implemented and are fully adhered to. LMA also provides the possibility to acquire the Master's degree in maritime transport. In 2020 LMA received a licence to implement Doctoral Study program "Maritime transport" which is sole in the Baltic countries.

Since 2005, the quality management system (herinafter QMS) compliant with ISO 9001:2015 standard has been implemented and maintained at LMA, with certification of higher professional maritime education, but starting with 2015, also sefarers' training. As of the 1st of March, 2023, RTU LMA QMS has been repeatedly successfully certified- the validty of certificate for the management system issued by classification society Det Norske Veritas is till 28th of February, 2026.

Since 2006, LMA territorial location has been 12 Flotes Street, Riga, Daugavgrīva. The territory with total land area 7,2 hectares hosts the main study building, study office with library, workshops and administrative building with total area of 15 000 m2, as well as Students' dormitories, employee hotels and sports ground. The advantage of LMA is its location- vicinity of port and active maritime transport areas as well as the concentration of resources in one place. During the reporting period, LMA has initiated and continued several infrastructure renovation works, for instance, the project of raising energy efficiency of administrative building has been completed.

LMA has been accredited in two study directions of higher eduction- "Engineering and metal processing, heat energy, heat engineering and mechanical -engineering" as well as "Transport services". The new study direction "Seafaring"was launched in May, 2023. LMA is implementing 10 study programs: the shortened and the first cycle professional higher education, including professional Bachelor's degree programs, as well professional Mater's and Doctor's degree study programs. The programms offered by LMA confirm to both European and Latvian labour market current demands, as well as to to the forecasts on the needs for qualified workforce in maritime transport sector in the next decade.In 2023, the total amount of students at LMA was 500, including the ones from abroad.

During the reporting period, the organizational structure of LMA has changed several times, at present LMA the implementation of study directions and programs is ensured by Ship

Management and Navigation Center and Marine Engineering Center, while support functions fall under the responsibility of study department, study center, study office, including library and others https://www.rtu.lv/lv/lja/par-mums-lja/strukturvienibas-3.

The personnel of 115 people have been working at LMA upon 30th of November, 2023. Around 2270 students have graduated from LMA having acquired higher professional maritime education, including 150 experts with Master's degree. The LMA graduates have stable jobs, the demand for them in both, the Latvian and internation shipping officers'and other maritime experts labour market is increasing. Simultaneously, there are structural units within LMA which along with the preparation of experts with higher education ensure the implementation of education corresponding to the needs of modern and future oriented market requirements. For instance, the study center, which ensures the life-long learning and qualification improvement for the emplyees in maritime sector according to international standards and secondary vocational educational establishment - Maritime school of Latvian Maritime Academy (hereinafter MS LMA) as a structural unit which prepares its students for maritime professions with secondary vocational education level. MS LMA is one of the two such profile secondary vocational schools in Latvia.

Along with the preparation of maritime experts, LMA is engaged in science and research work. In 2019 LMA acquired the status of scientific institution. Up till integration into RTU (01.11.2022.), there were 66 employees elected as a scientific personnel. LMA currently participates in numerous scientific projects, specific, sector-related solutions are offered after their completion, promoting the development of the sector as a whole. The invited academic personnel by LMA and students are involved in research work.

As an independent educational institute, LMA worked till the 1st of November, 2022, when following the resolution by the Cabinet of Ministers of 5th July, 2022 was integrated back to Riga Technical university as independent structural unit.

1.2. Description of the management structure of the higher education institution/ college, the main institutions involved in the decision-making process, their composition (percentage depending on the position, for instance, the academic staff, administrative staff members, students), and the powers of these institutions.

The structure and administration of RTU are established in compliance with the University vision, mission and objectives and taking into account the specifics of the University management. The administrative structure is based on a decentralized decision-making process and obligations arising from the Law on the Higher Education Institutions, the Constitution of RTU, resolutions of RTU Senate, the orders issued by the Rector, as well as other RTU documents. The functions of various organizational units have been approved in their regulations approved by the Senate.

On 16 August 2021, the amending laws to the Law on Higher Education Institutions entered into force, which envisages changes in the internal management model and the procedure for electing rector, as well as defines a new typology of higher education institutions, setting specific eligibility criteria for each type. According to the new typology, RTU corresponds to the status of a university of science. Changes in the Law on Higher Education Institutions are one of the most important steps to create a modern, effectively managed higher education system in Latvia, based on science and research, oriented towards excellence, being internationally competitive and stimulating the country's economic development.

In view of this, during RTU is continuing a change process. On 31 August 2021, the new regulations of the RTU Senate were approved, on 20 September 2021 the new RTU Senate was elected. The RTU's Council was established in March 2022, a new Constitutional Assembly and a new Constitution was adopted on 24 May 2022. From the management point of view, the changes included in the amendments to the law concern the election process of a rector, the appointment/ dismissal of deans, the establishment / reorganization of structural units based on the proposal of the rector, which now is decided by the order of RTU Council.

The council of the higher education institution is a collegial highest decision-making body responsible for the sustainable development, strategic and financial supervision of the university, but the senate will be responsible for the development of university's studies and scientific processes. The council must also ensure the operation of the state higher education institution in accordance with the goals set in its development strategy. The RTU Council consists of five representatives nominated by the RTU Senate, five external representatives of society or industry, who are not professionally related to the university, but whose presence allows the university to respond more flexibly to external changes and expand its strategic vision. The election of external representatives takes place in accordance with the regulations approved by the Cabinet, which ensures the transparency and political neutrality of the process. The council also has a representative nominated by the President of Latvia, thus facilitating strategical focus of the university according to development goals of the state.

Overall, RTU management can be divided into three levels: university level, administration level and faculty level.

At the University level, there is the Constitutional Assembly (200 representatives – 120 academic personnel representatives (60% of the total number), 40 student representatives (20% of the total number) and 40 general staff representatives (20% of the total number). The Assembly includes all 35 members of the RTU Senate, the other 165 members are elected by the central administration, faculties, and institutes that are not part of the faculties, study and science centres and the students' self-government in the amount to ensure proportional representation. The conditions for the formation of the Assembly are defined in Part II of the RTU Constitution (see the file of Annex 01 of the List of Internal regulations).

There are 35 senators in the Senate, of which 27 are representatives of the academic staff (not less than 75% of the representatives, including at least 14 professors or associate professors – not less than 50% of the total number of senators), seven students (not less than 20% of the total number of senators) and the Rector is a member of the Senate in accordance with the position. The conditions for the election of the representatives of the Senate are defined in the attached Article 7 of the Regulation of the Senate of RTU (see the file of Annex 02 of the List of Internal regulations).

RTU Scientific Council, which consists of Deputy Deans in for research, Vice-Rector for Research, Deputy Vice-Rector for Research; and representatives of doctoral students; the Rector, Vice-Rector for Academic Affairs, Vice- Rector for Strategic Development, Vice-Rector for Finance, and the Chair of the Senate also have the rights of membership of the Council.

At the level of administration, the operational management of the university is exercised by the Rector, whereas the Board of the Rector plays an advisory role in the adoption of such decisions, with the participation of the Rector, Chair of the Senate, Vice-Rectors, Administrative Director, Deputy Rector for Digital Transformation, Deputy Rector for International Academic Cooperation and Studies, Director of the Legal Department, Director of Infrastructure Development Department, President of the Student Parliament; the Deans Council comprising the Rector, Deans, directors of studies and research centres, Director of Riga Business School, Chair of the Senate, Vice-Rectors, Deputy Rector for International Academic Cooperation and Studies, Director of Infrastructure Development Department, President of the Student Parliament; operational management meetings uniting the Rector, Administrative Director, Deputy Vice-Rector for Research in Scientific Work, the heads of administrative departments (department directors, unit managers). At the faculty level, the highest decision-making bodies are faculty councils whose composition depends on the size of the faculty.

External partners and stakeholders are involved in the University management through the RTU Advisory Board (27 members). It provides an opportunity to receive independent opinion on

important issues and possible solutions from various perspectives. Each faculty also has its own Advisory Board, which provides its own vision for improving the supply of study programmes in line with sectoral needs and market trends.

Each faculty also has its own student self-government, while RTU Student Parliament coordinates faculty student self-governments. Students are represented in all RTU decision-making bodies and can therefore participate in the University strategic decision-making.

The Rector, Vice-Rector for Research, Vice-Rector for Academic Affairs, Vice-Rector for Finance and Vice-Rector for Strategic Development are the senior officials of RTU. The Rector implements the general administrative management of RTU and represents RTU without a specific mandate. The Rector is elected by the Constitutional Assembly for a period of five years for no more than two consecutive terms for the same person. The Rector is elected, approved in office and removed from office pursuant to the regulatory enactments governing higher education institutions.

The operational management of RTU is exercised independently, in accordance with the delegation of the Rector, by the Vice-Rector for Research, Vice-Rector for Academic Affairs, Vice-Rector for Strategic Development and Finance, Vice-Rector for Innovation. The Senate elects the Vice-Rector for Research, Vice-Rector for Academic Affairs, Vice-Rector for Strategic Development and Finance based on the recommendation of the Rector for the term of office of the Rector. The Rector may also delegate certain functions to other RTU officials and, on the basis of the Rector's proposal; other Vice-Rector positions may be created by a Senate decision.

The Vice-Rector for Research supervises and is responsible for Doctoral study programmes and research work, including support to young researchers, research infrastructure, research funding, applied research, intellectual property protection, RTU scientific publications and scientific conferences. The Vice-Rector for Academic Affairs supervises and is responsible for the study process at the Bachelor, Master, first and second-level professional study programmes, further education, including training programs, security and quality assurance in studies, credit points, determination of academic staff positions and workload, as well as the selection and admission of students. The Vice-Rector for Strategic Development and Finanace is responsible for the development strategy and its successful implementation, supervises the implementation of projects important for the development of RTU, and represents the interests of RTU in interaction with public authorities, partners and the public, for the financial management processes of RTU and for allocating and planning financial resources to ensure the functioning of RTU and implementation of the development strategy. The Vice-Rector for Innovation is responsible for proactive, clear and engaging cooperation with industry and partners, expansion of the ecosystem, involvement of academic staff and students in innovation value chains, including the creation of high-tech start-ups, as well as for the improvement of the support model and mechanisms for the involvement of students and staff in innovation in processes.

The accounting, study administration, science administration and human resources administration at the university are centralized. Other administrative processes, such as procurement and project management, are centralized to the extent necessary to avoid institutional risks. At the same time, a decentralized management system has been provided at a high level at RTU, with a certain degree of autonomy for each academic unit. This means they have their own budget and self - governing structure, which allows defining and meeting the objectives of the organizational unit. This approach motivates the heads of departments to be proactive, to plan the development of the unit, and to apply for funding.

RTU governance structure information is published at
https://www.rtu.lv/en/university/structure-and-administration.

1.3. Description of the mechanism for the implementation of the quality policy and the procedures for the assurance of the quality of higher education. Description of the stakeholders involved in the development and improvement of the quality assurance system and their role in these processes.

RTU has established an internal quality management system that respects the standards of Part 1 of the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG).

RTU internal quality management system works in line with the “Excellence approach” (approved on 30 January 2017 at the meeting of the RTU Senate, Minutes No 606), as well as the “RTU Quality Policy” (approved by the Senate on 25 September 2017, Minutes No 612).

The Quality Policy is focused on the implementation of the RTU mission and the achievement of the strategic objectives. The Quality Policy lays out the framework and pathways for development and improvements of the RTU Strategy, research, study process and organization. The University Quality Policy is aligned with the European Association for Quality Assurance in Higher Education (ENQA) standards and guidelines. The RTU Excellence Approach and quality policy are mutually integrated documents which require RTU to use the quality model of the European Foundation for Quality Management (EFQM). On 23 September 2022, RTU received an award – a four-star rating "Recognized by EFQM" after evaluating the quality management system implemented by the university. This recognition confirms that RTU has clearly defined the goals to be achieved in Latvia and abroad, is aware of and closely cooperates with partners in industry, the non-governmental and the governmental sector for the implementation of common goals, as well as has clearly visible trends of positive development and growth in the long term.

The EFQM quality model assumes cooperation with students , employees, partners, professional associations, student organizations, other higher education institutions, businesses and organizations. RTU maintains an open dialogue to explore the needs of the parties involved and to respond appropriately by developing feedback to day-to-day and long-term cooperation.

By establishing links with the stakeholders, the administration of RTU contributes to the development of excellence and ensures the clarity, unity, building of the work environment and diversity management of the objectives to be achieved.

RTU staff participates in quality assurance by providing suggestions and feedback to improve the RTU Quality Managemet System. The heads of RTU departments are responsible for carrying out internal quality assurance procedures and processes in their departments.

Based on the results of regular student and graduate surveys, improvements in the quality of the study process are being planned.

Cooperation with partners, suppliers and other stakeholders takes place in accordance with the RTU Strategy, establishing appropriate cooperation networks and identifying appropriate policies, activities and processes for effective cooperation aimed at ensuring the quality of the RTU activities and acquisition of feedback. To ensure the topicality and continuous development of existing study programmes and before the introduction of new study programmes the interests of all stakeholders in modern and interdisciplinary technology education are considered.

External stakeholders (public authorities, cooperation partners, representatives of the public) assess the study process and its results in State Examinations, practical placements (internships) and accreditation, and contribute to improving the content and quality of study programmes.

More on this point is set out in Section 2.1.1.

RTU Excellence Approach is published at https://www.rtu.lv/en/university/strategy/rtu-excellence-approach.

RTU Quality Policy in Latvian is published at https://www.rtu.lv/writable/public_files/RTU_quality_policy_of_rtu.pdf (Also added to the file of Annex 03 of the List Internal regulations).

1.4. Fill in the table on the compliance of the internal quality assurance system of the higher education institution/ college with the provisions of Section 5, Paragraph 2(1) of the Law on Higher Education Institutions by providing a justification for the given statement. In addition, it is also possible to refer to the respective chapter of the Self-Assessment Report, where the provided information serves as justification.

1.	The higher education institution/ college has established a policy and procedures for assuring the quality of higher education.	In line with the quality management system introduced by RTU, process analysis and improvement are ongoing. Performance indicators and feedback - the results of the stakeholder surveys are analysed. The quality report data are compiled after the end of the academic year. Annual agreements on the target study process performance indicators are signed with the faculties; the quality is assessed by analysing the achievement of the defined objectives relative to the plan. For more details, see the 5th row of this table.
2.	A mechanism for the creation and internal approval of the study programmes of the higher education institution/ college, as well as the supervision of their performance and periodic inspection thereof, has been developed.	The development of study programmes takes place in accordance with the “Procedure for the application, elaboration and amendment of the study programmes” (approved at the Meeting of RTU Senate on 26 April 2021, Minutes No 649). The departments and institutes implementing the study process, Faculty Councils, the Office of Vice-Rector for Academic Affairs, the Student Parliament and the Senate are involved in ensuring the internal study quality of RTU. These institutions carry out comprehensive assessment of the new study fields and study programmes, the changes to the study fields and programmes and the annual reports of the improvement of the study fields. At RTU, the operation of the internal quality assurance mechanism takes place at the level of the Rectorate, faculties, study fields and study programmes. At the level of the Rectorate, the internal study quality control of RTU is carried out by the Office of Vice-Rector for Academic Affairs. The Study Department performs: (1) the maintenance and control of the Study Programme Register, which involves control of the conformity of the study curriculum to the aims, tasks and learning outcomes of the study programme, as well as the control of changes; (2) maintenance and control of the Study Course Register, which involves control of the conformity of study course descriptions with the learning outcomes, as well as quality control of study course descriptions; (3) periodical student polling at the University level.

3.	The criteria, conditions, and procedures for the evaluation of students' results, which enable reassurance of the achievement of the intended learning outcomes, have been developed and made public.	The evaluation of learning outcomes takes place in accordance with the "Regulation on the Assessment of Learning Outcomes" (approved at the Meeting of RTU Senate on 30 May 2022, Minutes No 663) and "Regulation on Final Examinations at RTU" (approved at the Meeting of RTU Senate on 26 April 2021, Minutes No 649). Regulation on the Assessment of Learning Outcomes states that the process of evaluating study results includes formative and summative evaluation and regulates summative assessment for evaluation of the achieved study results in RTU study courses. This regulation determines the procedure for summative evaluation of study results achieved in RTU study courses. Regulation defines different types of assessments, rating scales, assessment planning and procedure, determination of the final rating, procedures for appeals, academic debt settling and how to improve academic performance. The procedure for evaluating the study results achieved at the end of the study programme are determined by the Regulations on Final Examinations, which regulates the procedure for organization and conduct of final examinations, general requirements for study graduation papers, final theses (graduation papers), as well as the procedure of development and presentation of study final theses graduation papers. Detailed requirements for study graduation papers final theses, methodological guidelines for development of study graduation papers final theses and the procedure of presentation, pursuant to the present Regulations, is developed by the unit in charge for the implementation of the relevant study program and approved by the relevant Faculty Council. These Regulations apply to studies of all types and levels, except for doctoral studies.

4.	Internal procedures and mechanisms for assuring the qualifications of the academic staff and the work quality have been developed.	In order to ensure the qualification and performance quality of academic staff, professional advancement needs are regularly assessed when evaluating the results. Professional advancement training modules are developed by collecting information from: (1) academic staff surveys on professional advancement needs once in two years; (2) analysis of student polling results; (3) cooperation with student self-governments; (4) world trends and good practices of other Latvian universities in the field of professional advancement of academic staff; (5) information provided by academic staff on professional advancement topics of interest; (6) proposals from the heads of academic units for professional advancement of academic staff. The Centre for Academic Excellence (CAE), a teaching and learning centre, was set up at the end of 2018; its aim is to develop a strategy for the professional advancement of academic staff, including in line with Article 16 of Cabinet Regulations No. 569. Other tasks of CAE are detailed in Section 3.5. Academic units organize regular or one-time professional advancement activities having assessed the need for professional training of academic staff. The units assess whether it is more appropriate to participate in a particular event for certain representatives of academic staff, all members of the unit or to invite also members from other units.

5.	The higher education institution/ college ensures the collection and analysis of the information on the study achievements of the students, employment of the graduates, satisfaction of the students with the study programme, efficiency of the work of the academic staff, the study funds available, and the disbursements thereof, as well as the key performance indicators of the higher education institution/ college.	Student expectations and satisfaction with the curriculum and study process are identified in sequential and planned surveys at all stages of study. Student surveys are organized in accordance with the Regulations on “Student Polling for Assessment of the Study Process” (approved by the resolution of RTU Vice-Rector for Academic Affairs No 02000-1.1-e/9 as of 1 February 2021). The aim of polling is to clarify the adaptation of first year students to the university system and the satisfaction of all students with the study process, lectures, and practical classes after each semester, the satisfaction of students with the services offered by the University, and the overall satisfaction of graduates with the study programme. The results of the surveys are available to academic staff, heads of organizational units and students in a summarized form. The survey results also directly summarize the effectiveness of academic staff's work, as students also have the opportunity to add their comments to surveys on teaching staff's work abilities and professionalism. The analysis of student success information is the responsibility of the specific unit implementing the study programme. Information regarding the success of students within the scope of study courses and the weighted average mark in general shall be available in RTU Study Management system. Annually, the State Revenue Service provides information on employment of RTU graduates. The total quality management system of RTU, which is based on the EFQM quality model, includes and ensures the analysis and comparison of performance indicators of the study process and study programmes. At the beginning of September of each year, a faculty Activity Plan on study process indicators is drawn up: (1) number of students; (2) number of graduates; (3) number of graduates who complete their studies on time; (4) number of students expelled from University; (5) number of foreign students; (6) average age of elected academic staff; (7) number of study programmes implemented in English; (8) average indicator of the evaluation of faculty academic staff; (9) number of persons with a scientific degree elected to academic positions (%); (10) number of foreign guest lecturers. The established Faculty Study Activity Plans for the following year are drawn up by Faculty Deans, together with Deputy Deans for Academic Affairs and institute directors; they are approved by the Rector of RTU. RTU administration meets with representatives of faculties to evaluate the faculty activity plans on study process indicators, evaluating the progress in the previous academic year and defining the indicators to be achieved in the next two academic years. These indicators are used to monitor study process performance of the faculty. These indicators and other aspects influence the amount of performance-based funding allocated to the faculty and contribute to the achievement of the objectives set forward in the RTU Strategy. The study process funds are administered in accordance with methodologies approved by the Senate or as stipulated by the Vice-Rector for Finance. Principles of the methodologies motivate the heads of departments to be proactive, to plan the development of the unit, and to apply for funding. These methodologies are described in more detail in section 2.3.1. of the self-assessment report.

6.	The higher education institution/ college shall ensure continuous improvement, development, and efficient performance of the study field whilst implementing their quality assurance systems.	At the level of the faculty and study field, internal quality is ensured by the Faculty Council, the Study field Committee and Directors of the study field, Directors of the study programmes, administration of the institutes and chairs implementing study programmes. Within the framework of the study programme, internal quality is ensured by the program director and by the academic staff implementing the program. Internal quality control at the level of the study programme is carried out by the administration of the relevant institute or chair. In order to ensure continuous development of the study programmes, RTU Study field Committees monitor academic activities in the relevant study field and are responsible for the curriculum and quality of the study programmes within the study field, including the accreditation of the study field. Inclusion of employer representatives in the study field Committee is a mandatory requirement. Study field Committee acts in accordance with the “Regulation of the Study field Committee” (approved by the Resolution of RTU Senate Meeting on 26 April 2021, Minutes No 649). The basic tasks of the Study field Committee are: (1) to analyse the situation in the labour market and make suggestions for the development of new study programmes as well as for the closure of the outdated study programmes; (2) to carry out expert assessment of the curriculum and quality of the study programmes, assess their compliance with the defined objectives and compliance with the research area represented and labour market requirements; (3) to organize and monitor the accreditation of the study field and the licensing of study programmes; (4) to analyse the assessment and recommendations made by external experts and organize elimination of identified shortcomings; (5) to carry out an analysis of the study field self-assessment report as well as the annual reports on study field development activities; (6) in order to achieve strategic objectives of the University, to assess the proposed changes to study programmes with a view to increasing the quality of all study programmes included in the study fields; (7) to analyse the results of student, graduate and employee surveys and organize elimination of identified shortcomings, as well as organize additional surveys.

2.1. Management of the Study Field

2.1.1. Aims of the study field and their compliance with the scope of activities of the higher education institution/ college, the strategic development fields, as well as the development needs of the society and the national economy. The assessment of the interrelation of the study field and the study programmes included in it.

The main objective of the study field "Seafaring" is to provide sustainable, multi-level, high-quality and globally recognised higher professional maritime education, providing the Latvian economy with academically educated and labour market-ready, competitive maritime specialists. The sub-objective of the study programme is to establish, maintain and develop multidisciplinary and sustainable research. In order to achieve the objectives of the study programme, the following tasks are and will be carried out:

- to prepare highly qualified ship's officers by providing them with the appropriate knowledge, skills and competences, in accordance with the International Maritime Organisation (IMO) STCW 78 operational and management level requirements;

- to prepare highly qualified specialists for the maritime sector by developing their ability to independently acquire, critically analyse and apply knowledge in solving actual tasks;
- to ensure continuity of studies in all programmes relevant to the study field, etc.

The tasks defined for the study field "Seafaring" form the basis of the development strategy of this study field. LMA provides higher professional maritime education, starting with undergraduate studies up to the doctoral study programme. This strategy is based on the fact that every student has the opportunity to acquire not only the theoretical and practical knowledge and skills necessary for a qualified officer position on a ship, but also the opportunity to focus on research and teaching in the maritime sector obtaining a PhD. This integrated approach fulfils several functions:

- it provides an opportunity for each student to develop his/her abilities and motivation for lifelong learning;
- it provides the opportunity to attract new teaching staff to study programmes;
- it enables research in the maritime sector.

All in all, the study programmes contribute to the development of applied science and to the maintenance of the necessary intellectual potential of the maritime sector of the Republic of Latvia and to its development.

It is evident that the aims and objectives of the study programme are fully in line with the scope, purpose and objectives of RTU LMA.

In accordance with the cooperation agreement No. 2-2e/22/392 "On the integration of the Latvian Maritime Academy into the structure of Riga Technical University" signed by the Ministry of Education and Science, RTU and LMA:

- LMA is being established and developed within RTU as the main internationally competitive maritime education and research centre in the Republic of Latvia;
- LMA provides higher education and further education in the field of seafaring, as well as implementation of professional education programmes for seafarers in accordance with the 1978 International Convention on Standards of Training and Certification of Seafarers and Watchkeeping (hereinafter - STCW Convention) and other regulatory enactments in the field of seafaring binding in the Republic of Latvia.

In turn, in accordance with the Statutes of RTU LMA, the aim of the activities of LMA is to ensure quality studies for higher education and professional qualification in the maritime sector and scientific research in the maritime sector in compliance with the laws and regulations of the Republic of Latvia and international laws and regulations binding in the Republic of Latvia, including ensuring compliance of maritime education with the requirements of the 1978 International Convention on the Training and Certification of Seafarers and on Watchkeeping (hereinafter - STCW), and the right for future Latvian seafarers to receive an internationally recognised Certificate of Competence. The main tasks set by RTU LMA to achieve the objective, such as:

- to implement high quality, internationally recognised study programmes in which students achieve the study outcomes set by the programme, as well as learn to critically perceive and creatively process information, think analytically, develop creative abilities and interest in lifelong learning;
- to carry out scientific activity, quality scientific research and valorisation, involving academic and scientific staff, as well as students of all study programmes implemented within RTU LMA, to participate in international, national and sectoral research programmes, and to contribute to technology transfer and innovation development in accordance with the scope of their activity;
- participate in basic and applied research competitions organised by the Latvian Council of Science and other research programmes funded by the State and the European Union, as well as implement cooperation with research and scientific organisations in Latvia and abroad;
- to cooperate with enterprises in Latvia and abroad;
- to ensure the development of the knowledge, skills and competences of the academic,

teaching and technical staff, and ensure the generational continuity and other tasks are fully in line with the activities to be carried out in order to achieve the objectives of the study field "Seafaring".

The study field "Seafaring" and its objectives fully correspond to the strategic development directions of RTU LMA and the development needs and tendencies of the Latvian society and economy.

In all areas of transport, the demand for professionals with expertise in the technological and technical support of transport systems will increase in the coming years. In the international division of labour, transport activity depends on the quality and efficiency of the development of external economic links for each country in the world. The most advanced technologies for the realisation of so-called multimodal and intermodal transport, which involves the use of all the main modes of transport (rail, road, sea, air and pipeline) in their optimal combination, play a particularly important role in modern transport systems. This is one of the most complex and demanding areas from a technical and technological point of view.

There is a growing demand for qualified officers in both the national and international ship officer labour market. The projected future demand for seafarers is influenced by the projected growth of the world fleet. At the beginning of 2021, the world merchant fleet had a capacity of 74 505 vessels (Data from BIMCO ICS Seafarer Workforce Report 2021). In the baseline scenario, the total fleet is projected to reach 79 282 vessels by the end of 2025. The shortage of ship officers is also assessed, as shown by the results of the Seafarers' Workforce Report 2021, the maritime labour market study of the last five years. The shortage of seafarers in the merchant fleet as of 2021 amounts to 26 240 people.

The relevance of the study field and study programmes to the strategic development directions, development needs of society and the economy from the point of view of the interests of Latvia are relevant, based on documents such as the National Development Plan (hereinafter NDP), which is aimed at achieving the vision contained in Latvia 2030.

NDP 2027 is available on: https://www.pkc.gov.lv/sites/default/files/inline-files/20200204_NAP_2021_2027_gala_redakcija_projekts_.pdf (in Latvian, the document has not been officially translated by the State Language Centre).

For example, NDP sets as a goal that by 2030 Latvia will be a prosperous country of active and responsible citizens. Everyone will feel safe and belong to Latvia, and everyone will be able to pursue their goals here. The strength of the nation will be rooted in inherited, learned and newly created cultural and spiritual values, in the richness of the Latvian language and knowledge of other languages. It will unite society to create new, diverse and unique values in the economy, science and culture, which will be appreciated, known and respected also outside Latvia. RTU LMA provides an opportunity to acquire an internationally recognised profession that is in demand and makes a significant contribution to the Latvian economy. LMA graduates are employed on board ships of the world's navies, where seafarers of mixed languages and nationalities work, raising the prestige of Latvian seafarers. Any seafarer can continue his/her studies after completing his/her profession and carry out lifelong learning opportunities by continuing his/her studies in Master's and PhD programmes, contributing to the development of science on national level.

The NDP objective defines that Riga will be an important cultural, tourism and business centre in Europe. To promote regional development, conditions will be created for the development of the economic potential of all regions and the reduction of socio-economic disparities, increasing internal and external competitiveness, as well as providing solutions appropriate to the specific characteristics of the territories for the development of population and a quality living environment, achieving a reduction in the regional GDP gap in the medium term. According to the leading seafarers' cruising company "Latvijas Kuģniecība - LSC", LMA graduates earn on average USD 4500 per month upon graduation and starting work on board ships, seafarers' remuneration depends on the type of ship and the salary policy of the company to which the ship belongs. As a Master, the average salary is USD 14300 per month. The average salary for a Chief Engineer is USD 14100 per month. The average salary of an electrical engineer is USD 7 400 per month.

The NDP aims at implementing the long-term concept paper "Latvia's Growth Model: People First", which sets out Latvia's people-centred growth. According to a 2019 study conducted by the Latvian Maritime Administration's Seafarers Register, merchant navy seafarers earn and bring into the country around €345 million a year working in the global fleet. This is a significant contribution to the Latvian economy. The 2019 Latvian Maritime Administration Seafarers' Register survey shows that 4/5 are captains and officers and only 1/5 are ratings. The average 12-month adjusted net remuneration of captains and senior officers was 6 times higher than the Latvian average. The monthly net remuneration of other officers was 3.64 times the national average. This shows how beneficial ships’ officers are to the Latvian economy.

https://www.izm.gov.lv/lv/viedas-specializacijas-strategija (in Latvian).

The Transport Development Guidelines of the Republic of Latvia (hereinafter referred to as TDG) report identifies meeting sustainable human mobility needs as one of the priorities for achieving the overall objective, while contributing to the economic growth of the country, including the development and accessibility of the business environment.

The TDG identify the following policy outcomes to be achieved:

- Improved mobility opportunities;
- Reduced GHG emissions from transport and improved environmental quality;
- Competitive transport and logistics infrastructure and services;
- Improved transport safety and security;
- Promoting innovation and training highly qualified professionals.

In maritime transport, the human factor - the professionalism and competence of seafarers - is a major focus. The importance of this is also reflected in the IMO's choice of a global maritime theme for 2021 - "Seafarers - the foundation of the future of maritime industry" - highlighting the need to raise awareness of the vital role of seafarers in world trade and to raise the profile of the maritime profession. The maritime profession has a long tradition in Latvia and is still in demand today. In terms of the number of seafarers in relation to the economically active population, Latvia ranks first in the European Union and first in the world. Latvia has at least one seafarer per 100 economically active inhabitants (2016).

The introduction of new technologies and digital solutions in maritime transport is increasing the demand for highly skilled labour. This is evidenced by trends in the international labour market. According to the Register of Seafarers and cruising companies, there is a steady demand for Latvian ship officers.

The quality of maritime education is assessed internationally: the International Maritime Organisation (IMO) inspects its compliance with the requirements of the International Convention on Standards of Training and Certification of Seafarers and Watchkeeping (STCW Convention) and the Code, and the European Maritime Safety Agency (EMSA) visits EU Member States to ensure that the relevant EU requirements are implemented in relation to the above IMO standards. Latvia is included in the IMO "White List", which is a confirmation that all the requirements of the STCW Convention and the Code binding for Latvia have been implemented and are being fully complied with. In the end of February 2017 European Maritime Safety Agency (EMSA) attend Latvia with aim to examine current seafarer education system and in particular EU directives involvement in practice was assessed.

At the beginning of 2023, 10,830 active seafarers (seafarers holding valid professional qualification documents) are registered in the Register of Seafarers of the Latvian Maritime Administration. https://www.lja.lv/news/latvija-registreti-10-830-aktivo-jurnieku (in Latvian).
71% of the registered seafarers are Latvian citizens, 23% are Latvian non-citizens and 6% are citizens of other countries.

Of the total number of Latvian seafarers, 9,895 or 91% are certified to work on board merchant vessels, while 935 seafarers are certified to work on board inland waterway or fishing fleet vessels. Data on seafarers' employment in recent years show that 59% of seafarers employed in the merchant fleet work on vessels registered in third countries, while 39% work on vessels flying the flag of the European Union, including 2% on vessels flying the flag of Latvia.

55% or 5,483 seafarers of the certified merchant seafarers are ship officers (2,573 shipmasters, 2,558 ship engineers, 352 electrical and refrigeration engineers) and 45% or 4,412 are ratings (2,173 deck crew seafarers, 1,120 engine room crew seafarers, 1,119 ship's service personnel).

The total number of registered active seafarers has decreased by 13% or 1646 seafarers over the last five years. The number of merchant navy officers has decreased by 4% or 227 ship officers. The largest decrease of 105 seafarers, or 23%, is in the number of electrical and refrigerating engineers, while the smallest decrease is in the number of ship's engineers, down by 26 engineers, or 1% of the number of engineers at the beginning of 2018. The number of ship managers has decreased by 96 seafarers or 4% compared to 2018. The number of ratings has decreased significantly, with an overall decrease of 1 332 seafarers or 23% compared to 2018 (509 fewer ratings on deck, 496 fewer ratings in the engine room and 317 fewer service staff). https://www.lja.lv/news/latvija-registreti-10-830-aktivo-jurnieku (in Latvian).

LMA graduates have job security. This is evidenced by graduate monitoring data compared to other higher education institutions in Latvia. https://www.izm.gov.lv/lv/media/11040/download

The graduates of Latvian Maritime Academy are employed not only on board ships, but also ashore, including in non-governmental organisations such as the Latvian Shipmasters Association, the National Latvian Seafarers Association, the Latvian Stevedoring Association, the Latvian

Cruising Association, etc.

According to the Latvian Maritime Administration Seafafers' Register, as of 27 September 2021, there are 55 registered seafarer manning companies in Latvia. The companies cooperate with leading shipowning companies in the world, e.g. VITOL - partner in Latvia is LSC; STOLT - partner in Latvia is LAPA, etc.

The close interrelation between the study field "Seafaring" and the study programmes included in it is evidenced by the titles of the corresponding study programmes, which clearly and unambiguously indicate their belonging to the maritime transport sector and the only study field in this sector in Latvia - "Seafaring". In line with one of the main objectives of the Bologna Declaration - to introduce the three-cycle degree system, the study programmes in the field of study "Seafaring" provide higher education studies at the appropriate level at RTU LMA - currently the only higher maritime education and research institution in Latvia. This means that each of the programmes makes a necessary contribution to the achievement of the aim of the Seafaring field - "To provide sustainable, multi-level, high quality and globally recognised higher professional maritime education, providing the Latvian economy with academically educated and labour market-ready, competitive maritime professionals". This also means that each of the programmes contributes to the fulfilment of the main objectives of the study field "Seafaring". For example, in order to fulfil the task "To ensure that the specific knowledge, skills and competences of LMA graduates meet the current and future needs of the maritime transport sector", the Master's study programme "Maritime Transport" pays special attention to, e.g., deepening and broadening students' knowledge of the situation in the sector and its development trends in the fields of maritime infrastructure, ship engineering and technology, etc., as well as enhancing knowledge, skills and competences in the fields of maritime digitalisation, problem solving, research and creative work, maritime and natural environment management, etc.

2.1.2. SWOT analysis of the study field with regard to the set aims by providing explanations on how the higher education institution/ college expects to eliminate/ improve weaknesses, prevent threats, and avail themselves of the given opportunities, etc. The assessment of the plan for the development of the study field for the next six years and the procedure of the elaboration thereof. In case there is no development plan elaborated or the aims/ objectives are set for a shorter period of time, information on the elaboration of the plan for the development of the study field for the next assessment period shall be provided.

In accordance with RTU LMA Strategy 2018-2023, RTU LMA sets overall, mid-term and short-term quality objectives and plans each academic year, as well as evaluates the implementation of the objectives set in the previous academic year. In addition, the annual RTU LMA Management Report includes a risk analysis, as well as monitoring and review of information on the context of RTU LMA's activities and the implementation of the study field "Seafaring" through a SWOT analysis, which allows for a focused presentation of achievements and highlighting challenges and is an important tool for achieving the objectives of the study field.

Strengths:

- RTU LMA is the only educational institution in Latvia that provides education and training of top-level maritime specialists;
- Very high employment rate of graduates (over 90% after graduation);
- High demand in the industry for RTU LMA graduates;
- Latvia is currently ranked first in the European Union in terms of the number of seafarers to the economically active population (data from Latvian Maritime Administration Seafarers' Register); https://www.lja.lv/news/latvija-registreti-12-125-aktivie-jurnieki) (in Latvian);
- Close and successful cooperation with employers, as well as Latvian and foreign companies (LMA students are provided with practice on board ships throughout the world's merchant fleet);
- Employers are involved in the study process from the very beginning of the studies (provision of practice, members of state examination committees, etc.);
- RTU LMA has the status of a scientific institution;
- Industry representatives and foreign guest lecturers are involved in the study process;
- In cooperation with the maritime transport sector, RTU LMA contributes to the improvement of professional development of staff in the sector (a strategically

important point for LMA - exchange of experience and improvement of qualification gives the opportunity to update teaching materials according to the latest industry requirements and trends);
- RTU LMA has established successful cooperation with Latvian and foreign universities and scientific institutions;
- Sparking interest of RTU LMA students to science and technology development.

Weaknesses:
- Inadequate remuneration, which hinders the attraction of highly qualified lecturers, guest lecturers from the industry (high, competitive remuneration levels in the professional maritime environment hinder the attraction of lecturers from the industry);
- Poor international scientific cooperation and visibility (RTU LMA was registered as a Scientific Institution in 2019 and has not yet achieved visibility, but international cooperation is still in the development stage);
- The number of students in some study programmes is relatively low, which threatens their sustainability and makes their implementation more expensive;
- Insufficient development of the RTU LMA Training Centre.

Opportunities:
- Increased participation in ERASMUS+ international exchange programmes;
- Development of cooperation with various Latvian and foreign institutions, including employers and employers' organisations;
- Promotion of RTU LMA international visibility and increase of scientific competence;
- Use of the latest technologies and solutions in the study process, improvement of the material and informational base, digitalization of teaching content;
- Improvement of the remuneration and motivation system;
- Continuous professional development of staff;
- Opening and introduction of new study programmes in line with labour market demand;
- More active involvement of students in scientific research and project implementation;
- Acquisition of European Union and other external funding for the implementation of RTU LMA objectives;
- Establishment of a lifelong learning and adult education system in the sector;
- Increased use of the modular training system;
- Extension of the Training Centre's offer of advanced training courses in line with the current needs of the sector.

Threats:
- Declining numbers of applicants due to demographic trends and emigration;
- Uneven, unpredictable and low public funding for higher education, including maritime education;
- Ageing of academic staff, generational change;
- Increase in attractiveness or competition from other professions;
- Weak knowledge of science subjects among applicants.

An important direction of RTU LMA activities in order to avoid threats and harness the existing opportunities, as well as to eliminate weaknesses, was the activities carried out by the Academy within the project "Information and Communication Technologies (ICT) platform for e-learning and management processes support at the Latvian Maritime Academy" of the European Union Funds Operational Programme "Growth and Employment", Specific Support Objective 8.2.3 "Ensuring better governance in higher education institutions". For example, within the framework of the project activity 1 "Analysis of the content of study programmes, assessment of the relevance to the needs of the development of the industry" the "Change management and implementation plan - for the modernisation of the offers of the LMA bachelor study programmes "Maritime Transport - Navigation", "Maritime Transport – Marine Engineering" and "Maritime Transport – Marine Electrical Automation" has been successfully developed and implemented for the improvement of other study programmes of LMA, including the Master study programme "Maritime Transport". 7 training courses have been implemented in the framework of the project Action 3 "Improvement of the competences of LMA management level staff":
- Course on Online Learning Development and Digitalization of Learning Content;
- Academic Integrity in Higher Education;
- Training on Administrative Efficiency;
- Quality Management of Studies in the European Higher Education Area;
- Financial Management. Financial sustainability of higher education institutions;
- Training on the application of eco-innovation, green workplace and green public procurement in the management processes of the institution;

- Cybersecurity.

The development of management staff competences has fostered a culture of change management at RTU LMA. For example, the training has contributed to a deeper understanding of the LMA management level staff and teaching staff of academic integrity in the modern study process, the benefits and risks of using electronic documents, the advantages of using e-signatures, the need for the development of online learning and the digitisation of learning content, etc.

Another important direction of RTU LMA activities in order to avoid threats and harness the existing opportunities, as well as to eliminate weaknesses were the activities carried out within the framework of the European Union Funds Operational Programme "Growth and Employment" Specific Support Objective 8.2.2 "To strengthen academic staff of higher education institutions in areas of strategic specialisation" within the framework of the LMA project "Measures to promote renewal, international cooperation and competence development of the academic staff of Latvian Maritime Academy". For example, the corresponding activities of the action "Measures to develop the competence of academic staff" were carried out in several directions:

- Maritime English training (37 academic staff trained);
- Internships in an industry-related organization (aimed at developing competences and improving the content of studies, including by contributing to the solution of topical problems in the sector through student research and familiarisation with the latest technologies used in the sector; 11 persons participated in the internship activities);
- Specialised training (11 topics covered, e.g. project management, communication and cooperation in managing a team in a digital environment, training on the use of e-tool CAD technologies in shipbuilding, etc.; 50 persons trained in total).

In order to promote international cooperation and the development of competences, foreign academic staff (10 guest lecturers) were involved in the training process within the framework of the activity "Provision of foreign academic staff"; cooperation with some of them is ongoing.
Other measures for the development of the study field, as well as for avoiding threats, harnessing the existing opportunities and eliminating weaknesses are provided in the Annex "RTU LMA Development Strategy 2023-2028".

2.1.3. The structure of the management of the study field and the relevant study programmes, and the analysis and assessment of the efficiency thereof, including the assessment of the role of the head of the study field and the heads of the study programmes, their responsibilities, and the cooperation with other heads of the study programmes, as well as the assessment of the support by the administrative and technical staff of the higher education institution/ college provided within the study field.

During the reporting period, the management structure of RTU LMA study fields and their respective programmes has changed several times in recent years. For a long time, RTU LMA had two academic units - the Department of Maritime Transport and the Department of Marine Engineering, which were transformed into the Faculties of Navigation and Ship Management and Marine Engineering, respectively, in September 2021.
Prior to joining RTU, internal quality control at the LMA level and the study field was ensured by the Vice-Rector of RTU or the Vice-Rector of Studies, whereas at the level of departments and faculties – the internal quality control was ensured by the department directors/deans of faculties, respectively. The quality of the study programme was ensured by the study programme director and the academic staff implementing the study programme, and monitored by the administration of the relevant division/faculty, but the quality of the Master's study programme "Maritime Transport" was ensured by the Vice-Rector/Vice-Rector for Studies. Support functions for the development and implementation of the study programmes were provided by the Study Department, the Study Centre and the Training Centre, as well as by the IT Team, the Quality Management Team, the Maritime Internship Planner, the Housekeeping Department and the Accounting Department.
Upon the incorporation of LMA into RTU, two centres, i.e. the Centre of Shipping Management and Navigation and the Marine Engineering Centre, were established replacing the above mentioned faculties, each centre containing two departments.

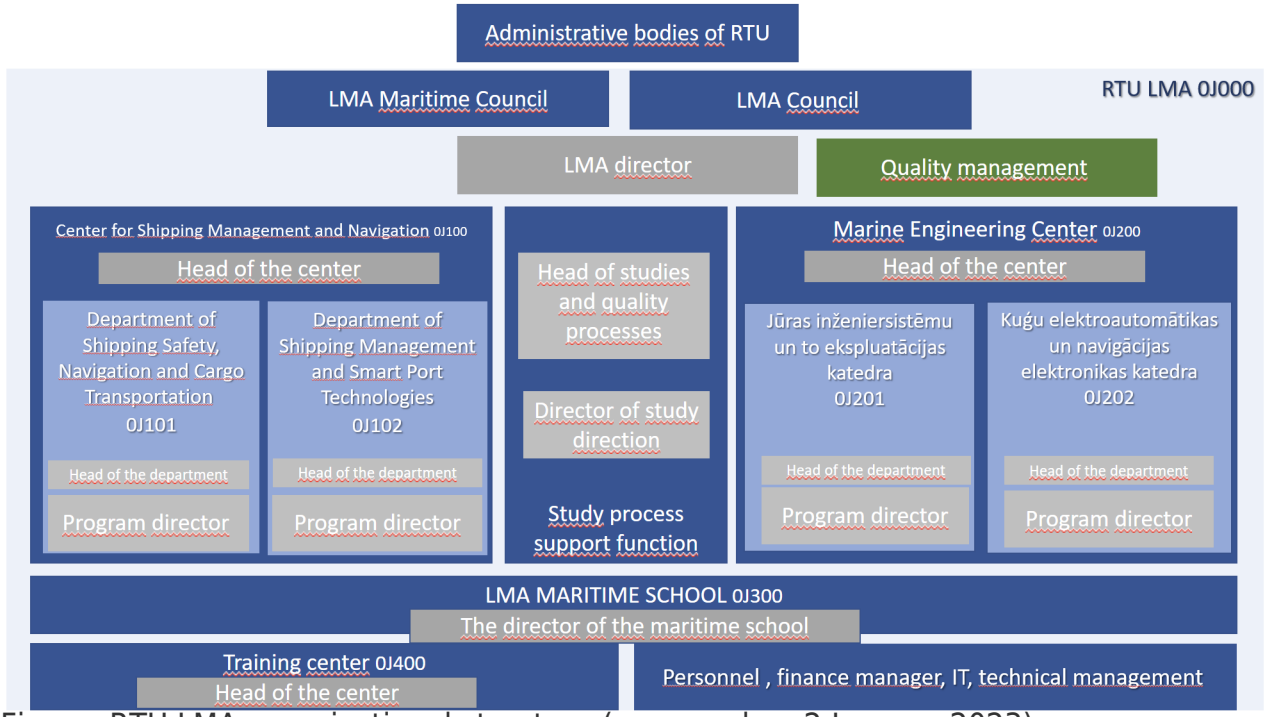

Figure. RTU LMA organizational structure (approved on 2 January 2023)

From 1 November 2023, internal quality control at the level of LMA and the field of study is ensured by the head of the field of study. The quality of the study programme is ensured by the study programme director and the academic staff implementing the study programme, and controlled by the administration of the relevant institute/centre or department. The annotations of the study programmes and the decriptions of study courses, methodological materials, the latest teaching literature and the methodological guidelines for study papers (reports, study papers, internship reports and final papers) are reviewed every year. Academic staff and study programme administration participate in various experience exchange events, cooperating with higher education institutions of other countries, meeting representatives of relevant institutions and entrepreneurs, as well as promoting mutual discussion of current developments in the field, students' research and projects, and analysis of their results. The duties and responsibilities of the programme director are described in the programme director's job description. The most important of duties and responsibilities are: managing the development of the study programme, improving the content of the study programme in accordance with the requirements of the scientific or economic sector, ensuring the quality of the implementation of the study programme, monitoring the development of study plans, promoting internationalisation, cooperation with the RTU Study Department, ensuring data entry in the information system, as well as with the university departments involved in the implementation of the study programme. RTU LMA administration continuously monitors the compliance of the premises and technical equipment with the modern quality requirements, creating appropriate lecture rooms with the necessary multimedia equipment. Support functions for the development and implementation of study programmes at RTU are provided by the Study Department. RTU Programme Management and Curriculum Design Unit plays an important role in the development of study programmes.

The Study Programme Committee includes the directors of all study programmes, senior lecturers, representatives of employers, and a student representative (see Annex "RTU Study Programme Governance Structure"). The structure indicates that the Study Field Commission oversees the activities of the study field by conducting an expert assessment of the content and quality of implementation of study programmes at the end of each academic year, assessing their compliance with the stated objectives of the study field, the requirements of the scientific field represented and the labour market, as well as taking into account the opinion of graduates and students on the quality of the programmes. Initially, the Study Field Committees make decisions on various types of issues, which are further approved by the faculty/RTU LMA Council, while further communication takes place with the Study Department, which prepares Senate drafts (based on both the Committee and Faculty/RTU LMA Council decisions) for consideration by the Senate Study Quality and Programme Committee, where the RTU Vice-Rector for Studies also participates and engages in discussion on the relevant issues. Once the Senate Committee on Quality of Studies and Programmes has reviewed and approved the project for consideration by the Senate, it advanced to the regular meeting of the RTU Senate.

RTU has established a stable system for the management and development of study programmes. Proposals for changes in study programmes are developed by the study programme committee, based on the recommendations of teaching staff, feedback from employers, Student Council, as well as the latest trends in the national economy and the labour market. The Study Programme Committee asks the faculty/RTU LMA Council to review and approve them. On the basis of the decision of the Council, changes in the field of study are promoted and approved by the RTU Senate. Changes in the structure of study programmes are approved by an order of the RTU Vice-Rector for Studies. Technical support of the study field is provided by the study programme administration as well as by the RTU IT Department. Such cooperation in the implementation of study programmes is considered to be effective and contributing to the development of the study field.
Improvement of the management structure of the RTU LMA study field "Seafaring" and the corresponding programmes and integration of LMA into the RTU ecosystem will enable LMA to increase the efficiency of the management of this study field and the study programmes involved.

2.1.4. Description and assessment of the requirements and the system for the admission of students by specifying, inter alia, the regulatory framework of the admission procedures and requirements. The assessment of options for the students to have their study period, professional experience, and the previously acquired formal and non-formal education recognised within the study field by providing specific examples of the application of these procedures.

In the reporting period until joining RTU on 1 November 2022 the admission procedure and requirements at LMA were regulated by the Quality Management Procedure P5 "Admission", Regulation No. 20 of 27 September 2004 "On Admission of Students and Learners to Latvian Maritime Academy and the Maritime School of the Latvian Maritime Academy" as amended, Regulation No. 7 of 24 February 2003 "On the Master's Degree Programme of Latvian Maritime Academy", as amended, and the annual Admission Rules, which were approved by the LMA Senate by 1 November of the previous academic year. The internal normative acts of LMA were created on the basis of the normative documents in force in the Republic of Latvia, which determined the procedure for the admission process in Latvian higher education institutions, as well as admission to the regulated specialities.
The historical documents can be consulted on the L:\KVS shared drive or in the OMARS e-learning environment: https://omars.latja.lv/login/index.php (Access to this data will be provided during the experts' visit to RTU LJA).
Admission to full-time studies was based on the following requirements: for professional bachelor study programmes - secondary or vocational secondary education, results of centralized examinations (in Latvian, mathematics and foreign language) and appropriate health condition; for first-level professional higher education study programmes (admission from academic year 2019/2020) - secondary professional maritime education (or vocational secondary education from academic year 2021/2022 for a tuition fee), results of centralized examinations (in Latvian, mathematics and foreign language), qualification exam results in specialty and appropriate health status; in the professional Master's study programme - relevant professional bachelor's or professional higher education, for graduates of comparable study programmes - fulfilment of the additional requirements.
For full-time admission, LMA applicants could apply by submitting their documents in person, except for foreigners, who could send their documents by e-mail to the email address: info@latja.lv. The main reason for submitting documents in person was that electronic registration via the common platform latvija.lv is a relatively expensive service, and by submitting documents in person the responsible secretary of the Admissions Committee could immediately check whether the documents had been submitted correctly, especially for seafarers' medical certificates as required by law.
The admission results were published on LMA website. On the basis of the decision of the Admissions Committee, the applicants sign a study contract within the time limit set by the Admissions Committee and were matriculated by the Rector's order. If an applicant who applied for a state-funded study place did not sign a study contract within the set deadline, the LMA Admissions Committee offered it to the next referee who was admitted to study for a tuition fee in the given study programme, according to his/her ranking.

Admission to the part-time study programme was based on the following requirements: for bachelor's degree programmes, secondary or vocational secondary education, appropriate health condition and a maritime passport (if required for the specialisation concerned); for first-level vocational higher education degree programmes - secondary vocational maritime education, appropriate health condition and a maritime passport; for second-level professional higher education study programmes: first-level professional higher maritime education diploma, appropriate health condition and maritime passport; for professional Master's study programmes: professional bachelor's or professional higher education diploma; for graduates of comparable study programmes: fulfilment of the additional requirements.
The admission procedure and requirements for part-time studies were regulated by the same procedure, regulations and rules as mentioned in the description for full-time studies, as well as by Regulation No. 16 of 29 March 2004 "On part-time studies at Latvian Maritime Academy".
On the basis of the decision of the Admissions Committee, within the deadline set by the Admissions Committee, applicants sign a contract for studies in the chosen part-time study programme at LMA and are matriculated by the Rector's order.

Recognition of formal education
Recognition of study courses is carried out on the basis of LMA regulations No. 6 of 24 April 2006 "On the Procedure for Starting Studies at Later Stages at Latvian Maritime Academy" and Procedure No. P6-1 "Organisation and Management of the Study Process" and its sub-procedures 6.3.6 "Recognition of Study Courses/Practice Completed at LMA or Another Higher Education Institution" and 6.3.7 "Recognition of Study Courses/Practice Completed during Mobility Abroad".

These documents can be consulted on the shared drive L:\KVS or in the e-learning environment https://omars.latja.lv/login/index.php (Access to this data will be provided during the experts' visit to RTU LJA)
In the reporting period, 692 applications were examined, 167 of which - for the recognition of study courses acquired in mobility abroad, mainly in the study programme "Port and Shipping Management", 309 for the recognition of study courses previously acquired in the same or equivalent study programme some time ago, 155 - for study courses acquired in another higher education institution and 61 - for study courses acquired in another LMA study programme.

Applicants/students, except those on mobility abroad within the ERASMUS+ programme, submit an application and attach an academic certificate or diploma for the previously completed higher education or part thereof. If the student/applicant has been a student at LMA, the academic certificate is not compulsory, as the recognition of studies is based on the personal file in the LMA archives. The LMA Committee for Recognition of Study Results examines each application and decides whether or not to recognise the specific courses of study. The recognition of formal education is a paid service. For those students who are on mobility abroad within the ERASMUS+ programme, there is no charge for this service.
See EXCEL file 2.1.4. in the appendix of the section (Dynamics 2013-2021).

Recognition of professional experience/formal learning acquired in the past
During the reporting period, 10 students have expressed their intention to benefit from the recognition of competences acquired outside formal education or through professional experience, therefore, at the Senate meeting on 2 March 2020, the LMA Regulation No. 56 "On Recognition of Competences Acquired Outside Formal Education or in Professional Experience at Latvian Maritime Academy", which is based on the Cabinet of Ministers Regulation No. 505 of 14 August 2018 "Regulations on Recognition of Competences Acquired Outside Formal Education or in Professional Experience and Study Results Achieved in Prior Education".
Applicants shall submit an application to the Study department and attach copies of the relevant documents, presenting the originals. The documents submitted by the applicants to the Study department shall be forwarded to the Recognition of Learning Achievements Committee for examination after payment of the service. The Board will decide on each application whether or not to recognise the knowledge, skills and competences acquired through professional experience/formal learning. In the reporting period, 6 positive decisions have been taken, mainly recognising knowledge and practical skills acquired in maritime practice, subject to the setting of a final test (test or examination) to assess overall knowledge, as well as decisions on the recognition of various maritime training courses completed previously within the framework of the study programmes.
Recognition of professional experience/informal learning acquired in the past is a paid service and currently costs EUR 95 per person.
Since 1 November 2022 RTU LMA implements the admission process and procedure developed by RTU, which is stipulated in the RTU Admission Regulations, which are

elaborated based on the Law on Higher Education Institutions and Cabinet Regulations No. 846 issued 10 October 2006 ''Regulations on Requirements, Criteria and Procedures for Enrolment in Study Programmes'', as well as the specific requirements of study programmes and the industry. The RTU Admission Regulations are approved by the RTU Senate and published on November 1 each year (see the files of Annex 29-35 of the List of Internal regulations).

Admission requirements are logical, understandable, and linked to the goals defined in the RTU Strategy. Admission system is state-of-the-art, easily accessible, logically structured, and is evolving in line with today's digitalization trends, providing the potential students with the convenient and easy to use application to university registration tool.
Applicants are admitted to full-time and part-time undergraduate programmes based on the results of the Centralized Examinations (CE) in Mathematics, the Latvian language and the Foreign Language, and the final grades in individual subjects obtained in the Secondary Education, and the entry test results. If, in addition to these CEs, the applicant has a CE in Physics or Chemistry, the results of these CEs are taken into account in the ranking calculation.
In order to participate in the competition for the state budget funded seats, the rating in Mathematics CE is calculated as the average value of all Mathematics CE rating sections and must be at least 15 percent. An applicant with a CE in mathematics of less than 15 percent may apply only for a tuition fee. Until year 2022 the CE rating minimal value was set at 12 percent.
To determine the candidate's rank in the competition, each CE rating, calculated as an average of all CE evaluation sections, and each entry test (if any applies) is multiplied by the appropriate weighting factor and the resulting multiplications are added together. Some study programme applicants must pass an entry test, the result of which shall be multiplied by an appropriate weighting factor and summed up in the total calculation of rank.

Persons, who have received secondary education prior to 2009 (including), as well as persons, who have received secondary education abroad, or persons, who were exempted from passing the secondary education state examinations in accordance with the procedure set by regulatory enactments, may be admitted to the study programmes based on their year grades in the secondary education document in the subjects mentioned in the RTU Admission Regulations, which must be successfully passed. In these cases, Latvian Maritime Academy offers entrance examinations in mathematics, Latvian and a foreign language. In general, the RTU Admission Regulations follow the Cabinet Regulations No. 846.
Persons who have completed secondary education and have not passed any of the CEs mentioned in the RTU Admission Regulations or have failed the year grade, shall pass the CE in accordance with the Cabinet Regulations No. 398 "Rules on the content and procedure for centralized examinations".
Persons who have not passed CE in Latvian and who do not meet the requirements of RTU Admission Regulations, shall pass the entrance examination in Latvian as prescribed by RTU. The result is evaluated in percentage.
In compliance with Cabinet Regulations No. 795 adopted on 20 December 2022 “Regulations on Replacement of the Foreign Language Centralized Examination in the General Secondary Education Program by Foreign Language Examinations Conducted by International Testing Institutions”, CE in the foreign language can be replaced with a foreign language examination conducted by an international testing institution the certificate of which must be presented to the RTU Admission Committee.
The applicants who have acquired a bachelor’s degree in a field relevant to the study programme are enrolled in the postgraduate study programmes. The applicants take part in the competition with a weighted average grade from the Bachelor or professional study programme records. The weighted average grade is calculated as the sum of all the grades received in each study course multiplied by the credit points acquired in the study programme and is divided by the total number of credit points within the study programme. If credit points are not verified, the number is calculated as the multiplication of the grades and contact hours obtained in each study course divided by the total number of contact hours.
In order to facilitate the admission process of applicants for studies at RTU, starting from the summer of 2020, the admission process was improved.
There are two ways to apply for the state budget funded seats in undergraduate study programmes:
- electronically in the Joint Enrolment Undergraduate Study Programme information system, using the e-service portal (https://www.latvija.lv). Given the spread of Covid-19, with the summer 2020 admission, secondary school graduates of the 2019/2020 school year can approve the electronic application remotely without arriving in person. If the secondary education was obtained abroad or until 2019/2020

school year, the applicants must confirm their electronic applications by arriving at the designated locations within the deadlines and presenting the originals of the required documents;

- by arriving at the RTU Admission Committee in person, presenting the originals of the required documents.

To apply for the state budget funded seats in the graduate study programmes RTU undergraduate study programme graduates can submit their applications online on RTU portal ORTUS. With the summer 2020 admission, also graduates of other Latvian state-accredited higher education institutions' undergraduate study programmes can submit applications electronically on the RTU website, or by visiting RTU Admission Committee.
Applicants who do not qualify for the state budget funded seats and applicants who have received their education outside Latvia, as well as in other specific cases, must appear in person at the RTU Admission Committee within the admission deadline, with the required documents.
In order to improve the RTU admission process and make it easier for applicants to apply for studies at RTU, with the summer admission of 2021, electronic application for studies for a fee has been introduced in undergraduate and higher level study programmes.

Recognition of previously acquired formal and non-formal education at RTU is carried out in accordance with the “Regulation on the Recognition of the “Courses Completed at Other Universities and RTU Study Programmes” (Resolution of RTU Vice-Rector for Academic Affairs No 02000-1.1/29 as of 4 April 2016) and the “Procedure for Recognition of Competencies Developed Outside Formal Education or From Professional Experience and Learning Outcomes Achieved in Previous Education at Riga Technical University” (approved at the Meeting of RTU Senate on 23 September 2019, Minutes No 632) (available at https://international.rtu.lv/study-regulations

RTU admission rules are published on: https://www.rtu.lv/lv/studijas/uznemsana/uznemsanas-noteikumi (in Latvian, for local students) and http://fsd.rtu.lv/ (in English, for international and exchange students).

2.1.5. Assessment of the methods and procedures for the evaluation of students’ achievements, as well as the principles of their selection and the analysis of the compliance of the evaluation methods and procedures with the aims of the study programmes and the needs of the students.

Assessment of student learning outcomes is carried out in accordance with the “Regulation on the Assessment of Learning Outcomes” (approved at the Meeting of RTU Senate on 30 May 2022, Minutes No 633), which is available on Studies Regulations page of RTU web page (https://www.rtu.lv/writable/public_files/RTU_5.4._7.4.studiju_rezultatu_vertesanas_nolikums_2022.pdf (in Latvian); the English translation is in the file of Annex 04 of the List of Internal regulations). Summative assessment system is used in appraisal of student achievements, it implies that the final grade is composed of numerous components.

In the study course descriptions of the study programme there is a set of relevant knowledge, skills and competences and their evaluation system, defined learning outcomes for the achievement of which credit points are awarded.
Pedagogical methods used in the implementation of study courses, as well as assessment forms and methods are selected by the instructors responsible for the study courses in compliance with course curriculum and specifics of the programme, as well as student needs. A member of academic staff should inform students about particular assessment criteria at the fist lecture/practical class.
The main advantage of the summative assessment system is that the final grade is made up of several components. Therefore, the students may contribute to their final grade working during semester. Criteria for assessment of the study courses and individual/home tasks are published on ORTUS e-study system beforehand. During semester, the assessment for each home task, test, report, presentation and any other task is ascribed certain weight in the final grade. Exam grade may not exceed 50% of the final grade. Academic staff may take into consideration and also assess student

attendance. Assessment structure for the study course is determined by the academic staff themselves, abiding the resolution of RTU Senate that the exam grade may not contribute more than 50% to the final grade. Selecting assessment criteria and methods for evaluation of student achievements, specifics of each study programme and learning outcomes are taken into consideration.

In order to advance professional pedagogical competences of the academic staff, courses and seminars on the newest pedagogical methods are organized regularly. Qualification advancement is provided at both the University and faculty level, organizing academic conferences and methodological seminars. The Centre for Academic Excellence has been established and successfully operates at RTU; it organizes various events aimed at professional advancement of academic personnel at the University level.
(In addition, see the description of each study programme).

During the reporting period, until joining RTU, the methods and procedures used in the assessment of student achievements at LMA were practically the same as those described above in this paragraph and are defined by the LMA's internal regulations:
- Regulation No. 10 of 31 March 2003 "On semester examinations at Latvian Maritime Academy";

- LMA Procedure P6-4 "Semester Tests";

- Study course descriptions.

The summative assessment system was introduced at LMA in the academic year 2014/2015, at the same time establishing stricter assessment criteria and methods, and the new course descriptions with expanded sections "Tasks and organisation of students' independent work" and "Planned study outcomes and their assessment criteria" - in the academic year 2020/2021. The choice of criteria and methods for the assessment of study achievements takes into account the specific nature of each study programme and the objectives to be achieved, as well as the students' needs.

2.1.6. Description and assessment of the academic integrity principles, the mechanisms for compliance with these principles, and the way in which the stakeholders are informed. Specify the plagiarism detection tools used by providing examples of the use of these tools and mechanisms.

As of 2019, RTU LMA has developed and integrated into the QMS a number of internal normative documents aimed at strengthening the academic culture and academic integrity in the RTU LMA academic environment. These documents explain the principles of academic integrity and the actions related thereto, list the most frequent violations of the principles of academic integrity in the academic environment and the responsibilities of RTU LMA staff to prevent academic dishonesty. Following the reorganisation of the LMA and its incorporation into the RTU infrastructure, some of these normative documents have become obsolete as of 1 November 2022. In addition to the RTU regulatory documents, 2 LMA internal regulatory documents remain valid in the area of academic integrity:

- Regulation No.5 "On the internal procedure of LMA in the study work", which provides the definition of copyright infringement and determines the LMA's actions in case of plagiarism;
- Sub-procedure 6.3.5 "Detection of copyright infringements" of the LMA Procedure No P6-1 "Organisation and Management of the Study Process".

The documents regulating the academic integrity of the LASE are available at: http://www.latja.lv/lja-kvs/ (in Latvian), shared L:\ drive and e-learning environment platform OMARS and RTU study platform ORTUS.

Until 2020, RTU LMA used plag.lv for plagiarism control, but from 2020 RTU LMA has joined the Unified Computer-based Plagiarism Control System (UCPPS), which aims to check the originality of the content of final theses. At the time of joining RTU, 19 Latvian universities and colleges had already joined this plagiarism control system, and the total number of final study papers in the system was approaching 80,000.

After the integration into RTU, LMA is already using other opportunities offered by RTU, which are significantly more extensive and will allow LMA to further improve the mechanism of implementation and compliance with the principles of academic integrity, for example, the control for plagiarism in 2022 final papers, LMA has already partially used the RTU tool TurnitIn® for correcting and preventing plagiarism.

Since 2010 all students that gradate from any RTU study programme should upload electronic versions of their graduation papers in ORTUS portal in order to improve the quality of graduation papers, create a bibliographic database of the graduation papers and introduce an automated control system for detecting plagiarism. RTU uses two major plagiarism control tools in the study process:

1. Since 2015 graduation papers of study programmes of the study field have been checked in the joint computerised plagiarism control system (JCPCS), which unites numerous Latvian universities and colleges. RTU uses the system in cooperation with the University of Latvia. This system is used to check graduation papers after their uploading to the ORTUS environment. JCPCS complements and extends plagiarism identification opportunities.
2. Starting from 20 December 2017, RTU has been exploiting TurnitIn®, the world's leading tool for the correction of written papers and combating plagiarism that is used daily by millions of students and academics around the world. TurnitIn® tool is integrated with RTU ORTUS e-study system and provides full service of submitting, correcting, verifying the originality (plagiarism) and return of the submitted papers. TurnitIn® offers two main platforms: a platform that automatically checks for the percentage of non-genuine content (plagiarism) and a platform that allows to electronically correct the submitted papers. This tool is used to check all the electronic versions of graduation papers submitted for defence and further control measures are operatively implemented for potential plagiarism detection.

Graduation papers are checked in both systems in parallel, thus using the advantages of both systems. The developed Doctoral Theses are in a similar way controlled with extreme scrutiny. Since 2005, the Code of Ethics of RTU Students, Academic Personnel and Staff has been effective at RTU (see the file of Annex 19 of the List of Internal regulations). Academic Integrity Code, approved at the RTU Senate meeting of 29 February 2016. The aim of the Academic Integrity Code is to strengthen academic culture and integrity in the academic environment of RTU, to explain the concept of academic integrity and related actions, to define main procedures in examination of academic fairness violations (in Latvian available at https://www.rtu.lv/writable/public_files/RTU_rtu_studiju_reglaments_7.1.1.4..pdf, English translation is in the file of Annex 38 of the List of Internal regulations).
There are procedures defined, how the report on the violation of the student's academic integrity is filled, registered, reviewed, and appealed. Informing and educating students about the aspects of academic integrity takes place both within the study courses and in specially organized seminars.
Both students and academic staff have access to the book "Glossary for Academic Integrity" published by RTU publishing house (available at http://www.academicintegrity.eu/wp/glossary/).
In addition, RTU participates in different initiatives that bring forward and solve academic integrity related issues. RTU is a member and one of the founders of the European Network for Academic Integrity (ENAI), where it is involved in active work sharing experience, keeping updated about academic integrity related issues, and organizing conferences. The Dictionary of Academic Integrity Terms and Guidelines is one of the newest aids that has been developed and published by RTU Press. In the framework of Specific Support Objective (SSO) 8.2.3 of the project "Development of Efficient Management of Riga Technical University", RTU, in cooperation with the University of Latvia (UL) and Rīga Stradiņš University, develops educational aids, as well as participates in the establishment of the Latvian national academic integrity organization and development of plagiarism control tools.
The organisational units implementing the study programme have developed a control mechanism, i.e., the initial check is performed in the process of interim assessment, which is performed by the work of the Advisory Examination Commission. When the student comes to these examinations, he or she should submit the electronic version of the performed work and the paper is checked in free plagiarism control tools in presence of the student. When students draft their graduation papers, they are instructed about plagiarism and its consequences several times. Methodological materials contain detailed instructions on correct presentation of references. This process allows to reduce plagiarism and highlights faults in the student's paper, which needs to be rectified. The generally accepted "good practices" show that more attention should be paid to the papers showing 20 percent or more matches. A message is received from the system, when the match level is higher than 20%. The papers are examined, reasons of matches in the text are evaluated and a decision is

made whether the student should be allowed to defend his or her thesis.

2.2. Efficiency of the Internal Quality Assurance System

2.2.1. Assessment of the efficiency of the internal quality assurance system within the study field by specifying the measures undertaken to achieve the aims and outcomes of the study programmes and to ensure continuous improvement, development, and efficient performance of the study field and the relevant study programmes.

The internal quality assurance system of LMA is based on external quality requirements set by International Convention on seamen's training, certification and watchkeeping standards STCW, the standards of Europe's Higher education area (ESG) of its 1st part " Standards and guidelines for assurance of internal quality", the Article 5, part 2.1 of the Law on Higher Educational Establishments of the Republic of Latvia, Quality management systems' requirements in compliance with ISO 9000:2015 standard.

Up till 2023, according to the strategy for 2019-2023 of Latvian Maritime Academy the policy of quality was directed towards achieving the mission of LMA and its strategic goals- the increasing the quality of research work, internationalization, mobility, personnel development, promoting the cooperation with social partners and society. As for 2023, according to LMA of RTU strategy for 2023-2027, LMA quality policy is tended towards LMA mission completion and achieving the strategic goals, which are implemented on the faculty and the structural unit level: outstanding science, qualitative studies, sustainable valorization and institutional excellency. The strategic tasks of LMA are set within the context of RTU Strategy and defined objectives of RTU Development program.

To ensure the achievement of LMA study programs' goals and results, constant improvement of study direction and subsequent study programs, development and performance efficiency, the internal quality assurance system is being implemented by use of the following tools:

1. Annual management reports. The management report in LMA is prepared and discussed once in academic year in Senate of LMA. The management report includes the analysis of: the context of LMA and the insight into understanding of stakeholders' needs and desires, clients satisfaction and feedback from respective stakeholders, quality policy and goals, process performance and the relevance of LMA services, the results of external and internal audits, non-conformities detected and corrective actions implemented, the results of monitoring and measurements, performance of external suppliers, resources of LMA, and the efficiency of risk and opportunity management activities. The quality manager in Management Report analyses annual reports submitted by faculties and structural units about results of academic year, and in the Senate of LMA (LMA Council after reorganization) the appropriate decisions were taken on the proposed activities in the sphere of quality management for the next period of reference, i.e., the next academic year.

1. The external and internal audit of LMA. Internal audit takes place every year within the framework of academic year, through auditing of structural units according to the annual audit program. The audit is performed by a group of internal auditors. The external audit of LMA Quality Management System on annual basis is regularly carried out by DNV GL Latvia SIA. For its part, the Seaman's Register of VSIA "Latvian Maritime Administration" every year performs the evaluation of study and teaching programs. European Maritime Safety Agency (EMSA) delegated by European Commission performs the audit of system of professional certification and preparation of Latvian seafarers with the goal of evaluating system's compliance with the requirements of Directive 2008/106/EK. Responsible employees within a framework of academic year submit the report about the procedure of each of the internal and external audits, which is included in annual Management Report of

LMA.

1. Annual self-assessment reports of study directions (and programs). Annual self-assessment reports of study directions (and programs) are devised according to Guidelines of Agency of Higher Education Quality (AIKA) at the beginning of respective academic year about the previous one. The reports are prepared by program directors, which are discussed and approved by the Senate of LMA (Council after the reorganization).

1. The survey of clients' satisfaction and result analysis. To survey the satisfaction of LMA clients and other stakeholders LMA is mainly carrying out different inquiries: student surveys on certain study courses, surveys on information provision by students, graduate surveys, cadet surveys, ERASMUS+ mobility surveys, employers and /or sea service providers surveys, student surveys about sea service places, employee surveys, Science Council of LMA surveys and others. The responsible employees submit reports about every survey within academic year, with the results of which responsible LMA employees are acquainted and if deemed necessary, the corrective and preventative actions are taken. Besides surveys, other forms of determining stakeholder satisfaction are used as well, for instance, quite important are the references provided by state examination commissions. The report of survey results and information about other received references are included in an annual LMA Management report.

1. Every academic year the quality goals were approved by the Senate of LMA, and hence, the goals of LMA faculties and structural units, according to the defined goals of strategic development plan of LMA. The responsible employees submit the report to the Senate of LMA about the results achieved by strategic plan (Council after the reorganization). The heads of faculties and structural units submit reports on studies and scientific activities to the rector of LMA (director of LMA after LMA reorganization) and the Science Council. In such a way, the transparency of the resource (personnel, infrastructure and financial) planning at LMA is ensured.

1. Internal quality assurance system envisages the provision of principles of academic fairness among students and personnel, that includes impartiality, accountability, mutual respect and trust, which excludes misleading and deception and contributes to the prestige and quality of science and education of Latvia. The environment that rejects any kind of discrimination towards the employees and students is established within LMA.

Several criteria are used that approve the efficiency of internal quality assurance of the study direction and achievement of goals.

One of them is the positive acknowledgement of the audit by European Maritime Safety Agency about the system of professional preparation and certification of Latvian seafarers. During the visit to LMA, the quality management system, the program content of seafarers' professional preparation and implementation, as well as academic personnel and teaching aids- the equipment of laboratories and workshops, simulators etc. International Maritime Organization (IMO) has already recognized full compliance of the system for professional preparation and certification of Latvian seafarers with STCW convention requirements, hereby repeatedly certifying its affiliation with the "White List", providing unlimited opportunities for Latvian seafarers into international labor market- to work for the world's largest shipping companies on any type of foreign flag ships (available only in Latvian: https://www.lja.lv/en/node/488).

The second criteria that proves the effectiveness and goal achievement of internal quality assurance system of the study direction is the cooperation with maritime non-governmental organizations and cooperation partners, such as Latvian Ships Captains' Association, Latvian Maritime Union, Seafarers' Trade Union of Latvian Merchan Fleet, Latvian Ships Owners' Association, employers' and crewing organizations (LCS Group, LAPA, Baltic Crew, LAT BGI, Baltic Shipping Services and others). More than 90% of maritime educational institutions graduates work in their profession. Employers positively evaluate the preparedness of LMA graduates where in the scale of 10 points the average indicator is 7.05 (available only in Latvian: https://www.lja.lv/sites/default/files/page_attachments/Jurnieks_2021-05_compressed.pdf pages 2 - 6

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The third criteria that proves the effectiveness and goal achievement of internal quality assurance system of the study direction is that this report represents the survey results of students, graduates and employers and their analysis. Several activities for constant study program analysis and updating have been implemented, including cooperation with employers and supervising organizations, student surveys about the quality of study courses and the organization of study process, questionnaires for students and graduates about the quality of study programs. At the core of the quality assurance is active international cooperation with similar study programs abroad, the involvement of employers and supervisory organizations into study course design, participation in evaluation of students' performance throughout study process, graduation paper / graduation project preparation, provision of practical research and others.

Cooperation is ensured among the teachers involved in the implementation of study course direction, including the mutual assessment teaching staff (hosting practice) and regular assessment of teaching staff in faculties (individual plan). Teaching staff share mutual experience and inform colleagues about novelties at regular faculty meetings (LMA centers after reorganization) which are applied during the study course realization. Through consultations with graduates and professional representatives their views on the novelties of practical content are considered which are to be integrated into study process, for instance, the changes in the systems of ships' exploitation and provision of navigation.

2.2.2. Analysis and assessment of the system and the procedures for the development and review of the study programmes by providing specific examples of the review of the study programmes, the aims, and regularity, as well as the stakeholders and their responsibilities. If, during the reporting period, new study programmes have been developed within the study field, describe the procedures of their development (including the process of the approval of study programmes).

During the reporting period, the process of development and revision of study programmes was implemented in accordance with the RTU LMA procedure P4 "Development and maintenance of basic documents for study and training courses", which includes four interrelated sub-procedures: P4-1 "Development of Study Programmes", P4-2 "Development of Study Plans", P4-3 "Development of Course Documents" and P4-4 "Maintenance of Course Documents", which specifies in detail the sequence of actions, the responsible LMA departments/institutions and persons for each action, as well as the binding QMS documentation.
Based on the RTU LMA procedure P4 "Development and maintenance of basic documents for studies and courses", two new study programmes were developed and licensed/accredited in the reporting period: a joint professional bachelor study programme "Ship Navigation Electronics" and an academic doctoral study programme "Maritime Transport". Unfortunately, both of these programmes are not included in the application for accreditation of the study field "Seafaring".
The programmes are reviewed on the basis of the recommendations of LMA students and academic staff, international and national experts and auditors, as well as employers and professional organisations, always taking into account the current needs of the maritime transport sector.
During the reporting period, within the framework of SAM 8.2.3 project activity 1 "Analysis of the content of study programmes, assessment of their relevance to the development needs of the sector", 3 professional bachelor study programmes have been improved: „Maritime Transport – Navigation", „Maritime Transport – Marine Engineering" and „Maritime Transport – Marine Electrical Automation".
The research and forecasting of human resource development needs and skills in the maritime sector carried out under the SAM 8.2.3 project has resulted in the identification of 8 key current needs and an equal number of future needs. In order to meet these needs and taking into account international trends in the development of study offer, 6 key areas for improvement have been identified for the modernisation of the study offer of the above-mentioned LMA study programmes, and according to the importance of the contribution of each area to meeting the specific needs of the sector, one or more key actions for change have been identified in each area, e.g. 16 actions in the area of study content and delivery, 16 actions in the area of study resources and provision, 6 in the area of linking scientific research to the study process and student involvement, etc. The most significant changes are planned/implemented in the areas

of "Study content and implementation" and "Study resources and provision", e.g., several new study courses such as "Maritime Innovation", "Cyber Security in Maritime Transport", etc. have already been introduced; the number of foreign specialists involved in the academic and research activities of LMA has increased significantly; the activities carried out under the project have also contributed significantly to the systemic development of the infrastructure and the upgrading and modernisation of the material and technical base, as well as the acquisition of specialised software and related digital devices, etc.
Within the framework of the SAM 8.2.3 project, the involvement of the maritime sector in the development of the content of study programmes has mainly taken the following forms:
- the work of high-level maritime professionals in several expert focus groups;

- participation of high-level maritime professionals in 2 think-tanks - peer learning events on innovation and alignment of educational content to the development needs of the sector;

- participation in a survey of maritime stakeholders (employers, etc., 29 in total);

- participation of the maritime sector in the peer review of the activities carried out within the project and the results obtained;

- the survey of maritime professionals carried out in the framework of the project and the study and forecasting of human resources development needs and skills in the maritime sector.

Overall, the involvement and commitment of the maritime sector in the review and development of the curricula and content of the project has been supportive and appreciated.
The "Change Management and Implementation Plan - Modernisation of the LMA Bachelor Degree Programmes Maritime Transport - Navigation, Maritime Transport – Marine Engineering and Maritime Transport – Marine Electrical Automation" developed as a result of the project research has been successfully used for the development of other LMA study programmes including the Master Degree Programme „Maritime Transport”.

Study programme development and revision processes are regulated according to the "Procedure for Application, Elaboration and Amendment of the Study Programmes" (published at RTU_studiju_reglaments_4.6._programmu_izstradasanas_kartiba.pdf (in Latvian); the English translation is in the file of Annex 06 of the Internal regulations), which in detail specify activity sequence and parties involved, starting with drawing up an application for new study programme elaboration and finishing with study programme closure. Procedures are reconciled with the effective national regulatory enactments pertaining to study programme licensing and amendment.
Revision of the study programme curriculum is the responsibility of the Study field Committee. The responsibilities and activities of the committees are regulated by the “Regulation on the Study field Committee” (approved at the RTU Senate on 26 April 2021, Minutes No 649; published at RTU_studiju_reglaments_4.7._studiju_virziena_komisijas_nolikums.pdf, (in Latvian); the English translation is in the file of Annex 07 of the List of Internal regulations).
Expert assessment of the study programme is performed by the Study field Committee, then – by the Faculty Council, LMA Council or the councils of several faculties involved. The expert assessment procedure is finalized by the Study Department. The Study field Committee evaluates the quality of the draft study programme and the compliance of its curriculum to the planned aims and tasks.

2.2.3. Description of the procedures and/or systems according to which the students are expected to submit complaints and proposals (except for the surveys to be conducted among the students). Specify whether and how the students have access to the information on the possibilities to submit complaints and proposals and how the outcomes of the examination of the complaints and proposals and the improvements of the study field and the relevant study programmes are communicated by providing the respective

examples.

During the reporting period, until joining RTU, the process of handling complaints and proposals of students was defined in the LMA procedure P1-6 "Procedure for handling complaints and proposals" (available on LMA shared disk "L:\KVS\2_Documented procedures manual\Procedures list" or e-learning environmēnt OMARS: https://omars.latja.lv/login/index.php) Access to this data will be provided during the experts' visit to RTU LMA.
Once the complaint or appeal has been registered in the LMA internal document information system, a case manager has been identified. The decision taken was communicated in writing to the complainant or appellant. If the decision did not satisfy the applicant, he or she had the right to appeal to the Academic Arbitration Tribunal or another body, while the LMA took corrective and remedial action, if necessary, in accordance with LMA processes.
A number of appeals/complaints have been received and heard during the reporting period 2013-2023:
- In 2013, a 5th year student of the study programme "Maritime Transport - Navigation" submitted an appeal to the LMA Registry. The complaint concerned the evaluation of the state examination "Comprehensive examination in specialisation". The Appeal Committee was established to examine the appeal, which assessed the student's performance in the state exam and decided that the appeal should be rejected, as the state exam was assessed correctly and the appeal was unfounded. After considering the arguments of the Board, the appellant agreed with this decision;

- In 2018, a 5th year student of the study programme "Port and Shipping Management" submitted an appeal in the form of a complaint concerning the assessment of the defended diploma thesis. An Appeal Committee was established to examine the appeal. Decision of the Appeals Board: dismiss the appeal as unfounded. After consideration of the arguments put forward by the Committee, the appellant agreed with this decision. Secondary decision of the Appeals Board: to improve the procedure for P7 "State Exams" so that it is properly interpreted;

- On 9 July 2021, a student in the 1st year of the study programme "Navigation" submitted a complaint concerning the research paper in "Transport Economics". The complaint was referred to the Maritime Transport department in cooperation with the Study department. The Study department requested an explanation from the lecturer, collected and analysed the evidence submitted and, together with the HR and Legal Department, prepared a written reply to the student, rejecting his allegations that the lecturer had violated LMA test week and examination session principles. Following the response, the student did not refer the matter to the Academic Arbitration Court or any other body;

- On 6 October 2021, a 1st year student of the study programme "Maritime Transport – Marine Engineering" submitted an application to attend face-to-face classes after 10.10.2021 without a Covid certificate, based on the recommendation of a general practitioner. The application was forwarded to the Study department for consideration. The Study department explored the current normative regulations concerning epidemiological safety measures to limit the spread of Covid-19 infection and prepared a written reply to the student, stating that the current normative framework does not provide for situations in which a medical consensus could decide that a person cannot be vaccinated at all, and that after 15 November 2021 the student would not be able to attend classes at all, inviting the student to use the e-learning environment OMARS: https://omars.latja.lv/login/index.php (Access to this data will be provided during the experts' visit to RTU LJA) and individual/remote consultations with lecturers. After receiving the answer, the student has not contacted LMA Academic Arbitration Office or any other body again;

- In 2022, LMA has received and dealt with three student complaints: a complaint from students of the Latvian National Defence Academy concerning the timetable, delayed

billing of the LMA dormitory and a complaint from LMA graduates about RTU diplomas issued in January 2023.

During the reporting period, students' proposals were recorded and examined by the relevant LMA institutions, departments or responsible staff, e.g. students' proposals were examined at the meetings of the relevant departments/faculties. Student Council proposals, in turn, were examined in the meetings of the Academic Council or the LMA Senate. Several proposals were received and implemented during the reporting period: for the provision of a sports field, digital reading of the most requested books in the LMA library during the Covid-19 pandemic, students' involvement in research, etc.
As of 01.11.2022, RTU LMA bases its activities on the procedure for submitting and reviewing complaints and proposals developed by RTU.
In order to promote continuous improvement of the quality of studies and provide students with the opportunity to submit proposals and complaints on various study-related issues in accordance with the ESG, in the reporting period from 2013 to mid-2019, at RTU, the examination of students' recommendations and complaints was carried out; this was done by involving the structural units to which the applications related, as well as the student self-government of the respective faculty.
A new document was approved in 2019 and now students' complaints and proposals are considered in compliance with "Procedure for Submission and Examination of RTU Students' Proposals and Complaints" (published at https://www.rtu.lv/en/university/proposals-and-complaints). The procedure stipulates how RTU students can submit suggestions and complaints concerning the study process and other issues, determine the terms for consideration and reply to applications (if the applicant has provided contact details) and prepare a summary of application statistics.

2.2.4. Provide information on the mechanism for collecting the statistical data, as developed by the higher education institution/ college. Specify the type of data to be collected, the regularity of collection, and the way the information is used to improve the study field. Describe the mechanism for obtaining and providing feedback, including with regard to the work with the students, graduates, and employers.

In the reporting period, until joining RTU on 1 November 2022, LMA statistics have been mainly compiled by the LMA Study Department. Student data were regularly collected and imported/updated into the State Education Information System (VIIS), but the entire LMA data were collected once a year for submission to the Central Statistical Bureau, the Ministry of Education and Science and LMA departments/faculties. Every three months, data on student movements at LMA were collected and submitted to the LMA accounting office. In September of each year, data on matriculated students were collected for submission to the Latvian Maritime Administration Seafarers' Register. Data on matriculated students, graduates and tuition fees were also submitted to the Ministry of Education and Science by 5 September each year (for the last time in 2021). After each graduation, data on the number of graduates were collected. Some of the data were taken from the LMA study information system "WIN-Students", however, this system does not provide extensive options for selecting and processing various types of data automatically, so much of the information was processed manually by entering the data into Excel spreadsheet.

The data collection is used in the annual Management Report, as well as in the development of self-evaluation reports of study fields and programmes, in the development of study programmes, in the reallocation of state-funded study places, in various types of LMA presentations, etc.

Feedback is obtained from:

- ***Students*** - the Study Department conducted student surveys twice a year after examination sessions on individual study courses, in which students evaluated a specific study course in general, teaching methods and achieved study results. The results of the surveys are summarised in the study programme self-assessment reports. The internship planner conducted an annual post-internship survey of students to ascertain the level of student preparedness and satisfaction with the practice placement, the data being compiled and sent to the departments/faculties and the Head of the QMS for the development of the annual LMA Management Report.

- ***Graduates*** - Shortly before graduation, the Study Department conducted a graduate survey in which LMA graduates evaluated the content of the study programme, the organisation of the study process and the performance of the teaching staff. An analysis of the survey data can be found in the annual self-assessment report of each study programme and in the annual reports of each unit.
- ***Staff/faculty members*** - the LMA Personnel and Legal Department conducted an annual survey on staff satisfaction in the workplace and included the data in the Personnel and Legal department Annual Report and the LMA Management Report.
- ***Employers*** - the Practice Planner carried out an annual survey on the level of students' preparation for practice/employment, expectations and possible improvements of the study programmes.

After 1 November 2022, RTU LMA bases its work on the statistical data collection mechanism developed by RTU, as described below.

At the same time, RTU LMA, while continuing to maintain an ISO 9001:2015 compliant QMS, shall, in addition to the following, produce an annual Management Report, which shall include an understanding of stakeholder needs and expectations, an assessment of customer satisfaction and feedback from relevant stakeholders, an assessment of process performance and an analysis of their results.

RTU Quality Policy provides the framework for implementation of the Strategy, the paths for development and improvement of research, study and organization processes. RTU Quality Policy and implementation thereof employ a fact-based approach – decisions are based on the acquired objective data, information analysis and monitoring.

RTU draws up quality reviews based on the analysis of processes and their results. Quality reviews are drawn up once a year, summarizing the data on performance indicators of RTU administration, core activities and support processes.

28 performance indicators characterizing process quality are set for one of the RTU core activity process "Organization and Management of the Study Process". The data are summarized once a year for the previous academic year by study level and study program.

Performance indicators characterize the quality of entrant enrolment process, study process planning and the quality of implementation of studies - implementation of the initial admission plan, number of matriculated entrants vs. number of entry applications, number of entry applications with RTU as the first priority vs. all matriculated students, number of graduates vs. total number of students, number of expelled students (except for graduates) vs. total number of students, number of students with academic arrears vs. total number of students, number of students expelled due to academic failure vs. total number of expelled students, number of timely signed learning agreements vs. all signed learning agreements, etc.

The data in the quality review that is submitted to RTU administration are analyzed by study level, by faculty and study field. Indicators of numerous study programs are compared with the general average RTU level.

The Study Department organizes further review and data forwarding to the faculties or sub-units such as Latvian Maritime Academy and directors of the study programs, whereas process managers introduce the necessary improvements. Changes to the approved processes occur in cooperation with quality management specialists.

In addition to performance indicators characterizing study process quality, which are summarized in the review, a study program quality visualization tool has been created in Power BI environment, which will be used to reflect Bachelor and Master study program performance in an academic year with the help of radar chart. In the chart, study program results at each study level will be presented comparatively - in relation to the best performance at the respective level. The tool is envisioned for the directors of the study programs and faculty administration to facilitate collection of transparent information on each study program performance considering numerous indicators simultaneously, as well as to rank the program in relation to the best performance. It will be also possible to compare the program performance in several academic years. The tool is currently at the development and test phase. Performance indicators of 11 study programs are planned to summarize in the radar chart: academic staff vs. number of students, academic staff with scientific degree, ratio of graduates to the number of matriculated students, number of students who continue studies (not expelled), proportion of foreign students, number of outbound mobility students, Bachelor program graduates who continue studies at RTU, number of matriculated students from the respective Bachelor study programs, average assessment of the study programs in student polls, number of study materials published on ORTUS e-study system and applicability thereof, as well as financial revenue generated by study programs per student.

Comparative reviews of the study programs results will be available to directors of all RTU study programs. It is planned to develop and improve the tool for collection of statistical data necessary for evaluation of the study program performance and data visualization within the framework of SSO 8.2.3 project.

Summarized statistics on the number of students/graduates are used for the following purposes:

- Improvement of the study field. For example, if at some study program the annual number of student dropouts is much higher than the number of graduates who obtained degree/qualification, the causes of such a situation are sought for with scrutiny.

- If at some study program the number of enrolled students decreases annually, the cause should be identified, and potential program closure should be considered.

- Allocation of financing (for state budget funded seats).

- Compilation of RTU information materials, press, etc.

In order to analyze study fields and receive feedback, RTU has developed a polling cycle:

- When starting studies at RTU, a survey of students is conducted about expectations from studies, availability of information, admission process. The survey is conducted electronically on the portal ORTUS.

- Each semester, the polling of the students at a study program is conducted to find out student opinion about instructor’s work quality and obtain evaluation of the study program. Polling is conducted electronically in portal ORTUS, the results are received by each instructor personally and the head of the organizational unit. The summary of the results is summarized at department meetings, at the meeting of the Study field Committee and the meeting of the Faculty Council.

- After each graduation round, polling of the graduates of Bachelor and Master programs are conducted. The results are taken into consideration in the improvement of the study programs within a study field and discussed at methodological seminars.

- Annual polling of Doctoral students and Doctoral alumni has been introduced, it is also planned to conduct surveys of Doctoral entrants. The polling on the admission procedure and study process has been launched. The summaries of results are published on portal ORTUS. The results are taken into consideration in the improvement of Doctoral study process and the quality of support provided to doctoral students.

- It is also planned to run regular centralized polling of RTU employers. Polling of employers presently takes place at the end of internship of each student, as well as within the scope of development of study programs.

From the spring semester of academic year 2020/2021, a mid-semester questionnaire has also been introduced.

The following mechanisms are used to obtain feedback from employers:

RTU Council Convention, composed of representatives of different sectors, advises RTU Senate and Rector on the RTU Development Strategy. It has the right to propose an issue to the Senate and the Constitutional Assembly. The RTU Strategy and its development program are presented in the RTU Council Convention, the decision-making bodies, as well as to cooperation partners, industry associations and leading companies, with feedback and suggestions being incorporated into the RTU documents. **The RTU LMA Maritime Council** is a collegial advisory body which, taking into account the specificity of the maritime industry, participates in the strategic management of RTU LMA in:

- making proposals to the RTU Council on the amount and use of funding to support the activities of the RTU LMA;

- gives its opinion on the draft RTU LMA Study Development Plan and the draft RTU LMA Science Development Plan;

- make proposals to the RTU governing bodies, as well as to the RTU LMA Council, the RTU LMA Director and the RTU LMA Maritime School management board for improvement or adjustment of the RTU LMA activities (including various processes, quality monitoring) and internal regulations, including planning documents;

- shall be entitled to request and receive information from the RTU and RTU LMA governing bodies, structural units, collegial bodies on topical or planned agenda issues that could significantly affect the RTU LMA activities or the RTU LMA Maritime Council's performance, to provide opinions, to participate in the consideration of issues, insofar as the relevant governing body, structural unit or body does not provide for the consideration of issues in closed format in accordance with external or internal regulations, as well as to invite them to its meetings for information, discussion. Within the above framework, the RTU LMA Maritime Council shall also

have the right to delegate its representatives to participate in specific meetings, working groups, commissions both within and outside RTU.

The involvement of external stakeholders is the responsibility of the Vice-Rector for Strategic Development. He clarifies existing needs, coordinates key priorities and activities, implements recommendations and promotes the sustainable development of RTU.

Employers, as providers of the internship of RTU students, after completing the practice, prepare online feedback on the knowledge and skills of the student, thereby also assessing the relevance of the knowledge provided by the study program to the needs of the industry.

Employers' feedback is obtained also from the Council Convention, composed of representatives of different sectors and industry associations, as well as from the assessments provided by employers on the portal prakse.lv (RTU is the most recommended university at https://www.prakse.lv/top for several consecutive years (information available only in Latvian)).

Feedback within study programmes is received through every semester student polling, regulated by the "Regulation on Student Polling for Assessment of the Study Process" (approved by the resolution of RTU Vice-Rector for Academic Affairs No 02000-1.1-e/8 as of 1 February 2021; published at https://www.rtu.lv/writable/public_files/RTU_anketesanas_nolikums.pdf (in Latvian); the English translation is in the file of Annex 20 of the List of Internal regulations).

Study program course abstracts and course programs, methodological materials, newest educational literature and methodological instructions for study papers (reports, study papers, internship reports and graduation papers) are reviewed once an academic year.

Courses and seminars on latest teaching methods are organized for academic staff, as well as attendance of courses to improve qualification is promoted. Academic staff and heads of study programs participate in different experience exchange activities cooperating with universities of other countries, meeting representatives of respective institutions and businessmen, as well as discussing among themselves latest developments in the sector, research papers and projects of students by analyzing their results.

The Study field Committee analyses recommendations from employers and external experts, which are used as the basis for improvement of the study programs.

In order to receive feedback from RTU graduates, RTU Alumni Association has been established. It actively operates at the University (http://alumni.rtu.lv/, https://www.facebook.com/RTUAlumni/ (information available only in Latvian)) and runs an online community platform (https://rtuconnect.net/), which aims at developing alumni traditions. In order to ensure the transfer of experience from graduates, the RTU Alumni Association provides mentor training, database maintenance, as well as mentors and mentee matching. The RTU Alumni Association organizes various events, which bring graduates back to the University, allow for networking, cooperation among the graduates and with the University, and integration in University activities. RTU Grand Graduation Ceremony is a major event introduced by the RTU Alumni Association; it gathers the respective year graduates from all nine RTU faculties, academic and general staff, as well as guests.

2.2.5. Specify the websites (e.g., the homepage) on which the information on the study field and the relevant study programmes is published (in all languages in which the study programmes are implemented) by indicating the persons responsible for the compliance of the information available on the website with the information published in the official registers (State Education Information System (VIIS), E-platform).

During the reporting period until joining RTU, information about the field of study and the corresponding study programmes in Latvian and English was and still is published on the LMA website http://www.latja.lv/:

- Information on study opportunities in Latvian is published in the "Studies" section of the LMA website (http://www.latja.lv/uznemsana/; http://www.latja.lv/neklatiene/ http://www.latja.lv/bakalaura-studijas/);
- Information on study opportunities in English and admission of foreign students in LMA is published in the "Studies" section of the LMA website (https://www.latja.lv/en/studies/).

Information on study opportunities at LMA was also offered to the target audience of foreign students on the website https://www.educations.com/study-abroad/latvian-maritime-academy/ , but after the reorganisation in 2023 the cooperation with the website https://www.educations.com was discontinued.

Information on student mobility opportunities at LMA and on study courses offered in English is published on the LMA website in the "ERASMUS Incoming mobility" section (https://www.latja.lv/en/incoming-mobility/) (responsible person LMA International Cooperation Project Manager).

The information is posted on the LMA website by the LMA clerk. The persons responsible for the correct information are the Director of the field of study and the directors of the relevant study programmes, the heads of the Centre of Shipping Management and Navigation and the Centre of Marine Engineering, as well as the LMA International Cooperation Project Manager.

As of 1 November 2022 detailed information on the study field and the study programmes pertaining to it with the indication of the languages of instruction is available on RTU web page:

1. RTU web page in the section on education opportunities in the Latvian language (https://www.rtu.lv/lv/studijas) (responsible person – I. Bušovska, Head of the Admission Department);
2. RTU web page in the section containing comprehensive information on education opportunities in the English language (https://www.rtu.lv/en/studies) (responsible person – I. Tipāns, Director of the International Cooperation and Foreign Students Department);
3. Interactive web pages dedicated to RTU study fields, study programmes therein, as well as the detailed description of the offered study courses in the Latvian and English languages (https://stud.rtu.lv/rtu/vaaApp/sprpub and https://stud.rtu.lv/rtu/discpub/list?english=true) (responsible person – G. Alksnis, Head of the Program Management and Curriculum Design Unit);
4. Web page designed for the foreign student target audience on RTU study programmes implemented in English and student mobility opportunities (https://international.rtu.lv, https://apply.rtu.lv) (responsible person – I. Tipāns, Director of the International Cooperation and Foreign Students Department);
5. Higher Education Quality Agency E-platform (responsible person – G. Alksnis, Head of the Program Management and Curriculum Design Unit);
6. State Education Information System (responsible person – I. Pujats, Project Manager of the Information Technology Department)

2.3. Resources and Provision of the Study Field

2.3.1. Provide information on the system developed by the higher education institution/ college for determining and redistribution of the financial resources required for the implementation of the study field and the relevant study programmes. Provide data on the available funding for the scientific research and/or artistic creation activities, its sources and its use for the development of the study field.

Information relating to the period before joining RTU:

According to the conceptual report "Implementation of a New Financing Model for Higher Education in Latvia" (http://likumi.lv/ta/id/274944-par-jauna-augstakas-izglitibas-finansesanas-modela-ieviesanu-latvija) (in Latvian) approved by the Cabinet of Ministers on 29 June 2015, structural reforms in the sector have been implemented in Latvia to ensure the establishment of an efficient and sustainable higher education system. A three-pillar funding model has been introduced to ensure alignment of higher education supply with the needs of the Latvian economy and labour market, quality, research-based higher education content and performance management in higher education institutions, where Pillar 1 is the base funding for the study process, Pillar 2 is performance funding and Pillar 3 is development funding.

Pillar 1, or core funding, is implemented through publicly funded study places. The determination of the number of publicly funded study places is regulated by Articles 51 and 52 of the Law on Higher Education Institutions (http://likumi.lv/ta/id/37967-augstskolu-likums#p-50515) (in Latvian).

The basic LMA funding from the state basic budget consists of the basic funding of studies corresponding to the list of study programmes and the number of students, which consists of funds for utilities, taxes, maintenance of infrastructure (including the provision of data to the Register of Students and Graduates), purchase of inventory and equipment and remuneration of staff and other costs related to the study process, as well as funding for scientific activities.

The number of study places shall be allocated following negotiations with the Ministry of Education and Science. The basic funding for studies shall be allocated from the State budget for full-time studies.

The amount of the basic funding for studies is determined on the basis of the number of study places at LMA, as well as the basic cost of a study place as determined by the State and the cost coefficients for studies in thematic areas of education.

The cost coefficients of the thematic areas of education are indicators which determine the cost of a study place in a given thematic area of education in relation to the basic cost of a study place.

The coefficients of study costs in thematic areas of education for bachelor and professional study programmes are set out in Annex 1 to the Regulation No 994 of 12 December 2006 approved by the Cabinet of Ministers "The Procedure for Financing Universities and Colleges from State Budget Funds" (https://likumi.lv/doc.php?id=149900) (in Latvian) (hereinafter referred to as the Regulation).

The values of the study costs coefficients for Master study programmes are one and a half times, and for doctoral study programmes - three times higher than the values of the study costs coefficients for the relevant thematic area of education set out in Annex 1 to the Regulations.

The amount of the basic study funding allocated to a higher education institution or college from the State budget funds for the implementation of bachelor's, professional and master's study programmes shall be calculated using the following formula:

Fs = Tb x [S(ki x ni) + 1,5 x S(ki x mi)] + Sb x S(ni + mi), where

Fs is the amount of study funding;

Tb - base cost of the study place;

ki - the study cost coefficient for the relevant subject area of education (Annex 1 to the Regulations);

ni - the number of study places in bachelor and professional study programmes in the relevant thematic field of education determined for a higher education institution or college;

mi - number of study places in master's study programmes in the relevant subject area of education;

Sb - social security costs of a study place in bachelor, professional and Master study programmes (Annex 2 to the Regulations).

The basic cost of a study place and the cost of social security of a study place shall be determined in accordance with Annex 2 to the Regulations.

The Ministry of Education and Science shall annually calculate the basic costs of a study place for the following budget year and shall coordinate the calculations with the Ministry of Finance and the ministries under which higher education institutions and colleges are subordinated by 1 November of the current year.

The funding of LMA from the basic state budget for the provision of study places in the respective budget year shall be distributed in accordance with the estimates approved by LMA.

Within the allocated funding, in order to ensure the study process, the units shall plan the work of the unit at the beginning of each financial or budgetary year, including the remuneration of the academic staff subordinate to the head of the unit and the procurement plan for the following year in accordance with the activities and development of the study programme or course of study, etc.

The funding from student fees is used for the renewal of material and technical equipment, the recruitment of higher level specialists to support the study process, etc.

In the case of basic and local fee-paying students, long-term funding has been and is determined on the basis of the basic principles laid down by the State; the process of determining the amount of funding takes into account both the cost coefficients of the subject areas and the values of the cost coefficients according to the level of the study programme, as well as the number of students in the study programme and, consequently, in the study courses to be implemented therein. As mentioned above, the use of the study cost coefficients of the thematic areas of education makes it possible to determine the amount of funding required for the implementation of a given study programme and study course.

Funding for the study program “Maritime transport – ship’s navigation”, “Maritime transport-ship’s engineering”, “Maritime transport – ship’s electric automation” per head of student:

The annual funding from state’s budget, EUR. Funding from the revenues from tuition fees, EUR

2 582.27 3 240.- in 2020;

2 771.19 3 520.—in 2021;

2 771.19 3 520.-in 2022;

3 596.47 3 570.- in 2023.

The funding for the study programs is proportionally divided in the following way:

- Remuneration - 80.48 %;

- Study, work and business trips, study visits – 0.27 %;

- Service related payments – 12.44 %;

- Immovable property tax – 0.15%;

- The purchase of stocks, materials and inventory – 3.18%;

- Fixed capital accumulation, equipment modernization – 2.23%;

- Deductions for sports, culture – 0.25%;

- Deductions for science – 1%.

LMA takes part in EU projects to ensure the development of study programs. The received funding from participation in STEM projects amounts to EUR 141 342, the funding of EUR 63 200 received within the framework of SAM 8.2.3. project was spent on improvement of material- technical base for the study programs (for example, purchase of study training simulators, study programs, equipment).

The academy’s funding from the state budget envisaged for scientific activities comprises:

1. Funding for the development of scientific activities;

1. Performance funding for the results of ensuring higher education based on research for higher educational establishments and colleges.

Data on study places determined by the state which are necessary for the calculation of financial resources to ensure the development of scientific activities, is determined as the average number for the last three economic years, data about number of persons with acquired degree and qualifications and academic personnel with Doctor’s degree- as an average number for the last three academic years.

The exact amount of necessary funding for ensuring science development activities in accordance with subparagraph 1, is determined by the Ministry of Education and Science.

The information required for the calculation of performance funding mentioned in subparagraph 2 for the next financial period, is determined according to the information provided by universities for calculation of science base by the 1st of April consecutive year.

The funding earmarked for ensuring the development of scientific activities is divided by the university according to the procedures of each educational institution, based on concrete results.

The funds held by university to ensure the development of scientific activities is used for implementation of research projects, involving students and for the ensuring the scientific infrastructure according to prescribed basic directions and task stipulated by the university Constitution.

Performance related funding has been received from the Ministry of Education and Science about the results of ensuring the research – based higher education:

EUR 19 110 in 2020;

EUR 12 431 in 2021;

EUR 4 983 in 2022;

EUR 14 897 in 2023.

The science base funding in amount of EUR 86 861 has been allocated for Latvian Maritime Academy in 2023.

2.3.2. Provide information on the infrastructure and the material and technical provisions required for the implementation of the study field and the relevant study programmes. Specify whether the required provision is available to the higher education institution/ college, available to the students, and the teaching staff.

The required infrastructure along with material and technical provision for the implementation of the respective study program un direction of studies in disposal of RTU LMA is territorially located in Riga, Daugavgrīva, Flotes street 12. The site comprises several buildings used for teaching, study and practice purposes (teaching building, training office, library, workshops and administrative building), with a total area of 15 000 m2. The student and staff hostels (total area 10 000 m2) allow working and studying in one "comfortable" environment. The sports field and the nearby park are used intensively during leisure time. The advantage of RTU LMA is its location - proximity to the harbor and active areas of the maritime transport sector, as well as the concentration of resources in one place.

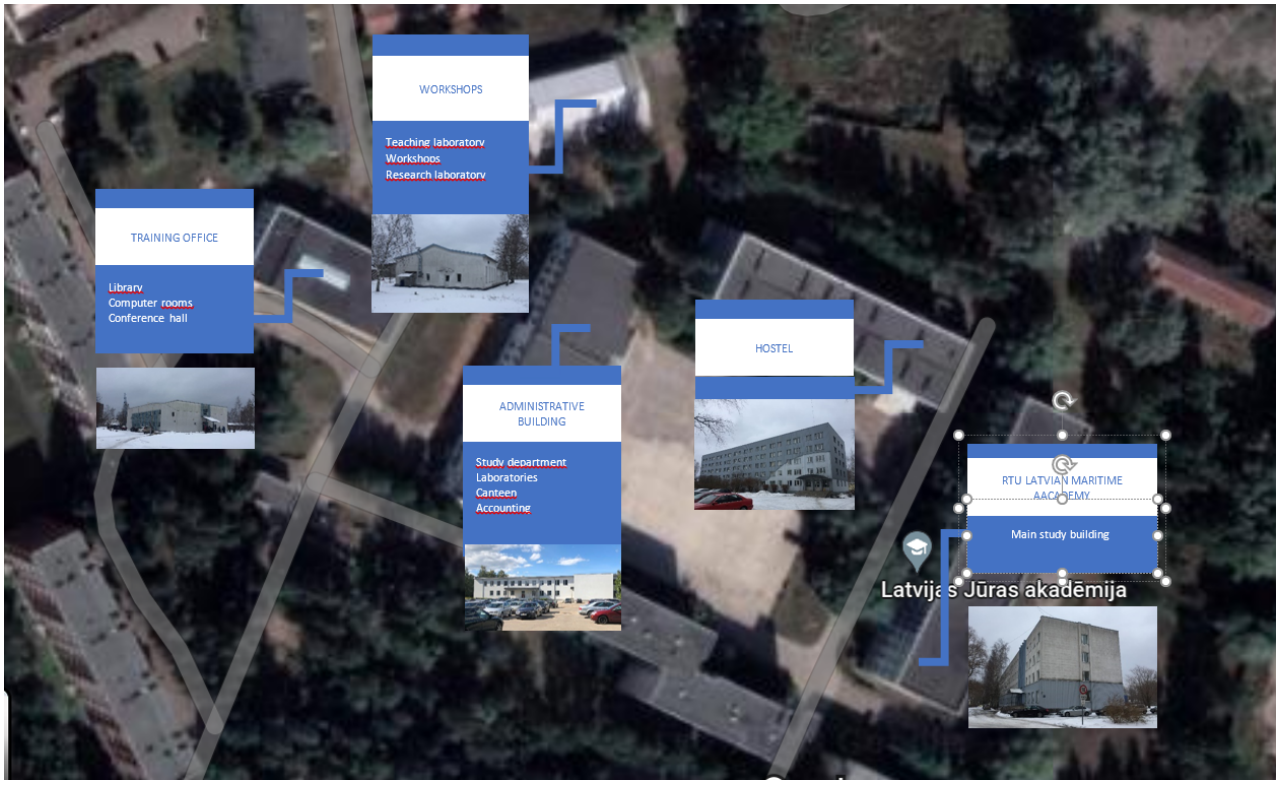


Figure. RTU LJA is territorially located in Riga, Daugavgrīva, Flotes iela 12.

The infrastructure allows easy parking of cars and other means of transport using the parking lot located on the territory. To ensure a safe environment, video surveillance is installed in the territory.

A canteen is available for students and staff, and there are drink and snack vending machines in

several other buildings. RTU LMA premises are equipped with potable water points, sanitary facilities and seating areas in corridors.

Currently, 13 classrooms, 11 laboratories, 5 computer rooms, 5 simulator classes, workshop, a student dormitory with 350 beds are available for the implementation of the study process. The technical parameters are outlined below.

Main study building, Flotes iela 12, k-1, k-4, Riga

Type of use	Quantity	Useful floor area, m2
Conference hall	1	64,91
Computer rooms	5	346.52
Classrooms	11	514.98
Teachers' rooms	17	383.64
Doctoral students' classrooms	1	219.00
Laboratories	11	474.00
Simulator classrooms	5	692.00
Overall	**52**	**2276.89**

Training office, Flotes iela 12, k-8, Riga

Type of use	Quantity	Useful floor area, m2
Classrooms	1	170.00
Computer lab	2	75.00
Teachers' rooms	5	80.00
Library	1	120.00
Overall:	**9**	**445.00**

Workshops, Flotes iela 12, k-9, Riga

Type of use	Quantity	Useful floor area, m2
Workshops	3	325.00
Teachers’ rooms	4	80,00
Overall:	**7**	**405.00**

RTU LMA Training Centre

RTU LMA Training Centre provides the study course "Maritime Safety" within the RTU LMA bachelor study programs "Maritime Transport - Navigation", "Maritime Transport – Marine Engineering", "Maritime Transport – Marine Electrical Automation", as well as the short-cycle professional higher education study programs "Navigation" and "Marine Engineering".

The "Maritime Safety" course includes practical training on board the vessel "Kadets", which is moored in the river Buļļupe. „Kadets” is a pontoon, built in 1980, International Maritime Organisation registration No. 900000040638 (Certificate Reg.No.22.00261.15, issued 01.04.2022.) This pontoon has been handed over to RTU LMA Training Centre for students to have the opportunity to get to know the real working environment of maritime professionals and the natural working conditions thereof.

The training process employs two lifeboats "ЗСШПМ 37/30" and "Ernst Hatecke", the "Jiangyin Xin Jiang" and the "Viking" rafts on the pontoon. Using Viking wetsuits and life jackets, trainees acquire practical skills for survival at sea in the event of abandonment and the actions to be taken in the event of a man overboard.

A fire accident would be the most dangerous accident on board. Using the firefighting equipment on board the pontoon (13 full firefighting suits with SCOTT and Draeger compressed air breathing apparatus, foam applicators, hoses, powder, foam and CO2 extinguishers) during the "Maritime Safety" course, trainees learn the skills to minimise the risk of fire, bea ready to deal with fire, as well as to extinguish fire.

Using a smoke machine, trainees learn how to evacuate a victim from a smoke-filled room in a maze on a pontoon, dressed in firefighter's gear.

Centre of Shipping Management and Navigation

In addition to general equipment (PCs and overhead projectors in all classrooms, the required software and conferencing tools for remote studies), the equipment used within the framework of the bachelor study programme "Maritime Transport-Navigation", as well as the short-cycle and first-cycle study programmes "Navigation" in the area of specialisation include various ship navigation models with visualisation and appropriate software, ECDIS, RADAR/ARPA simulator, etc., GMDSS radio station and NTPro 5000 full mission navigation bridge [ARPA/RADAR with ECDIS and BRM] simulator with seven visualisation channels and corresponding workstations (monitors, computer equipment, student and instructor workstations with work table and hardware console, the required specialised software with licence), as well as Naviplanner route planner for the development of the qualification project. If necessary, instruction and IT technical support for the use of the equipment is provided to the responsible teaching staff. The equipment is available to students and staff

during the duration of the specialisation course and outside the course, if the equipment is not being used for student training at the time. For more detailed information on the material and specific equipment included in the study programs, please refer to Part III, Chapter 3.3.1. of the Self-assessment report for each study program.

Centre of Marine Engineering

In the study programs implemented by RTU LMA Centre of Marine Engineering, both general material and technical equipment (PCs and overhead projectors in all classrooms, the required software and conferencing tools for remote study process) and specialised equipment are available to students and teaching staff to ensure students' technical skills and abilities. The equipment used for the bachelor study programs "Maritime Transport-Marine Engineering" and "Marime Transport-Marine Electrical Automation", as well as for the short-cycle and second-cycle study programs "Marine Engineering" the field of specialisation include laboratory equipment and stands, TurboDiesel (TD5 UPG), W-Expert Engine Room, Steam Engine Room, CBT10 and CBT1-11 engine room simulators and associated licensed software, material crushing and non-crushing testing equipment, machine tools, welding equipment, electronic equipment, automation system equipment (PLC), hydraulic and pneumatic equipment, material testing equipment and thermal systems. The above-mentioned equipment is also used, providing students with the necessary equipment for the development of qualification project as well as for research. A full list of equipment is provided in Part 3, Chapter 3 of the Self-assessment Report for each study program.

Training office /library

Students and academic staff have access to the RTU LMA Study centre/library, which has been renamed the Training Office after the LMA reorganisation in 2022. The library has a total area of 697 square metres and is located in 12k-8 Flotes Street, Riga. On the first floor of the building, in a separate room, the library has a subscription collection, a repository and a reading room with 40 user workstations and an open-access collection. On the second floor there are two computer rooms and a conference room with 150 seats. One computer room has 9 fixed computer workstations and the other has 11, as well as 48 reader workstations at tables. The training office building has video surveillance, security labels on the books in the reading room and a security gate system at the entrance to the reading room on the ground floor. Wireless internet is available throughout the building. LMA library is open five days a week, 9.00-17.00, and is accessible to disabled visitors, with a ramp and separate disabled facilities on the ground floor.

During the reporting period, RTU LMA has started and is continuing a number of infrastructure renovation works:

- In December 2019, the contract for project No. 4.1.2.1/18/I/048 on improving the energy efficiency of the building at 12 k-4 Flotes Street, LMA was signed. Total cost EUR 914 636 including EUR 751 000 from the European Regional Development Fund.

The renovation of the territory and buildings of Latvian Maritime Academy and the establishment of a modern maritime education and training base are carried out in accordance with the long-term development plan of Latvian Maritime Academy.

For the successful implementation of study courses, the classrooms and lecture rooms at the disposal of the teaching staff are equipped with the necessary TV, audio, video, computer equipment, as well as specific technical equipment required for the study process according to the specialisation. All computers are connected to a single intranet network, Internet access is provided, and the necessary licences have been purchased for specialised programmes. Wireless internet coverage is provided in all classrooms.

The renewal of material and technical resources is carried out in accordance with procedure P6-7 "Material and Technical Support for the Study Process" (in Latvian) and their capacity for use is planned by the program directors.

After joining RTU, additional opportunities have emerged in the use of RTU infrastructure and material and technical support for the implementation of the field of study and the corresponding study programs.

2.3.3. Provide information on the system and procedures for the improvement and purchase of the methodological and informative provision. Description and assessment of the availability of the library and the databases to the students (including in digital environment) and their compliance with the needs of the study field by specifying whether the opening times of the library are appropriate for the students, as well as the number/ area of the premises, their suitability for individual studies and research work, the services provided by the library, the available literature for the implementation of the study field, the databases available for the students in the respective field, the statistical data on their use, the procedures for the replenishment of the library stock, as well as the procedures and possibilities for the subscription to the databases.

The library plays an important role in providing methodological and information support to students.

RTU LMA library is the only library of a maritime higher education institution in Latvia.

LMA has devised a system for the improvement and purchase of information provision, which consists of the following documents:

- Procedure Nr.P6-5”The information provision of study process” within the framework of ISO 9001-2015 standard, which regulates the purchase order of information provision;
- Regulation Nr.36, issued by LMA “On the Coucil of Library of the Maritime Academy of Latvia (Version -3, approved by the Seanate of LMA on 28/12/2020);
- Regulation Nr.48, issued by LMA on 03.03.2014 “On the Council of Library of Maritime Academy of Latvia” (Version-1, approved by the Senate of LMA on 28.12.2020.)

After reorganization the documents and procedures are preserved.

During the reorganization process LMA and the library of LMA have retained large amount of autonomy. During the reporting period the name of the location of the library of LMA has changed from *Study Centre* to *Training Office* (hereinafter TO).

At the moment the library of LMA has gone throuh repeated accredditation procedure and is awaiting for the final report.

It provides access to the information relevant to the field of study, for study and research purposes, by offering information resources in the library collection, as well as by ordering information resources from other libraries. The library uses the integrated library information system ALEPH 500, 23rd version and participates in the development of the national library catalogue.

The library provides study and reference literature, access to databases and periodicals, services for students and academic staff - computer workstations for daily study, copying, printing, etc. The library collection is compiled in accordance with the study programmes of LMA, which are based on the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) and in cooperation with the academic staff of LMA. Total number of documents (physical items) in the University library is 27,757, including 25,016 books, 35 electronic documents, 18 audiovisual documents, 914 unpublished resources.

The library offers consultations on the use of e-services, as well as training to students and academic staff to improve information search skills, compiling and formatting bibliographic

references.

To improve the library's activities and to meet the information needs of study and research work, a Library Council has been established, which decides on the replenishment of the library's collection. The Council's activity is regulated by the Rules of the Library Council of the Academy of Sciences of Latvia of 3 March 2014 "On the Library Council of Latvian Maritime Academy". (Editorial-1 approved by the Senate of the Latvian Academy of Sciences 28 December 2020).

The library stores the LMA diploma papers/projects and Master theses, which are available to students and teaching staff in the reading room. The lists of final papers (diploma papers, Master theses) are available to students and staff on the LMA shared L-drive.

Within the reporting period the library has joined the plagiarism control system of Interstate High Schools developed by LU. The head officer of TO has completed training and is carrying out closing work on plagiarism (originality of content) control after the request of director. The process is supervised by the director of respective direction.

LMA library is located in the Study Centre (after the reorganisation - in the Training Office) and is open four days a week from 9.00 to 17.00.The total area of the library is 697 square metres, it is located in Flotes iela 12 k-8. On the first floor of the building, in a separate room, the library has a subscription collection, storage and reading room with 40 user workstations and free access to the collection. On the second floor there are two computer rooms and a conference room with 150 seats. One computer room has 9 fixed computer workstations and the other has 11, as well as 48 reader workstations at tables. The Training office building has video surveillance, security labels on the books in the reading room, and a security gate system at the entrance to the reading room on the ground floor. Wireless internet is available throughout the building. The library is accessible for disabled visitors, with a ramp and separate disabled facilities on the ground floor.

Every year TO client satisfaction inquiry procedure is updated according ISO 9001-2015 requirements by doing clients’ survey and assessing its results, corrective activities in organization of library’s are carried out if deemed necessar. During the report period bibliographic stocks have been supplemented by professional study course literature. Considering the fact that the literature for programs in professional study courses are unavailable in Latvia, the literature is ordered from abroad. The average assessment by graduates about information provision mainly is indicated as “sufficient”- 86%. Starting with the academic study year of 2018/2019 LMA increased funding for the purchase of bibliographic publishings.

The aim of the library is to provide the necessary information resources for the study and research process of LMA students and staff by improving and enhancing the accessibility of the library services and by using information technologies to achieve this goal. The library offers the latest maritime literature and periodicals in the reading room, as well as the possibility to check out the necessary educational literature for the academic year in the subscription.

The LMA website in Latvian https://www.latja.lv/par-lja/biblioteka/ provides information about the library, a link to its catalogue http://kopkatalogs.lv/F and user rules, as well as information about new acquisitions.

The operation of the library is regulated by regulations No. 10 developed by LMA. "About using the LMA library". (Editorial-3 approved in the LMA Senate on 28.12.2020)

From 2013 to 2022, the following databases were available to LMA students and staff:

- EBSCO- National Package Academic Search Complete;
- EBSCO INSPEC - access to the full-text database in the sciences;

In 2023, the following is installed on all library computers:

- **Rulefinder Version 9.38 (January 2023),** a database of the latest IMO documents;
- **Navi-Plannner 4000** (Warstila) software for students' independent work has been purchased and installed.

After the reorganisation of LMA and its integration into the RTU infrastructure in 2022, LMA students and teaching staff can use the databases subscribed by the **RTU Research Library**

(https://www.rtu.lv/lv/studijas/biblioteka/informacijas-meklesana/datubazes-eresursi/abonetas-datubazes):

- ProQuest Ebook Central, Academic Search Complete EBSCOhost, Applied Science & Technology Source EBSCOhost, Business Source Ultimate EBSCOhost, EBSCOhost eBook Academic Collection, Wiley Online Library, SpringerLink, The International Monetary Fund.

- ScienceDirect, SCOPUS (Elsevier), Web of Science.
- Latvian databases include LETA, Letonika, Latvian Standards Database (only available in the library).

Methodological and informative support of the study field - study materials, course descriptions in Latvian and English, as well as informative base of study programmes basically correspond to the objectives of the study field and programme, their type and language of study. The information and methodological support of studies is sufficient for the implementation of the field of study and the corresponding study programmes and for the preparation of maritime specialists meeting international requirements.

After the reorganisation of LMA and its incorporation into RTU, the teaching and research staff of the Academy were trained by the RTU Research Library bibliographer on the possibilities of using RTU databases. After the reorganisation, the students, teaching staff and researchers of LMA can also use all other facilities offered by the RTU Research Library, which are summarized below.

RTU Research Library (https://www.rtu.lv/en/studies/scientific-library) is a library of national importance. Research library supplements existing RTU LMA study processes and research activities with with necessary amount of information resources. There are more than 1.3 million printed documents and e-resources in databases relevant to RTU fields.

Database subscription contracts are concluded both directly with the supplier and through "Culture information systems centre", which is the Latvian national representative of the international non-profit organisation "Electronic information for Libraries" (EIFL, http://www.eifl.net/). The EIFL Licensing Programme offers national libraries subscriptions to internationally recognised databases at significantly reduced subscription fees not offered to individual subscribers, thus saving libraries financial resources.

The Central Library is open to users from Monday to Saturday (https://www.rtu.lv/en/studies/scientific-library/opening-hours-and-contacts). There is a 24h reading room. Five floors of the Central Library with the collection were available to users 24h during the session in December 2019 and January 2020, at the request of students. During the summer period, the Central Library is open every weekday with reduced opening hours.

The information sources of the Research Library are housed in the open-access collection. Books and periodicals are located in the open-access collection in the central building of the Research Library, Paula Valdena iela 5, and in the subscription to the Teaching Literature, Paula Valdena iela 3.

The last copy of the oldest titles corresponding to the RTU profile is kept in the repository. They are always available to users.

The librarian on duty helps to navigate the collection. Bibliographers (information specialists) provide more detailed information and advice. The library has a branch librarian service (https://www.rtu.lv/en/studies/scientific-library/branch-information).

The Primo Discovery search tool (https://www.rtu.lv/en/studies/scientific-library/search-and-find) is available for searching resources. It allows searching the library catalogue, subscribed databases and databases created by the RTU Research Library in one interface.

Searching in the electronic catalogue, you can simultaneously obtain information about the resources available in 12 Latvian libraries.

A tutorial on "How to search the catalogue" has been prepared (https://www.rtu.lv/lv/studijas/biblioteka/informacijas-meklesana/ka-meklet-kataloga) (in Latvian).

Both the electronic catalogue and the RTU portal ORTUS allow remote reservation of library resources, and remote access to databases is also provided. Since the introduction of RFID technology, users can use five self-service book-dispensing machines and check out books from the book-dispensing machine 24 hours a day. The period of use of books can be extended remotely.

The Research Library provides students, academic staff and other interested parties with individual consultations and group training in information literacy at various levels (https://www.rtu.lv/en/studies/scientific-library/user-training).

The Research Library can be contacted at: Ask librarian (https://www.rtu.lv/en/studies/scientific-library/ask-librarian), use the reference e-mail, call the reference line (https://www.rtu.lv/en/studies/scientific-library/opening-hours-and-contacts).

2.3.4. Provide a description and assessment of information and communication technology

solutions used in the study process (e.g., MOODLE). If the study programmes within the study field are implemented in distance learning, the tools specially adapted for this form of study must also be indicated.

The infrastructure and material and technical support available for the implementation of the field of study and the corresponding study programmes, thanks to the degree of digitisation, provide the opportunity to increase the quality and efficiency of activities, as well as the accessibility of information.
LMA has about 243 workstations (including specialised simulators) and 15 laptops. The network is currently not segmented, but due to the integration work in the RTU ecosystem , the server infrastructure will be separated from the user network, thus providing additional security. All workstations and servers are located in the LATJA.lv domain, which is managed by two domain controllers and the Group Policy of the network. LATJA.lv network security is enforced by specific Group Policies and firewall settings. Monitoring is provided centrally by RTU.
An optical connection to the RTU network has been established, connecting the RTU Data Centre in Kipsalas iela 6b, Riga and the LATJA server room in Flotes iela 12 k-1, Riga. Several computer classrooms have been built and/or upgraded.
The infrastructure has been prepared for the introduction of IP telephony at the direction of the management. Regular backups of the file server etc. are carried out in accordance with the established policy. All servers are virtualised and backed up with Veeam software. The server equipment is located in a properly equipped server room with adequate physical security. All central network equipment is located in locked cabinets.
Centralised wireless internet and Eduroam are currently being implemented in all LMA premises (currently in the teaching block, on the ground floor of the dormitory and in the workshops), allowing any staff member and student to connect to the single network with their own username and password.
Due to the integration of LMA into the RTU infrastructure, it is planned to abandon the use of several systems and adopt RTU systems for use instead. It is also planned to move the LMA server equipment to the RTU infrastructure, merging IT resources into a single system.
In the reporting period until joining RTU on 1 November 2022, student surveys were created in the Google Forms platform were used to ensure the quality of studies, which were used to monitor the quality of implementation of pre-semester study courses and study programmes. Based on the results of the surveys, regular measures were taken to improve study programmes and processes.
For distance learning, LMA uses the interactive e-learning environment platform https://omars.latja.lv/login/index.php , which is based on the Moodle platform. Each LMA student is provided with a personal identification user name and password to access the interactive system. OMARS (online maritime system) all relevant information was initially prepared manually (study courses, groups, access rights, etc.). This system ensures student-teacher communication. Teaching staff place various electronic materials, mid-term tests, homework, information on the progress of a particular course, etc. in the system.
Full accessibility of the content of the programmes in the e-learning environment. LMA is continuously working on the development of the interactive e-learning platform OMARS, lecturers are developing new study materials and activities, as well as adapting the existing ones for remote work with students.
At the moment, there are no distance learning studies at LMA.
During the reporting period, the level of digitisation of Latvian Maritime Academy was continuously increased, but a significant increase in quality is related to the involvement of Latvian Maritime Academy in the project "Information and Communication Technologies (ICT) platform for e-learning and management process support at the Latvian Maritime Academy" in 2019 under the Specific Support Objective 8.2.3 "Ensuring better governance in higher education institutions" of the Operational Programme "Growth and Employment" of the European Union Funds.
Within the framework of this project, LMA successfully further developed the e-learning environment OMARS (based on Moodle), supplemented and improved the LMA-specific set of virtual e-tools for theoretical and practical training of regulated study courses.
The improvement process has achieved the following:

- based on the results of the comparison of e-environmental methods, recommendations for the selection of digital methods for the implementation of the theoretical and practical part of the study courses of Navigation, Marine

Engineering and Marine Electrical Automation programmes have been developed;

- the development of a digital learning methodology for theoretical and practical sessions, with particular emphasis on the need to assess the relevance of the study courses to the distance learning methodology;
- the scope and possibilities of using the MOODLE platform have been extended and improved (the new version of the platform has been introduced, the skills of the teaching staff in digitising study materials, applying electronic tests and assessment methods have been improved, self-assessment methods have been prepared for students, etc.);
- training materials have been stored on the LMA shared L-disk and are available to the teaching staff for developing their study courses;
- skills of LMA management staff and teaching staff in the use of remote conferencing platforms MS Teams, ZOOM, etc. have been enhanced;
- several maritime-specific e-learning tools have been purchased/upgraded and implemented in the study process, e.g. upgrading LMA engine room simulators and training programmes, allowing students and lecturers to also use LMA's available training software remotely on their own computers, using the additional features provided by the server licences - the updated licence management model allows to use the software at any time of the day and at any location. The existing software has been extended with several modules, e.g., Diesel-electric Simulator (LNG-DE3D) - simulator for a Dual-Fuel engine room (2 diesel generators) with 2 azimuth propulsion units (3D visualisation); VER6 - engine room simulator for a slow-speed diesel engine with self-learning and self-assessment modules; CBT11 - extension of the shipboard engineering systems computer-based training modules from vers. 10 to vers. 11; nine CBT 11 licences, etc.

During the reporting period, LMA has significantly improved and expanded the use of innovative e-learning technologies for the digitisation of study content and study process - the acquisition and implementation of new virtual e-tools, as well as the modernisation of existing ones, have allowed to improve the study content and process, including in the theoretical and practical teaching of regulated study courses. Particularly noteworthy are the possibilities of using e-tools also in the distance learning process.
The virtual e-learning tools purchased so far are available to students in the LMA e-environment OMARS, but upon integration of LMA into the RTU ecosystem, these e-tools are aligned with the ORTUS system used at RTU.
In the process of integration, LMA is starting to make use of the possibilities offered by the RTU Information Technology Department, which are implemented in three areas:

1. creation, development and maintenance of an integrated RTU information system supporting the administrative, study and scientific work of RTU;
2. the provision of high quality and uninterrupted voice and data services throughout the RTU managed area, as well as the maintenance of RTU data centres and key network resources;
3. support in the use of IT services, including information on new IT solutions, provision of necessary consultations and organisation of IT training.

In order to ensure simple and effective identification of IT users, an IT user identity management system has been implemented, resulting in the creation and maintenance of a unique electronic identity for each IT user, which is valid in all information systems. In addition, a user session management system is provided, as a result of which IT users do not need to re-authenticate themselves by providing a single sign-on to RTU information systems. This provides a single integrated information system user experience without the need to memorise and re-enter different identification data in different IT usage scenarios.

All IT users are provided access to the centralized portal ORTUS (https://ortus.rtu.lv – screenshots of the interface are attached in “RTU IT sistēmu saskarnes / Screenshots of RTU IT systems”), which functions as a single digital gateway, combining information from all RTU information system components and providing users with an easy-to-use way of accessing the directory of all IT services in one place.
The Centralized Study Management System is used for efficient administration of the study process, which ensures digital provision of the study life cycle, incl. Electronic Register of Study Programmes (its public part is available at https://stud.rtu.lv/rtu/vaaApp/sprpub), drawing up learning agreements and enrolment of students in study programmes, Register of Study Courses (its public part is available at https://stud.rtu.lv/rtu/discpub/list?english=true), designing student’s individual study plans, drawing up orders, implementing study courses and study process, registering grades, recognizing study courses, awarding qualifications, administering payments, hostel information, gathering information to issue diploma supplements, etc. This system is one of the main cornerstones in the administration of RTU study process.
The Centralized Study Management System is used for efficient administration of the study process, which ensures digital provision of the study life cycle, incl. Electronic Register of Study Programmes (its public part is available at https://stud.rtu.lv/rtu/vaaApp/sprpub – screenshots of the interface are attached in “RTU IT sistēmu saskarnes / Screenshots of RTU IT systems”), drawing up learning agreements and enrolment of students in study programmes, Register of Study Courses (its public part is available at https://stud.rtu.lv/rtu/discpub/list?english=true – screenshots of the interface are attached in “RTU IT sistēmu saskarnes / Screenshots of RTU IT systems”), designing student’s individual study plans, drawing up orders, implementing study courses and study process, registering grades, recognizing study courses, awarding qualifications, administering payments, hostel information, gathering information to issue diploma supplements, etc. This system is one of the main cornerstones in the administration of RTU study process.
Since 2007, more than 130,000 unique study course sites have been generated in the e-learning environment of RTU. Students can access electronic learning resources anytime and anywhere.
Digitization of classrooms and schedules has been carried out to ensure efficient premises management and study planning (https://telpas.rtu.lv (in Latvian); https://nodarbibas.rtu.lv/ – screenshots of the interface are attached in “RTU IT sistēmu saskarnes / Screenshots of RTU IT systems”). Each RTU student and academic staff member can access their schedule, which provides information on the venue, time, instructor, room, title and type of lecture. In addition, for user’s convenience purposes, the system greatly facilitates lecture planning and scheduling, as well as optimizes the use and efficiency of premises.
Electronic Staff Management and Record-keeping Systems, which cover the circulation of record- keeping and personnel documents at RTU (https://docs.rtu.lv/ – screenshots of the interface are attached in “RTU IT sistēmu saskarnes / Screenshots of RTU IT systems”), are also used to ensure the efficient administrative work. Electronic document coordination and document e-signing functionality have been introduced, thus reducing print-based document circulation and significantly increasing document circulation speed. Since autumn semester 2019, students have been provided with electronically signed learning agreements. Since 2016, RTU graduates have been receiving electronically signed transcripts of records.
In terms of quality assurance, a digital student survey system is used, with the help of which the quality control of study courses and study programmes is implemented each semester. Based on the results of quality control, regular measures are taken to improve study programmes and the study process, in general.
For the additional convenience of RTU students, academic and general staff members, RTU leases Microsoft Windows and Microsoft Office software, which provides all IT users with access to the latest Microsoft software. RTU students can use the licensed Windows operating system and the Microsoft Office productivity suite provided by RTU for study needs. All IT users have access to Microsoft Office 365 cloud computing platform with one terabyte of storage space available to each user and access to a variety of additional collaboration and productivity tools (Microsoft Teams, SharePoint Online, Forms, OneNote, OneDrive, Outlook, etc.). RTU students, academic and general staff have access to the University’s email system.
To support research activities, RTU has developed the Centralized Research Support System, which records all information on publications, patents, commercialization applications, Doctoral Theses, RTU scientific journals, research staff, etc. The system provides access to information according to Open Access principle (https://science.rtu.lv – screenshots of the interface are attached in “RTU IT sistēmu saskarnes / Screenshots of RTU IT systems”). RTU students and academic staff also have centralized access to research software.
RTU has high-speed fibre optic Internet and extensive wireless network infrastructure with over 400 access points, including the international *Eduroam* service. In addition, desk phones and mobile communications are provided for fast and easy

communication.
To ensure a stable and secure operation of the information technology infrastructure, continuous monitoring of the IT infrastructure and systems is performed, resulting in proactive incident control. Data backup is also ensured.
The Information Systems Security Policy has been developed and implemented with the primary goal of ensuring the secure use of RTU information systems by establishing and maintaining a sufficient set of measures to reduce or prevent potential or resulting harm. Implementation of the Information Systems Security Policy envisages security checks, data transmission network monitoring, as well as preventive measures. Regular IT security and personal data protection training is organized for IT users. Automated security incident management and risk management have been implemented. Statistics demonstrate that the number of IT security incidents dropped significantly over the last five years.
The IT User Support Centre provides IT user support, by applying a one-stop approach to process applications based on ITIL guidelines. Since 2007, the IT User Support Centre has processed and resolved more than 160,000 IT user applications.

2.3.5. Provide information on the procedures for attracting and/or employing the teaching staff (including the call for vacancies, employment, election procedure, etc.), and the assessment of their transparency.

The basic criteria for the election of the university's academic staff were determined in the annex to the law "On the Constitution of the Latvian Maritime Academy" - the Constitution of the Latvian Maritime Academy, which, taking into account the very extensive amendments to the Law on Universities, which significantly changed the typology and management model of universities, was valid until 01.06.2022. (https://likumi.lv/ta/id/165900-par-latvijas-juras-akademijas-satversmi) (only in Latvian).

The main goal of the Academy's activity was determined - to provide students with the highest professional maritime education and academic preparation, develop applied science and maintain the necessary intellectual potential of the maritime industry of the Republic of Latvia and promote its development by preparing ship officers with professional qualifications that meet the requirements of the United Nations International Maritime Organization, as well as specialists for various commercial companies, institutions and services related to maritime transport.

The basic requirements of the criteria for the election of academic staff were determined in Articles 58-61 of the LMA Constitution, based on which the procedures for the election of teaching staff and the academy's internal rules and procedures were also created.

The basic requirements for applicants for academic positions have not changed during the reporting period - a person who has a doctorate degree and at least three years of work experience as an associate professor or professor in a higher education institution can be elected to the position of professor in an open competition. A person with a doctorate degree can be elected to the position of associate professor in an open competition. The council of professors of the branch submits the results of the election of the professor or associate professor, the decision on the election of a person to the position of professor or associate professor and the evaluation of the elected person to the rector.

When holding an open competition for the position of professor or associate professor or to assess the scientific and pedagogical qualifications of an existing professor or associate professor, a council of professors of the field is established in the university in the relevant sector or sub-sector, which consists of no less than five elected in accordance with Article 33 of the Law on Universities (only in Latvian) professors of the field or subfield. The council of university branch professors is expanded to the extent that at least one-third of its members are professors of the relevant branch or representatives of professional associations whose direction of activity corresponds to the direction of the relevant position, but who do not work at this university.

An open competition is also held for the post of docent, lecturer or assistant. A person with a doctor's degree can be elected to the post of associate professor. Persons with a doctorate or master's degree can be elected to the position of lecturer. Persons with a doctorate or master's degree can be elected to the position of assistant.

Guided by seafaring as a regulated profession, which is supervised by international institutions and is under the strict control of State Limited Liability Company - "Maritime Administration of Latvia" State Ltd Seamen's Register, observing the need to acquire practical skills and knowledge in the profile subjects of professional higher education programs (professional study programs), LMA needed professional courses teaching staff, in specialties directly related to the maritime

industry. In order to be able to employ professional personnel, the election procedure used the criteria specified in the Law on Universities on the Implementation of Professional Study Programs in Universities, when the relevant academic position can be held by a person with a higher education without a Doctor of Science degree, if he has sufficient practical work experience corresponding to the taught study course. Using the experience of professional work experience, LMA attracted assistant professors to its team of teaching staff, if the applicant had the necessary practical work experience of at least seven years, and lecturers and assistants, if they had the appropriate practical work experience of five years.

During the reporting period LMA has developed a unified system of personnel planning, selection, staff compliance and satisfaction assessment, described in LMA procedure P2-1 "Personnel Management" as a systematised set of measures (see the relevant Annex to section 2.3.5). The procedure for the election of academic staff was conducted in accordance with the Regulation No. 23 "On the management of academic staff at Latvian Maritime Academy", approved by the LMA Senate on 2 July 2021, Minutes No. 39 (see the relevant Annex to section 2.3.5). These Regulations also lay down the criteria for the assessment of the qualifications of the academic staff.

Persons in academic positions and administrative positions equivalent to teaching positions are elected in an open competition. As an independent higher education institution up to 1 November 2022, LMA advertised vacancies for academic and scientific staff in the official publisher of the Republic of Latvia "Latvijas Vēstnesis", on the LMA website, EURAXESS portal, and social media.

When applying for an elected academic position, a person could apply for and be elected in one academic and one scientific position. The competition was open and anyone could apply for the vacant post.

Some examples from the advertisements in the official publisher of the Republic of Latvia „Latvijas Vēstnesis”: Publication for three academic posts in the specialisations „Navigation in Emergency” - assistant professor; „Mathematics” and „Maritime English” - lecturer; issue No. 81 of 28 April 2021; official publication No. 2021/81.AKK7; link https://www.vestnesis.lv/op/2021/81.AKK7 (in Latvian).

Publication for academic position - associate professor, specialisation "Marine Measurement Technology" issue: 12 October 2020, No. 197; Official Publication No.: 2020/197.AKK2, https://www.vestnesis.lv/op/2020/197.AKK2 (in Latvian); Publication for academic position - Assistant Professor, specialisation "Navigation" issue: 17 July 2020, No. 136; Official Publication No.: 2020/136.AKK1, https://www.vestnesis.lv/op/2020/136.AK (in Latvian).

The applicant was required to submit the signed application documents in person or by electronic means to the address indicated in the advertisement no later than the deadline specified in the advertisement (10 days) following the date of publication of the vacant post. The documents submitted by the applicant were examined by an Election Selection Board appointed by order of the Rector, which evaluated the information submitted by the applicant according to the criteria in compliance with the Regulations Nr.23 of LMA “On the management of the personnel of the Latvian Maritime academy and submitted its decision to the President of the LMA Senate. The election of academic staff (assistant professor, lecturer, assistant professor) took place in the LMA Senate: the senators were presented the decision of the election competition committee, then a counting committee was elected and a secret ballot was organised, the results were announced by the counting committee. If elected, the candidate was given a contract of employment for the 6 years period, as stipulated by the Law on Higher Educational Establishments.

The election of professors and associate professors was organised by the Council of Professors in the field. If the candidate was elected in accordance with the procedure, the Rector signed an employment contract with the candidate for 6 years.

Given that the conditions for the election of scientific staff are laid down in the Law on Scientific Activity, the deadline for the candidate to submit the documents was set at 30 days and the elections were organised by the LMA Scientific Council.

In order to recruit foreign academic staff, an open competition was announced in the official publisher of the Republic of Latvia “Latvijas Vēstnesis”, on the EURAXESS portal. Information on the conditions was also available on the LMA website in the "Job offers" section. In order to assess the eligibility of the applicant, a selection board was organised to examine and evaluate the applicant's documents:

1. Eligibility requirements - within the last 5 years, the applicant has held an academic position in an accredited foreign higher education institution;

1. Areas of activity and their relevance to LMA profile;

1. Competences and their relevance to the fields of study in LMA;

1. Conditions of engagement and long-term cooperation - the extent to which the applicant is

able to engage in academic work at LMA, including:

1. Academic work as a lecturer;
1. Ability to review study projects;
1. Development of the content of study courses;
1. Academic sustainability, including the implementation of a full study cycle in English;
1. Developing joint research lines.

The Election committee gave its opinion on the suitability of the person for the position and recommended/did not recommend the applicant for one of the following foreign academic staff positions: visiting professor, associate visiting professor, visiting assistant professor, visiting lecturer.

If the selection board gave a positive opinion, the person was offered a contract of employment.

Before joining RTU, LMA attracted foreign staff on the basis of concluded international cooperation agreements and existing contacts, but in October 2018 LMA has become a member of the EURAXESS Latvia Contact Point Network, with the intention to place all job advertisements on this portal as well.

After the integration of LMA into RTU, starting from 1 November 2022, the regulation of legal employment relations, open tender announcement, evaluation of applicants and formation of legal employment relations, for both general and academic staff are centralised and compliant with the RTU regulations.

However, taking into account the specific regulation concerning the training of specialists in the maritime sector, which includes not only national but also international regulation, RTU LMA must also comply with the additional conditions laid down in the internationally approved legal norm concerning the training of specialists in the maritime sector - the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) (https://likumi.lv/ta/en/starptautiskie-ligumi/id/1096-international-convention-on-standards-of-training-certification-and-watchkeeping-for-seafarers-1978) (1978, as amended) and the Cabinet of Ministers Regulation No. 710 of 15 December 2015 "Regulations Regarding Certification, Implementation and Monitoring of Professional Training Programmes for Seafarers" available on (https://likumi.lv/ta/en/en/id/278793-professional-training-of-seafarers,-program- certification-implementation- and-supervision-regulations).

In teaching conventional study courses, LMA involves/invites professionals - active seafarers and ship officers, involved in merchant shipping internationally, providing students with the most up-to-date information on the development trends in the field, acquaint them with the real working environment and also with the topical problematic issues. Students value such professionals highly and develop confidence and understanding of the application of the skills and knowledge acquired in LMA. In addition to education and skills, in the context of the Law on Higher Education Institutions, teachers of conventional subjects must meet specific industry criteria, such as the need to acquire the skills of an instructor-assessor by obtaining a certificate issued by the local body supervising maritime training, the Registry of Seamen of State Limited Liability Company- "Maritime Administration of Latvia" State Ltd.

The implementation of RTU personnel policy is stipulated in the Human Resources Development Plan, which focuses on three main goals within the professional development of the academic staff: renewal of the academic staff, by promoting academic work of Doctoral students, improvement of the professional competence of the existing academic staff and attraction of foreign academic staff. The action plan sets out, for each goal, the activities and sub-activities to be carried out, defines the results to be achieved, the responsible organizational units and the implementation schedule.

Elections of RTU academic staff are held on the recommendations of the Council of Higher Education, in accordance with the Constitution of RTU and the regulations approved by the Senate “On the Procedure of Electing Professors and Associate Professors” and “On the Procedure Of Electing Assistant Professors, Lecturers and Assistants” (publicly available at https://www.rtu.lv/lv/universitate/vakances-rtu/personalatlases-dokumenti (in Latvian)).

By the proposal of organizational units, the faculty council or the institute board shall consider and approve a reasoned proposal made by the head of a respective organizational unit for announcement of the competition for vacant academic positions, which expire in the respective academic year. The faculty council or the institute board shall submit the proposal under consideration to the RTU Personnel Department together with the job description and qualification requirements, including the workload (full-time or part-time).

Taking into account that the Latvian Maritime Academy is included in the status of an autonomous structural unit of RTU, questions about academic staff and the announcement of tenders and proposals for election are expressed by the LMA Council, the further procedure takes place in accordance with the regulations established by RTU, since the regulation of labor relations is centralized in RTU.

Regarding academic positions for professors and associate professors, where the term of election expires in the respective academic year, periodic evaluation of scientific and pedagogical qualifications is performed in accordance with the Procedure for Election of a Candidate for the Position of Professor or Associate Professor and the Procedure for Assessing the Qualification of an Existing Professor or Associate Professor approved by the RTU Senate meeting on 29 June 2020 (published at https://www.rtu.lv/writable/public_files/RTU_par_profesoru_un_asocieto_profesoru_periodisko_novertesanu_apstiprinasanu.pdf (in Latvian)).

The Personnel Department informs the head of the structural unit of the professor or associate professor about the need to organize the evaluation of the professor or associate professor. The evaluation is performed by the Board of professors of the field in accordance with the Law on Higher Education Institutions, the Regulations of Councils of RTU professors and the Regulations on periodic evaluation of professors and associate professors approved by the RTU Senate. After the evaluation, the Council of the professors of the field submits an opinion on the result of the evaluation to the Rector and the Personnel Department. Taking into account the evaluation of the Board and the procedures and criteria set by the higher education institution, the employment contract with the associate professor or professor may be extended for a definite or indefinite term. If, as a result of the evaluation, the scientific and pedagogical qualification of a professor or associate professor meets the evaluation criteria set by the higher education institution, the employment relationship is continued. If, as a result of the evaluation, the qualification of a professor or associate professor does not meet the evaluation criteria set by the higher education institution:

- the relevant employment contract of the professor or associate professor is terminated;
- the department may decide to announce a new vacancy.

The Personnel Department announces a competition for academic staff positions at RTU website, the Euraxess vacancy portal and at least in one mass medium distributed throughout Latvia. The applicant shall personally submit or send by email the signed application documents no later than one month after the date of competition announcement.

The employment relationship shall be established by means of a written employment agreement between the Employer and the Employee at least two working days before the commencement of employment. The employment agreement shall be drawn up in duplicate. One copy shall be kept by the Personnel Department of the Department of Personnel and Working Environment (in accordance with RTU File Nomenclature) and the other shall be issued to the Employee. Prior to entering into the employment agreement, the applicant is acquainted with RTU Rules of Procedure.

Employee's duties are defined in accordance with the Classification of Occupations of the Republic of Latvia and RTU Position Catalogue, Unified Work Remuneration Procedure at RTU (chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.rtu.lv/writable/public_files/RTU_vienota_darba_samaksas_kartiba.pdf) (in Latvian), RTU Rules of Procedure and the requirements laid down in the job description, which is an integral part of the employment agreement. Job description shall be presented to and signed by the Employee. Job description shall be drawn up in duplicate; one copy shall be issued to the Employee and the other shall be kept according to RTU Case Nomenclature.

Before taking up the employment, the Applicant shall present an identity document – passport or identity card, the Foreigner shall additionally present a visa or residence permit, as well as a work permit if such a permit is required in accordance with regulatory enactments.

Visiting academic staff shall be employed in compliance with:

- Law on Higher Education Institutions (https://likumi.lv/doc.php?id=37967 (in Latvian));
- Labour Law (https://likumi.lv/ta/id/26019-darba-likums (in Latvian));
- Immigration Law (https://likumi.lv/ta/id/68522-imigracijas-likums (in Latvian));
- Cabinet Regulations No. 568 "Regulations Regarding the Procedure by which a Research Institution Concludes and Terminates Employment Agreements with a Foreign Researcher" as of 21 July 2008 (https://likumi.lv/doc.php?id=178749 (in Latvian));
- Cabinet Regulations No. 225 "Regulations Regarding the Amount of Financial Means Necessary for a Foreigner and the Determination of the Existence of Financial Means" as of

25 April 2017 (https://likumi.lv/doc.php?id=290808 (in Latvian));

- Cabinet Regulations No. 25 "Implementing Regulations for the First, Second and Third Project Applications Selection Round of Specific Objective 8.2.2 "To Strengthen Academic Staff of Higher Education Institutions in the Areas of Strategic Specialization" of the Operational Programme "Growth and Employment"" as of 9 January 2018 (https://likumi.lv/doc.php?id=296513 (in Latvian));
- RTU internal regulations “Procedure of Involvement and Employment of Visiting Academic Personnel at RTU” as of 26 November 2018 ;
- RTU internal regulations "Unified Work Remuneration Procedure at Riga Technical University" as of 27 April 2020 (amendments on 28 September 2020, 21 December 2020, 25 January 2021, 31 January 2022).

According to the results of the applicant selection competition, the employment agreement with the visiting academic staff is signed within a month, specifying an hourly rate. Job description is also provided, which includes specific job responsibilities (delivering lectures, designing study courses, lecture cycles, supervising study papers, etc.). The workload of the visiting academic staff member may include the provision of face-to-face work (delivering lectures, providing tutorials, conducting seminars, supervising graduation papers, etc.) and remote work if it complements the face-to-face work (video lectures, tutorials, supervision of graduation papers). If the work is to be carried out remotely, face-to-face visits (e.g., tutorials) should be provided at the organizational unit.

The visiting academic staff member shall enter into the employment agreement in compliance with the requirements of the Latvian regulatory enactments. During the term of the employment agreement, all assignable copyrights for the work created by the visiting academic staff member, including curricula, materials, and any other teaching aids developed by the visiting academic staff member, shall pass to the Employer. The visiting academic staff member, upon termination of the employment agreement, shall be obliged to transfer the work created within the framework of the employment agreement, including study materials, to RTU. Before terminating the employment agreement, the visiting academic staff member shall submit to the head of a respective organizational unit the reports and other documents stipulated in the employment agreement.

During the reporting period RTU LMA has actively cooperated with several foreign educational institutions to attract guest teaching staff, for example:

- Guest associate professor from Klaipeda University (Lithuania). Engaged in Master's study course in Cargo Handling Technology Management (contract periods: 01.03.2019.-31.03.2019; 02.03.2020.-30.06.2020; 22.04.2021.-30.06.2021.);

- Guest associate professor from Klaipeda University (Lithuania). Engaged in Master's study programme delivering a study course Refitting of ships: environmental, technological and design aspects (contract 04.11.2019.-03.12.2019.);

- Yerevan State University (Yerevan, Armenia), guest professor. Contracted for Bachelor level English language training + Erasmus students' English language training (contract periods: 10.09.2020-09.03.2021; 10.03.2021-31.08.2021; 01.09.2021-30.06.2022);

- Klaipeda University (Lithuania), guest assoc. professor. Engaged in Master's study course in Transport Logistics (terms of employment: 10.09.2020.-09.03.2021.; 10.03.2021.-31.05.2021.);

Foreign academic staff are employed at RTU LMA on a fixed-term intermittent contract basis as required depending on the lecture schedule in the respective semester of the academic year.

2.3.6. Specify whether there are common procedures for ensuring the qualification of the academic staff members and the work quality in place and provide the respective assessment thereof. Specify the options for all teaching staff members to improve their qualifications (including the information on the involvement of the teaching staff in different activities, the incentives for their involvement, etc.). Provide the respective examples and specify the way the added value of the possibilities used for the implementation of the study process and the improvement of the study quality is evaluated.

The education, qualifications and regular and appropriate competence development of the teaching and academic staff involved in the implementation of educational programmes are indispensable for ensuring and strengthening the quality of education.

According to the Cabinet of Ministers' 11.09.2018. Regulation No. 569 "Regulations on the Education and Professional Qualifications Required of Teachers and the Procedure for the Professional Competence Development of Teachers"(https://likumi.lv/ta/id/301572-noteikumi-par-pedagogiem-nepieciesamo-izglitibu-un-profesionalo-kvalifikaciju-un-pedagogu-profesionalas-kompetences-pilnveides-...) (only in Latvian), academic staff of higher education institutions must complete a professional development programme on innovations in the higher education system, university didactics or educational management amounting to 160 academic hours within the term of their election. Professional development may include appropriate international mobility as well as participation in conferences and seminars.

LMA has developed a unified system for staff planning, selection, evaluation of staff suitability and satisfaction, which is described in LMA procedure P2-1 „Personnel Management". The LMA procedure P2-2 "Organisation of Teachers' Work" defines the procedure for planning and supervising individual work, monitoring and ensuring teachers' qualifications and ensuring teachers' professional competence.

In 2019, the procedures were completely revised and individual work plans for teaching staff were introduced, which are drawn up at the beginning of the academic year by the study programme directors in cooperation with the teaching staff and approved for each teaching staff member. At the same time, the procedure for evaluating the performance indicators of the teaching staff has been established. The evaluation criteria include the following sections: pedagogical competence, scientific competence and organisational competence. Taking into account that LMA provides qualifications for internationally regulated maritime professions, LMA also assesses the professional qualifications of lecturers in the field of professional specialisation - e.g. the existence of an instructor-assessor certificate issued by the institution supervising the study process, i.e. Registry of Seamen of the Maritime Administration of Latvia. The instructor-assessor certificate certifies the right of the instructor to teach the study courses as per the STCW convention.

During the reporting period, the process of qualification development was also reviewed and improved several times to ensure compliance with the established requirements. Individual plans include information on the skills to be developed based on the capacities and needs of the academic staff, as identified through a questionnaire in which staff members indicate the most relevant topics and areas in which they wish to develop. The data from the student questionnaire and the information from the Student Council on which topics should be improved from the students' point of view are also assessed.

With the approval of the LMA strategy in 2018, LMA has devised and introduced an annual plan for the development of academic staff qualifications, which is developed by the heads of the departments together with the Vice-Rector for Studies, the HR Department and the LMA management and approved by the beginning of the current academic year. The annual staff development plan shall include: specialised training needs; English language development needs; internship needs; attendance at conferences/seminars; other competency development and professional development activities.

Academic staff may participate in professional development activities of their individual choice, including conferences and seminars. Staff may claim reimbursement for participation in such events, which shall be assessed by the management of the Academy within the framework of the Academy's annual budget.

At the same time, in 2018, the LMA Academic staff development action plan was devised and approved, within the framework of which a long-term plan for the development of the competences of the academic staff for the period until 2022 was established, which, in turn, was drawn up by analysing the competences, qualifications and relevance of the academic staff at a given time, taking into account the priorities set out in the Maritime industry development concept.

The successful implementation of the Academic staff development action plan was mainly ensured by the implementation of two LMA projects within the framework of the Operational Programme "Growth and Employment" of the European Union Funds:

- Within 8.2.3 Specific Support Objective "Ensuring better governance in higher education institutions" - LMA project "Information and Communication Technologies (ICT) platform for e-learning and management process support at the Latvian Maritime Academy", within Action 3 "Competence development of LMA management staff", several training courses

were implemented with the participation of LMA academic staff:

1. Course on online learning development and digitalisation of learning content;

2. Academic Integrity in Higher Education;

3. Quality management of studies in the European Higher Education Area;

4. Training on eco-innovation;

5. Cybersecurity.

- Within 8.2.2. Specific Support Objective "To strengthen the academic staff of higher education institutions in the areas of strategic specialisation" LMA project "Measures to promote renewal, international cooperation and competence development of the academic staff of the Latvian Maritime Academy", within the framework of the activity "Measures to improve the competence of the academic staff" the measures to improve the qualification of the LMA academic staff were implemented in several directions:

1. Training in professional Maritime English (37 academic staff trained);

2. Internship at a company (aimed at improving competences and ensuring the improvement of study content, including promoting the solution to current problems in the field within the framework of students' research and familiarisation with the latest technologies used in the field; 11 persons participated in the internship activities);

3. Specialised training (11 topics were covered, e.g. project management, communication and cooperation in team management in a digital environment, training on the use of CAD technology in shipbuilding, etc.; a total of 50 persons were trained).

LMA carries out an annual assessment of the continuing professional development of its academic staff in accordance with the procedure P2-1. For the evaluation, the staff submit reports within the framework of the Individual Plan Performance Review and the evaluation is carried out by the Vice-Rector for Studies and Sciences, as well as heads of departments. Based on the results of the annual qualification assessment, further guidelines for the activities of academic staff are determined, including the individual's development expectations and needs for the next period; directions for the renewal of the academic staff of LMA; directions for attracting foreign academic staff to LMA; directions for internships for the next period. The information obtained is used for the preparation of the annual staff development plan and the annual report of the management of the Academy. Following the development of an incentive-based remuneration policy for LMA, the results of the annual qualification assessment will also be used for individual staff remuneration reviews.

After LMA integration into RTU, starting from 1 November 2022, the qualification review for academic staff will be carried out centrally, in accordance with the RTU regulations.

2.3.7. Provide information on the number of the teaching staff members involved in the implementation of the relevant study programmes of the study field, as well as the analysis and assessment of the academic, administrative (if applicable) and research workload.

A total of 70 employees, including 25 women, are employed as LMA teaching staff in various positions in the implementation of the "Seafaring" study direction (see the corresponding appendix of section 2.3.7 – List of teaching staff). The distribution of teaching staff by academic positions is as follows:

A total of 45 employees (including 16 women) have been elected to academic positions, who during the reporting period perform the duties of a teaching staff,

giving lectures and teaching various training courses, practical training for LMA students. In addition to LMA teaching staff who have been elected to the relevant academic position, guest teaching staff are employed at LMA, which means that the specific person has been elected in the relevant status in another higher education institution, they are hired with a fixed-term employment contract for the implementation of the study process. There are 7 such employees in total, including 3 women. Out of the mentioned guest teaching staff, 4 persons are not residents of Latvia, but regularly come from neighboring Lithuania, therefore the election status of these persons cannot be verified in the Latvian State Education Information System (VIIS). In addition, it should be noted that Jānis Kasalis, who has been an LMA associate professor during the reporting period (elected by the LMA Professors' Council (protocol No. 2; decision No. 5), the term of election expired on 16.06.2023), has not been re-elected, therefore he is currently an employee no longer on the list of elected academic staff.

In order to be able to ensure the continuity of the study process, it is not enough to have only academic staff. For the purpose of ensuring the study process, LMA also hired teaching staff as acting responsibilities (e. g. assistant professor p. i.; lecturer p. i.), but since the addition of LMA to RTU, such positions are no longer planned and all teaching staff who are not elected academic staff, but are high-level specialists, are hired at work as lecturers (temporarily recruited). Only fixed-term employment contracts are concluded for these employees.

During the reporting period, a total of 18 employees, including 6 women, were employed as lecturers (temporarily recruited).Table. Distribution of elected academic staff by positions (as of 01.11.2023)

Table. Distribution of elected academic staff by position (as of 01.11.2023)

Elected Academic staff	**Total (incl.women)**	**PhD**	**Guest (incl.women)**	**Total**	**PhD**
Professors	6 (1)	6		6 (1)	6
Associate professors	7 (1)	6 + 6	5 (2)	12 (3)	12
Docents	10 (6)	5	1 (1)	11 (7)	6
Lecturers	10 (5)	-	1 (0)	11 (5)	-
Senior researcher	3 (-)	3		3 (-)	3
Researcher	5 (1)	2		5 (1)	2
Research assistants	4 (2)			4 (2)	-
Total	**45 (16)**		**7 (3)**	**52 (19)**	**29**

Teaching staff who are lecturing as lecturers because they are not elected to any higher education institution

Position of Teaching staff	**Total (incl women)**	**Doctoral degree**	**Notes**
docents	18 (6)	1	fixed-term contract
Total (without election)	**18 (6)**		

The qualifications of the academic staff fully meet the requirements for the implementation of the study programs of the field of study. From the list of elected academic staff, a total of 29 employees have a Doctor's degree (PhDs, including 1 – Dr.habil) - **55,8 %**. Including all professors (6 persons) and associate professors (6 persons), as well as invited assoc. visiting professors (6 persons) and leading researchers (3 persons). From the list of researchers, 2 persons have a Doctor's degree, from the docent's list, 6 persons have a Doctor's degree. 4 docents have a Master's degree, while one has a professional Bachelor's degree. In the list of lecturers, 10 persons have a Master's degree, while one has a professional Bachelor's degree. In the list of researchers, 3 employees have a Master's degree, while 4 research assistants have a Master's degree.

Professional teaching staff, experts in their field, who have worked in respective field, that is associated with the delivered lecture course theme, are admitted in the job as docents. Within the list of docents, one person is holding Doctor's degree, 12 persons have Master's degree, while 3 persons have professional Bachelor's degree.

Extended information about the teaching staff of all the study directions (list of academic staff and CV) is in appendix. Statistical data are compiled for the specific study year beginning on the 1st of October, but can change during the academic year, since not all of the teaching staff are employed throughout the year.

Analysing the data on the elected academic staff of RTU LMA, it can be concluded that the PhD is obtained in the field of science relevant to the course taught, the majority in engineering, but depending on the course taught, there are also academic staff with PhD in economics, pedagogy, social sciences, etc. On a day-to-day basis, staff responsibilities overlap and all elected academic staff members have both academic and research workloads and, in some cases, administrative work. At LMA, there is no strict separation of academic and research workload, the proportion of each member of academic staff is determined individually by planning the staff member's workload in the department, taking into account their position, involvement in projects, professional competences and experience.

The qualifications of academic staff in the field of study are sufficiently high, and it is particularly important that the majority of academic staff with PhDs are professors, associate professors and senior researchers in their field, with some international experience.

2.3.8. Assessment of the support available for the students, including the support provided during the study process, as well as career and psychological support by specifying the support to be provided to specific student groups (for instance, students from abroad, part-time students, distance-learning students, students with special needs, etc.).

In the reporting period until joining RTU, the support system available to LMA students was developed in several directions: informative, methodological and financial support, career support, support for foreigners, etc. Support is also provided to potential students of LMA. Meetings are organised in schools to inform potential students about the study programmes offered and the employment opportunities after graduation. Information (“open doors”) days are organised in person or online, shadowing and career days, as well as a competition for secondary school students "ENKURS" are just some of the means used to promote the maritime industry.

Information support
Information support is provided through meetings, consultations and other events in person or online, by phone or e-mail to target groups (first year students, other students including visiting students, etc.), as well as through various websites (LMA website http://www.latja.lv ; social network profiles: https://www.facebook.com/latja , https://www.linkedin.com/school/latvijas-juras-akademija , etc.).

LMA website provides information on study programmes, former self-assessment reports, LMA staff contact details, timetables, news and other relevant information. The "Progress" section (http://www.latja.lv/winstudents) allows students to view their progress, orders, placement documents and information concerning state exam papers.

A face-to-face familiarisation meeting is organised annually with first-year students on relevant study and other issues: LMA study environment, staff responsible for study programmes, support and counselling opportunities at LMA, academic integrity, uniform culture, the study process, tuition fees and loans, dormitory, etc. A meeting is also organised every year in the first week of December with the seniors of the first year groups to explain the principles of the examination session and to present the binding documentation. If necessary, mentors/advisers are assigned to first-year students.

Group meetings are organised for all students with the programme directors, in person or online, as necessary, to inform them about the content of the study programmes, the objectives and the learning outcomes to be achieved, as well as to describe the study process, the principles of organising shipboard practice and other topical issues. The necessary information support is also provided to students by the LMA staff involved in the provision of the study process.

Methodological support
Methodological support for students is provided in person, by offering the resources of the LMA Study Centre (final paper samples submitted in previous years, methodological materials prepared by LMA lecturers, possibilities of copying study materials, etc.), as well as by placing the necessary support materials in the electronical study environment (platform https://omars.latja.lv , LMA intranet L:\Students).

In addition, students have access to consultations with the responsible staff on study issues in person, by e-mail and by phone, as well as in the forums of the LMA platform https://omars.latja.lv and online via the ZOOM and Microsoft Teams platforms. To improve their research skills, students can take the free elective course "Diploma Writing Basics and Research Skills".

Career support includes:
- "Career Days" organised by LMA with the participation of industry partners, other meetings with maritime industry representatives and potential employers both in person and online, study tours, guest lectures, etc;
- Several cooperation agreements with various maritime organisations/companies for the provision of shipboard practice;
- Information and educational events organised by the Practice Planner for students and other stakeholders on career development issues, thus providing support in career planning and development, as well as helping to develop career management skills, including job search.

Financial support includes:
1. the provision of social assistance:
- 100% discount for orphans to stay in LMA dormitory;
- 75% tuition fee discount during shipboard practice;
- 70% tuition fee discount during shipboard practice for visiting students (course attendees);
- 100% tuition fee discount when studying abroad or at a partner university in

Latvia;
- 70% tuition fee discount for part-time students who are employed full-time at LMA;
- 40% tuition fee reduction for part-time students who are employed part-time at LMA.

2. Erasmus+ student mobility funding.

Other support:
- Every student at LMA is provided with a shipboard practice opportunity throughout the learning process;
- LMA students have the possibility to apply for mobility grants offered by the ERASMUS+ mobility programme for studies in foreign partner universities and practice in foreign companies (an opportunity widely used);
- As the number of dropouts due to lack of attendance has increased significantly in recent years, a set of measures has been developed at LMA including a student-centred individual approach, identifying a particular student's learning deficits and providing individual support to address them;
- LMA provides study opportunities on individual timetables to facilitate students' participation in the Academy's research work; to enable students to engage in part-time work related to their specialisation at the Academy; to enable students to continue their studies in cases where regular fulltime studies are not possible due to family circumstances; to enable students to continue their studies if their academic group has become too small to organise regular full-time studies.

Support for foreigners:
- Support is provided for all kinds of issues related to the study process at LMA and the success of the ERASMUS+ exchange mobility programme at LMA;
- All visiting students who wish to do so are provided with accommodation in the LMA dormitory during their Erasmus+ mobility;
- In cooperation with the LMA Student Council, visiting students are also involved in LMA social events (e.g. ERASMUS national food tasting events where guest students present their national dishes, guided tours, Christmas and sports events organised by LMA Student Council, etc.);
- In cooperation with the LMA Student Council, "buddies" are assigned to help visiting students integrate into LMA learning environment and Latvia;
- Upon arrival at the beginning of each semester, an introductory seminar is held for visiting students within ERASMUS+ framework and full-time foreign students starting their studies at LMA, where the LMA International Cooperation Project Manager introduces the visiting students and new full-time foreign students to the organisation of LMA study process, as well as the living conditions and answers relevant questions from the participants;
- During the COVID-19 pandemic, visiting students were supported in obtaining food during self-isolation;
- Both visiting and full-time visiting students were given the opportunity to study theoretical courses remotely;
- If necessary, all international students are supported in obtaining medical services, e.g. assistance in arranging doctor's appointments and visits, as well as in obtaining entry visas and/or residence permits.

Before the reorganisation of LMA, support for foreign students was provided by LMA External Relations Department, and now by the RTU LMA International Cooperation Project Manager.

Upon joining RTU, LMA benefits from the RTU Career Support and Services Unit and is thus able to provide significantly more career and psychological support to students described further in detail.

Career development support at RTU involves:
For prospective students:
- consultation on study programme selection;
- consultation on study selection and skills profiling;
- career choice seminars within RTU Open Days and upon request.

For current students:
- regular seminars and individual consultations on the development of career management skills, writing CVs and cover letters, job interview process;
- seminars on the development of entrepreneurial skills;
- project "RTU Golden Fund" to honour the best graduates and to promote new opportunities in the labour market;

- student summer camps for the development of career management and social skills and competences;
- online resource https://ekarjera.rtu.lv/ (in Latvian);
- an annual career day aimed at informing students majoring in engineering, natural and social sciences about the best and leading companies in the respective fields and bringing them closer to potential partner companies for undertaking internship and employers.

Psychological support involves:

- individual consultations and support in case of difficulties with studies (time planning, lack of motivation, social anxiety, adaptation difficulties) and individual psychologist consultations on personal issues and difficulties (including crisis intervention).

Seminars and workshops on the following topics:

- adaptation events for first-year students - informative classes within the study course "Introduction to Study Field", seminars on the development of learning and communication skills;
- stress management methods;
- time planning methods; o self-motivation;
- emotion management and development of emotional intelligence;
- public speaking skills.

Support is differentiated by the target groups (https://www.rtu.lv/en/studentservice/career-centre/psychological-support):

- prospective students (secondary school pupils, vocational school graduates, other prospective students): consultations concerning the studies are available, including skills diagnostics.
- first-year students: informative classes within the framework of the study course "Introduction to Study Field"; seminars on the development of learning skills; information letters on career and psychologist support opportunities; individual career and psychologist consultations; and other activities in cooperation with businesses and non-governmental organizations.
- all RTU students: individual career and psychologist consultations, seminars and classes, guest lectures, RTU Career Day.
- foreign students (Erasmus+ mobility and full-time): individual and career support consultations are available in English; wherever possible, seminars and classes are conducted in English, such as seminars on writing CVs and cover letters, time management.
- students with special needs: psychological and career support consultations are provided upon request; physical access to the room; opportunity to come with one's mentor or interpreter.
- graduates: career support consultations are provided if necessary; consultations on writing CVs and cover letters, job interview process, career opportunities.
- staff: consultations on work and study related issues are provided to RTU academic and general staff members, if necessary.

As a result of pandemic, the offer has become even more accessible, as counselling and also career classes can be offered remotely.
In 2014, the Student Services Centre was opened in Kīpsala campus. It provides day-to-day support under the supervision of the Career Support and Services Department:

- provides answers to various questions that students may have;
- provides printing, copying and binding services;
- issues identification cards;
- draws up references and transcripts, if necessary.

Further information is available at: https://www.rtu.lv/en/studentservice/student-service.

In 2019, work was started on strengthening support for students with disabilities and in 2020 guidelines were issued with recommendations for effective communication and improvement of the study environment for people with disabilities and special needs: https://www.rtu.lv/lv/studentuserviss/par-mums-ssd/noderigi-ssc/noderigi-materiali-1/ka-komunicet-un-nodrosinat-piemerotu-studiju-vidi-personam-ar-invaliditati-un-specialam-vajadzibam (in Latvian).

For students, various types of support and counselling are also provided by the RTU Student Parliament, whose structure includes all faculty Student Councils and the International Students Council (ISC), which also represents the rights and interests of foreign students. Every RTU student

in all level study programs have the right to get involved in Student Parliament, as well as faculty Student Council's and ISC, both extramural and intramural, as well as full-time and part-time students. Student Parliament and faculty Student Council's organise study evenings where students can help each other learn different topics together; promote involvement in science and student clubs in order to develop different practical knowledge in the study field; organize various academic-type events, such as panel discussions and guest lectures, excursions with collaborators from different sectors, providing students with the opportunity to explore different future potential jobs and to further develop understanding between acquired knowledge in lectures and in the specific work environment.

Further information available on: https://www.rtu.lv/en/rtusp.

RTU International Cooperation and Foreign Students Department has academic consultants who consult foreign students on studies and practical issues. Academic consultants keep track of the students' academic performance and attendance, as well as meet students on a regular basis to make sure their studies are successful, both in and outside the classroom. Shortly after the arrival of students, academic seminars are held, which are compulsory for all new students. Academic seminars are held approximately twice a week at the beginning of each semester, in line with the student influx. During these seminars, academic consultants introduce students to RTU internal rules, their responsibilities and rights, academic integrity, and various other practical aspects. In the future, it is planned to divide the students into groups according to the study programmes and to involve the heads of the study programme in the seminars so that the students would get acquainted with the management of the programme in due time. If during the semester a student is observed to face difficulties with the study process (attendance, academic arrears), the student is invited to an individual meeting with his/her academic consultant to discuss the best possible solutions to the problem. Each academic consultant has to arrange meetings with 2-5 students per week. After a month, students are invited to the meeting again to discuss their progress and make sure the situation has improved.

At RTU International Cooperation and Foreign Students Department, students have a contact person for facilitating the immigration process. The contact person organizes immigration seminars and document examination at the beginning of the semester. The Department arranges an appointment for students with the Office of Citizenship and Migration Affairs of the Republic of Latvia and verify the compliance of the submitted documents with the requirements specified in regulatory enactments.

RTU ICFSD foreign student admission team organizes introductory or orientation virtual seminars for foreign students, which take place before the beginning of the academic year / semester and students' arrival in Latvia, to inform students about practical issues related to entry and stay in Latvia (entry requirements, vaccination, self-isolation, accommodation, etc.)

ICFSD in cooperation with the Student Service provides its students with a career counselor, who explains employment-related issues to students and introduces them to available vacancies, thus facilitating students to gain work experience and develop their skills and abilities.

2.4. Scientific Research and Artistic Creation

2.4.1. Description and assessment of the fields of scientific research and/or artistic creation in the study field, their compliance with the aims of the higher education institution/ college and the study field, and the development level of scientific research

and artistic creation (provide a separate description of the role of the doctoral study programmes, if applicable).

RTU LMA is an independent educational and scientific institution, which implements professional study programmes, as well as engages in science and research.
In the reporting period, scientific and research activities were carried out by RTU LMA academic staff, including teaching and research staff.
At the end of 2018, the RTU LMA analysed the activities of LMA Research Institute and came to the conclusion that the Research Institute as a separate unit does not contribute to the development and growth of the scientific potential of the Academy. On 6 June 2019, the LMA Research Institute was dissolved, but LMA was transformed into a scientific institution and given the appropriate status.

During 2020-2022, the following scientific staff was elected to the RTU LMA Scientific Council:

	Senior researchers	Researchers	Scientific assistants
07.05.2020.	6	8	8
29.12.2020.	1	2	3
11.06.2021.	0	1	7
30.11.2021.	6	4	4
30.06.2022.	2	3	6

At the moment of joining RTU (01.11.2022.), LMA has elected scientific staff of 66 persons who perform scientific research activities, including: 19 senior researchers, 19 researchers and 28 research assistants.
RTU LMA currently participates in a number of scientific projects, which result in the proposal of a number of solutions to the topical issues in the field and contribute to the development of the field.
The research work also is performed by the LMA academic staff.
RTU LMA research specialization at all levels and in all fields fully corresponds to the Latvian RIS3 priority direction "Smart materials, technologies and engineering systems", especially to the RIS3 strategy 3rd direction of economic transformation priority No. 5 - "Modern and adequate education system for future labour market requirements, which promotes economic transformation and development of competences and entrepreneurial capacity at all levels of education necessary for implementation of the priorities of smart specialization strategy". The research area "Mechanical and Metal Working, Thermal Power Engineering, Heat Engineering and Machinery" is also closely linked to the smart specialisation area "Smart Materials, Technologies and Engineering Systems".
RTU LMA research areas include the following topics: Baltic shipping history, Maritime education and human factors affecting transport safety, Autonomous ships, Digital shipping and cybersecurity, Smart ports.
Structurally, research at RTU LMA is organised into horizontal and vertical research platforms, from which the Academy's detailed research areas emerge.
Vertical RTU LMA research platforms of include:

1. Engineering systems involved in digital shipping and cybersecurity;
2. Safe and efficient marine engineering systems and their technical operation, including remote and autonomous ship systems;
3. Smart and environmentally friendly port technologies.

Horizontal RTU LMA research platforms include Maritime Education, History and Human Resources in the Maritime industry, their Effective Management and Maritime Safety. The horizontal research platforms are an integral part of the implementation of the vertical research platforms.

The horizontal and vertical research platforms are further developed into detailed research areas. In addition, all horizontal research areas cover both digitalisation and engineering systems issues, as nowadays mechanical systems cannot be separated from IT systems and vice versa. It should be mentioned that RTU LMA participates in current research on cybersecurity issues and is included in „Network of competence centres and the European Cybersecurity Research and Competence Centre /Council of

the EU”.

All in all, research at RTU LMA is in line with the objectives of the fields of study concerned, as well as the level of scientific development in the maritime sector. RTU LMA has set the following quantitative indicators for the evaluation of research development results:

- Consistent fulfilment of the criteria for receiving research base funding and increase in funding;
- An increase in the number of scientific publications to at least 10 per year;
- At least 12 scientific staff employed;
- At least EUR 1 million in external funding for research.

The long-term goal of RTU LMA is to become the leading R&D centre in the Baltic States for the sub-sector "Maritime Transport and Infrastructure" of the sector "Construction and Transport", with a good reputation among other R&D centres in the EU representing this sector. To achieve this goal, RTU LMA is continuously strengthening its research capacity by attracting new partners, implementing international research projects and increasing the number of scientific publications.
The involvement of doctoral students in research is a key condition for the implementation of the RTU LMA doctoral programme; nevertheless, RTU LMA understands that according to the conceptual report of the Ministry of Education and Science of 12.11.2019, a motivating research environment with adequate, modern infrastructure must be provided, which is one of strategic objectives of RTU LMA and is continuously ensured.
On 30 September 2020, LMA licensed the Doctoral Programme "Maritime Transport". On 26 October 2022, LMA included the Doctoral Programme "Maritime Transport" in the list of study programmes for accreditation.
The doctoral study programme "Maritime Transport" is not being promoted for accreditation as it will be included in the RTU doctoral programme "Transport" as two specialisations:

1. "Marine Engineering Systems and Technical Operations" comprises the first and second strands of the vertical research platform.
2. "mart Port Technologies" includes the strands of the third vertical research platform.

The aim of these specialisations is to train highly qualified researchers in maritime transport engineering, specialists to work in maritime industry related companies, as well as highly qualified specialists involved in teaching and scientific work to perform scientifically innovative tasks and find engineering solutions, to ensure the development and renewal of maritime transport infrastructure, and to provide universities and scientific research institutions with specialists. The programme also aims to promote the competitiveness of maritime professionals in the changing socio-economic conditions in Latvia and in the international labour market, to provide in-depth knowledge, skills and abilities specific to the maritime transport sector and to prepare for research and pedagogical work in the maritime transport sector.

Doctoral students are young scientists in the making who are trained through research and who make a significant contribution to the creation of new knowledge, products, methods and systems, as well as to the transfer of knowledge. Through research, PhD students learn key skills such as problem-solving, innovative, creative and critical thinking, knowledge analysis and synthesis, and strategy development. RTU LMA doctoral programme also incorporates the principles of industry doctorates and allows working maritime professionals, in particular those in specific professions such as captains, to obtain a PhD by conducting research in their professional field. This approach is based on collaboration with other fields outside LMA, which is an excellent way to improve the ability of PhD students to link abstract thinking to practical applications and vice versa. This is necessary to create new knowledge, products or services.
The objectives of the specialisation "Transport" in the PhD programme are:
- to provide in-depth theoretical knowledge in the fundamental areas of maritime transport;

- to acquire the ability to carry out scientific research;

- to acquire the ability to formulate and independently solve scientific problems;

- to acquire the skills for scientific debate on the topics of their work and to be able to engage in debate on other scientific topics in the field;

- provide knowledge of technical methods of innovation (training, study, experience, science, technique, technology, production);

- to provide knowledge and skills for pedagogical work;

- to contribute to the conduct of scientific research of international relevance and to the presentation of papers at international conferences and seminars.

2.4.2. The relation between scientific research and/or artistic creation and the study process, including the description and assessment of the use of the outcomes in the study process.

Scientific research is linked to the study process at RTU LMA. The results of research work are used in the study process, for example:

the study course of „History of Latvian Shipping" integrates the research results of the International Maritime History Readings; moreover, the research findings of human resource management in the maritime industry contribute the study process of navigators, marine engineers and marine electrical-automation students.

Students learn the skills of writing diploma theses in bachelor's and master's level studies, as well as writing scientific articles as separate study courses.

This study course "Maritime Innovations" is compulsory for the students of the bachelor's program and optional for the master's study program, the purpose of which is to introduce the basic principles of innovation management, the concept of innovation and types of innovation, to develop the skills to use innovation management, creative thinking and analysis methods for the promotion of maritime and logistics business, innovation management, research and development in the maritime sector, use innovation and innovation management, create added value in the national economy, economy and international market.

By completing the study course and successfully passing the tests, the student is able to acquire the following knowledge: recognize innovation and apply innovation management methods by learning the reductions specified in the innovation management program, recognize innovation, its types, processes, innovation management methods and use them in the field of education and professional activity, understand various types of information about innovation, idea generation, problem solving, business modeling in the maritime field.

Develop skills based on an analytical approach, perform practical tasks in the field of innovation management. The student is able to demonstrate skills that allow finding creative solutions to problems, is able to identify novelty, research and develop, reasonedly discuss practical issues and solutions, as well as improving his/her competences. Evaluate and improve one's own and other people's performance, work in cooperation with others, plan and organize work to perform specific tasks.

Improve competences to independently obtain, select and analyze information about innovation, innovation commercialization possibilities, make decisions and solve problems in the relevant scientific sector, demonstrate knowledge, understand professional ethics, evaluate the impact of one's professional activity on the environment and society and participate in the development of innovation management, business field .

During the period from 2019 to the beginning of 2023, while LMA was implementing the Innovation Grants project, students had the opportunity to get involved in the development of innovation ideas, based on the research topics defined in LMA's Research Directions.

Students worked on their scientific topics for 3-6 months, had the opportunity to present their research results, worked on prototyping and learned to work in teams of up to 4 people. Each student team was assigned a research supervisor who supported and advised the team. During the implementation of the project, this program was used and learned by more than 400 students who were not only from LMA, but also from other universities. We also had excellent cooperation with foreign universities, where joint teams were formed with 6 foreign university students.

Currently, LMA students independently choose the topics of their diploma theses, which are based on LMA Research directions, mostly based on the problems of the industry identified in practice.

Students are matched with an appropriate diploma thesis supervisor, who is the most competent in the given field of research, if it is not possible to find it locally at LMA, it is recruited from outside.

Various applications for scientific projects are being prepared, in which students are involved in teams (and this is often a mandatory requirement). As a good example, we can mention Latvian Science Council project no. Lzp-2019/1-0478 Development of smart technologies for efficient and thoughtful water supply operations (STEEWO). Four master's program students involved in the project successfully defended their diplomas, connecting the topics with the scientific activities of the project.

Undoubtedly, it is still necessary to promote the involvement of students in scientific activities, but a disturbing factor is the frequent marine practice during studies, which does not allow full involvement in full-fledged research.

In order to further ensure effective connection with the study process, RTU LMA identifies the following objectives and their attainment mechanisms:

1) Adherence to the criteria for awarding scientific base funding and stable base funding in the annual RTU LMA budget must be supported:

a. Attraction of new international research projects through available funding from EU Structural Funds, identification of Horizon2020 and FP9 research caals for proposals, partner search through the National Contact Point and EURAXESS portal. Regular update of all RTU LMA academic and scientific staff.
b. Strengthening cooperation with existing partners, ensuring sustainability. New research projects will be submitted on the basis of existing RTU LMA projects, joint publications will be developed and published in international databases. Research results will be integrated into the study process.
c. Research will be carried out using the existing RTU LMA laboratories to attract resources for the development of research infrastructure. By introducing a clear internal financial allocation plan and analysing the research potential of RTU LMA, the restructuring of laboratories and the identification of needs will be ensured to promote qualitative growth both in research and in the use of research results for the study process, to promote staff motivation to engage in research work.

   Young Bachelor and MSc students will be recruited to work in research groups with RTU LMA professors, senior researchers and researchers. Establishing a tradition of open-access laboratories, encouraging students' involvement in research. It will be possible to implement it by getting involved in the implementation of RTU and LMA consolidation grant projects.

2) Development of new methodological and teaching materials to support the study process, using EU structural funds to increase the capacity of the university. This will motivate RTU LMA lecturers to publish already developed teaching materials.

3) Continuation of the tradition of RTU LMA to organise the annual conference "Water Transport and Infrastructure", the student scientific conference "Sustainability of Maritime Innovation Ideas" in 2020, 2021 and 2022. In 2023, an international conference "SUSTAINABILITY OF MARITIME INNOVATIONS 2023" will be organized.

4) Development and definition inclusion in RTU research directions in line with the RIS3 strategy.

2.4.3. Description and assessment of the international cooperation in the field of scientific research and/or artistic creation by specifying any joint projects, researches, etc. Specify those study programmes, which benefit from this cooperation. Specify the future plans for the development of international cooperation in the field of scientific research and/or artistic creation.

RTU LMA, in line with its strategy, has set a vision to be a leader in regular and smart maritime education in the Baltic Sea region, developing as a science and competence

centre.
Since 2014, LMA has been organising the International Maritime History Readings, with 6th International Maritime History Readings being held in 2019. Readings have involved researchers from maritime history research centres not only from the Baltics region countries, but also from the USA, Turkey, Italy, Spain, Norway, Finland and Sweden. In 2018, the LMA Scientific Council resumed the organisation of student scientific conferences, and work has started on the publication of the LMA Student Scientific Journal. Currently, LMA publishes the Journal of Maritime Transport and Engineering. Unfortunately, it will not be published from 2019 due to limited financial resources. At the moment, the Lithuanian Maritime Academy shows great interest in our scientific journal and is ready to provide material support in order to be able to start publishing it again. LJA plans to remove the ISSN, also for the online version of the magazine.

International research projects implemented by RTU LMA include:

1. EfficienSea 2 - Efficient, Safe and Sustainable Traffic at Sea. The project was implemented from 01.05.2015 to 01.05.2018 and funded by the EU Horizon 2020 research and innovation programme. The main objective of the project was to find innovative solutions for safer and more efficient waterway transport.
2. OnBoard-Med - Harmonization of on Board Medical Treatment, Occupational Safety and Emergency Skills in Baltic Sea Shipping. The project was implemented from 01.09.2016 to 30.06.2019 and funded by the EU Interreg Central Baltic Programme 2014-2020. The aim of the project was to establish harmonised vocational training programmes in the Central Baltic Sea Region.
3. BLUe growth connects European Seas (01.10.2017-30.09.2019)- Erasmus+ KA202 - Cooperation for innovation & the exchange of good practices project focuses on the development of innovation for Strategic partnerships for vocational education & training, coordinated by the Municipality of Piraeus (Greece).
4. Erasmus+ KA103 - Learning Mobility of Individuals within programme countries (01.06.2016-30.09.2017);
5. KA102 VET & staff training mobility (LMA Maritime School);
6. EU Lifelong Learning project SeaTALK on the development of maritime English language courses;
7. EU Erasmus+ Intermar project on cross-linguistic intelligibility and production of language learning materials and online publication;
8. International maritime seminar Maritime Science Park in Kalmar, Sweden;
9. EU Leonardo da Vinci Project Web-based Maritime English Language Learning Tool, Mareng Plus Preparation of learning materials for teaching specialised maritime English and online publication.

In 2020, only a student scientific conference was organised due to national COVID-19 restrictions. On 21 December 2020, the student scientific conference "Sustainability of Maritime Innovation Ideas 2020" took place on the Zoom platform. Which also continued in 2021, 2022. and in 2023, it is planned that this conference will be international, as an agreement has been reached with the Lithuanian Maritime Academy and the Estonian Maritime Academy regarding the involvement of students.
In October 2019, LMA started to implement the ERDF Operational Programme "Growth and Employment", Specific Support Objective 1.1.1 "To increase the research and innovation capacity of Latvian scientific institutions and their ability to attract external funding by investing in human resources and infrastructure", Measure 1.1.1.3 "Innovation Grants for Students" project "Innovation Grants for Maritime Students", project number: 1. 1.1.3/18/A/006, which aimed to strengthen the awareness of the innovative and entrepreneurial capacity of students studying in the maritime sector by implementing a complex set of measures that will ensure the maintenance of the intellectual potential of the sector, preparing students suitable for the requirements of the modern labour market in the regular and smart maritime sectors. The project was concluded in January 2023. The project included the development of a research idea bank, where LMA and Liepaja Maritime College, in cooperation with industry representatives, developed research topics relevant to the trends and challenges of the maritime industry. Based on these themes, students developed research projects, which were supported by academic, industry and business experts. The experts work with the students within the framework of a specific maritime innovation course, as well as during practical sessions where students develop the methodological basis for conducting research and are also given the opportunity to develop and test their research in the laboratory.
Students participated in innovation competitions and scientific conferences, where the best students were awarded with scholarships and cash prizes for further development of innovation research. The student internship was organized in synergy with the innovation program, where students worked on their research during the internship. As part of the project, an online learning platform www.jurasinovacijas.lv was developed, which serves as a framework for mutual communication and cooperation between students, mentors and research supervisors, also during

sea practice. Students have the right to participate in the Innovation Grant project activities of any university.
In addition to the annual Maritime Innovation Summer School (Smart Sea 2021 and Smart Sea 2022), a scientific innovation incubator was established in close connection with the Latvian start-up ecosystem. The incubator hosted research with the highest commercialisation potential and provided not only scientific support but also business advice. For other students, the incubator will serve as an open-access research laboratory.
At the end of March 2020, in the framework of this project, LMA joined forces with the other Innovation Grant project promoters at the invitation of the Ministry of Education and Science: RTU: within the framework of the ERDF co-financed project No 1.1.1.3/18/A/001 "RTU Innovation Grants for Students"; LU: within the framework of the ERDF co-financed project No 1.1.1.1/A/001 "RTU Innovation Grants for Students"; LU: within the framework of the ERDF co-financed project No 1.1.1/A/001 "RTU Innovation Grants for Students". 3/18/A/007 "Innovation Grants for Students of the University of Latvia"; VeA and partners. A common platform for the activity www.crisislab.lv was created, entrepreneurs and state and local authorities, ministries were approached to submit topics to be addressed by the Crisis Lab participants, and students were invited to apply for the activity. 230 students from 15 universities and colleges applied and participated in the online virtual impact programme from 24.04.-08.05.2020 and searched for their own solutions to the challenges posed by the Covid-19 crisis. Entrepreneurs submitted 25 topics. The authors of the four best solutions received cash prizes - a one-off scholarship, each team €5,000 (one from each of the organising universities). The total prize fund was €20,000.
The results of the international cooperation are used in the implementation of LMA study programmes.
In cooperation with the Lithuanian Maritime Academy, in 2024 it is planned to participate in two BIP projects founded by the Lithuanian National Agency as coordinators. Organizing joint scientific events for students using our own Erasmus KA1 budget for mobilities, maybe at the same time as our conferences. Such projects can be organized if 2 partners from 2 countries are added to Lithuania. In this program, already in the spring semester of 2024, it is planned for LMA students to go to Lithuania and learn a program of joint study courses, such as: navigation, multimodal transportation, etc. And jointly participate in international conferences with similar research topics.

In 2022, at the time of joining RTU: LMA was implementing 6 research projects:
In 2020-2023, two Postdoc projects were implemented:
Green Technology Solutions for Increasing the Eco-Efficiency of Vessels for Sustainability of the Baltic Sea Environment and Reduction of Human Health Risks (Nr.1.1.1.2/VIAA/3/19/477) project budget 133,806 EUR, implementation period 36 months. Postdoc fellow: Renāte Kalniņa.
Green technology solutions to increase the eco-efficiency of ships for the sustainability of the Baltic Sea environment and reduction of human health risks. The scientific objective of the research was to develop innovative ship ballast water and wastewater treatment system equipment integrating green technology solutions. The main focus of the research was on the development of innovative prototype technological equipment that will contribute to the eco-efficiency and ecological stability of the ship at sea, thus contributing to the reduction of risks to human health. In Latvia, research on the application of green technological solutions to increase the eco-efficiency of ships has so far not received sufficient attention, and the results of the research project will therefore make an important contribution to addressing the sustainability challenges of the Baltic Sea environment.
Environmental Impact Assessment of Bio-Polymer Composites for 3D Printing and Application in the Baltic Sea Region Maritime Sector (Nr.1.1.1.2/VIAA/3/19/478) project budget EUR 133,806, implementation period 36 months. Postdoctoral fellow: Gerda Gaidukova.
The overall objective of the research application was to develop the postdoc's professional skills and increase scientific capacity, creating opportunities for the postdoc's future career development at the LMA or other scientific institutions, thus contributing to the renewal of human resources and the increase in the number of qualified specialists. The scientific objective of the project was to provide concrete measures to prevent pollution by assessing biodegradable plastics (degradable lignocellulosic particles and fibres reinforcing polylactide (PLA), polyhydroxyalkanoate (PHA), polybutylene succinate (PBS), environmental impact) as fossil-based alternatives to traditional engineering plastics (e.g. polyethylene PE, polypropylene PP, polyamide PA, acrylonitrile butadiene ABS). The study focused on the technical needs of high quality biodegradable plastic alternatives. 3D printing was chosen as a sustainable, lossless technology alternative to traditional plastic processing methods (moulding, extrusion). Thus, a study will be developed to assess the economic incentives for non-polluting plastic solutions at the national level in

Latvia and in the Baltic Sea Region.

In 2020, the Latvian Council of Science Applied and Fundamental Research Programme project **"Development of Smart Technologies for Efficient and Safe Maritime Transport Operations"** (lzp-2019/1-0478) is launched, project implementation period: from March 2020 to December 2022 (extended until 30 April 2023). Project budget: EUR 299,844.
The overall objective of the STEEWO project was to develop and validate smart maritime technologies (e-navigation and e-maintenance) for efficient and safe maritime transport operations. The STEEWO project proposes the concept of; * A mathematical model of an e-navigation system in smart corridors; * A methodology for an integrated ship-to-shore system for ship condition monitoring and on-board maintenance. The STEEWO project proposes an innovative concept based on the enhancement of smart ICT in shipping operations that can increase the adaptability, availability and autonomy of waterborne transport by efficiently and safely improving the ship system and ship autonomy capable of supporting port approach and docking manoeuvres as well as condition monitoring and condition maintenance.
In 2020-2023, a project supported by the Rural Support Service **"Development of an innovative sublimation technology for fish processing for the development of a universal balanced diet with high nutritional value and long shelf life"** (LAD, No. 16-00-F02201-000002), Project implementation period: 1 November 2020-31 October 2022 (extended until 30 June 2023), Project eligible costs are EUR 391,880, of which 90 % or EUR 352,692 are financed by the European Union European Maritime and Fisheries Fund.
The objective of LMA was to suggest an innovation in fisheries and in the processing of fish, crustaceans and molluscs by developing an ecological processing technology that allows the production of high quality, biologically valuable, environmentally friendly products free of carcinogens, oils, preservatives and other impurities in food products with a long shelf life. The technology developed will ensure long shelf life without losing the taste and flavour of the previously obtained products. The project also involves two partners, the Latvian Food Business Federation and the Kolka Fishing Society.
In December 2021, a new science umbrella project SEANICE "Solutions to detect, identify, counter and protect against mobile manned, unmanned or autonomous underwater systems (including those operating at very high depths)" was launched. LMA will test prototypes of anti-submarine warfare technologies to address future threats to the European Navy within the **SEANICE** project.
On 1 December 2021, LMA signed a cooperation agreement with the SEANICE project lead partner Thales (France) to start research work on future anti-submarine threats to the European Navies.
Over the last two decades, undersea maritime operations have become more sophisticated forms of surveillance and warfare based on new types of technical solutions such as drones, distributed sensors and effectors. Underwater threats that navies may face at sea include technical solutions such as attack submarines, small submarines, drones, large torpedoes, ultra-fast torpedoes and mines. To secure the European Union's (EU) 56,000 km of coastline and 12,000 km of land borders, the EU uses the territorial waters of Member States and other countries for defence whenever an external force decides to threaten EU security. These threats must be countered to protect maritime traffic and the legitimate interests of EU countries.
SEANICE (Anti-Submarine Warfare European Autonomous Networked Innovative and Collaborative Environment) is one of 26 projects selected for funding in the bi-annual call for projects of the European Defence Industrial Development Programme (EDIDP), which aims to strengthen the competitiveness of the EU defence industry.
The project builds on real case scenarios for underwater protection by researching, designing, testing, prototyping and thus laying the foundations for the delivery and deployment of new technologies. The SEANICE project has been selected as a flagship for technological innovation, including the integration of unmanned aerial vehicles and artificial intelligence capabilities. Within 24 months, the project consortium plans to develop solutions capable of detecting, identifying, preventing and protecting ships against manned, unmanned or autonomous underwater systems, including submarines, unmanned underwater vehicles, heavyweight torpedoes, high-speed underwater weapons and sea mines.
The project aims to promote the validation and deployment of innovations under development in private business to integrate unmanned techniques with intelligence and surveillance capabilities in practice. The project aims to ensure that the architecture of the new systems is compatible with current and future EU/NATO standards.
SEANICE's innovative ideas and concept will improve the resilience and competitiveness of the European defence industry. This project will form the basis for the evolution of the European Defence Technology Industry Base (EDTIB) in the anti-submarine warfare segment.

The SEANICE project team consists of 16 partners from 6 EU countries - France, Spain, Italy, Portugal, Belgium and Latvia. The team includes carefully selected professionals from both the research and transport industries to work together to create maximum added value for the EU Navy: Thales, Airbus Defence & Space, Alkan SAS, Alseamar, CEIIA, Edisoft, Engineering Ingegneria Informatica, GMVIS Skysoft, Leonardo SPA, Naval Group SA, RTSYS, Scalian DS, SIEL SR, Wsense SRL, including two universities - Latvian Maritime Academy and Université Libre de Bruxelles (University of Brussels).
The total budget of the project is EUR 11,554,062.43.

On 1 October 2022, the Rural Support Service project **"Production of healthy planting materials and trials of innovative breeding methods for economically important crops"** was launched. The LMA funding is EUR 14,250. Project partners include SIA Bulduru Dārzkopības vidusskola (lead partner), IK MIGL dārzi, Riga Technical University, MG Terra Seeds, Institute of Agricultural Resources and Economics "Stendes pētniecības centrs", SIA "ODZ", SIA "AMSID Latvija", Association "Latvijas Dārznieks".
The aim of the project is to experimentally develop technologies for the production of high quality planting material, as well as to test innovative cultivation methods - hydroponics and aeroponics, which can be prospectively used for commercial cultivation of crops of national importance, such as model organisms like potatoes, strawberries and soybeans, etc.
LMA has foreseen the following future tasks and delivery mechanisms to develop and expand international research cooperation:

- To attract new international research projects through the funding available from the EU Structural Funds;

- Use Horizon 2020 and FP9 calls for research projects; use the National Contact Point and the EURAXESS portal to find partners;

- Strengthen cooperation with existing partners to ensure the sustainability of LMA research. New research projects will be submitted on the basis of the existing LMA projects, joint publications will be produced and published in international citation databases. Research results will be integrated into the provision of the study process.

LMA has high hopes for LMA and RTU consolidation grants, which are expected to implement 9 research projects, 3 research grants, 5 post-doctoral grants, the aim of which is to raise the scientific capacity of LMA's elected scientific and academic staff, based on the experience and competence of RTU's leading researchers , creating joint project applications.

2.4.4. Specify the way how the higher education institution/ college promotes the involvement of the teaching staff in scientific research and/or artistic creation. Provide the description and assessment of the activities carried out by the academic staff in the field of scientific research and/or artistic creation relevant to the study field by providing examples.

It is a requirement of RTU that academic staff are actively involved in research apart from their involvement in the study process. Professors and associate professors are re-evaluated and re-elected every six years. Candidates are obliged to comply with certain criteria in terms of scientific research, i.e., number of publications or patents, supervised Doctoral candidates, etc. (Decision of RTU Senate No. 649 "On approval of the RTU Regulations "On the Procedure for Election of a Candidate for the Position of Professor or Associate Professor and the Procedure for Assessing the Qualification of an Existing Professor or Associate Professor" in a new edition" as of 26 April 2021).
Every year, the rector and the deans of the faculty, as well as the director of the LMA, sign contracts according to which each faculty undertakes to achieve certain key performance indicators, many of which are based on research results, such as the number of publications/patents, funding obtained from research projects, etc. The indicators affect the funding that the faculty or unit receives from the performance fund.

There are a number of support mechanisms for involving academic staff in research activities. The RTU Science Support Fund (RTU Senate Decision No 585 "RTU Science Support Fund Statute", adopted on 15.12.2014) aims to provide financial support.

Support for various research-related activities, e.g. to support the maintenance of research equipment, to protect and license intellectual property, , to publish scientific journals (if indexed in Scopus), to attend and organise scientific conferences, to support researchers in establishing new laboratories in the field of prospective research. The Science Support Fund is an instrument to support research activities and to promote the development of strategic research areas.

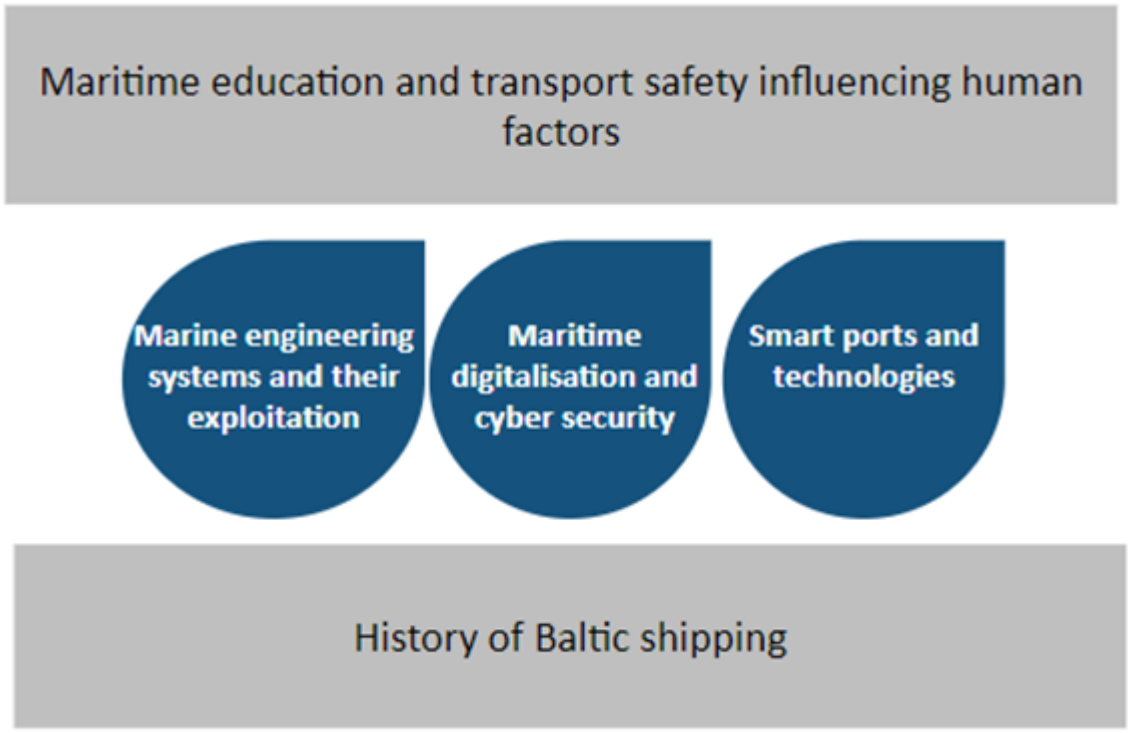
Six research platforms in the main strategic research areas of RTU were established in 2013 as an instrument for fostering inter-disciplinary and inter-faculty cooperation of researchers in the areas of importance for industry and society. These platforms are as follows: “Energy and Environment”, “Cities and Development”, “Information and Communication Technologies”, “Transport”, “Materials, Processes and Technologies”, “Security and Defence”. Each platform has a dedicated coordinator, and they comprise the Council of Coordinators responsible for implementing the activities within platforms. The Council is supervised by the Office of Vice-Rector for Research (Decision of RTU Senate No. 600 “On Approval of the Regulation of the Council of Coordinators of Research Platforms at Riga Technical University” as of 23 May 2016). Similar to the faculties, the platforms have the Research Program (Decision of RTU Senate No. 590 “On Authorization to Approve RTU Research Program by RTU Scientific Council” as of 27 May 2015; “Research Program of Technical University 2016–2020”), annual action plan and dedicated funding from the Research Support Fund. Internal project calls within the platforms are organized every year, allocating 90–120 thousand EUR in total to six projects selected on a competitive basis. A mandatory requirement for the projects is a minimum 20% industry co-financing and participation of more than one faculty. In the period of 2016–2020, 16 projects were supported and nearly 300,000 EUR of funding was allocated to the projects. Regular series of seminars and visits to companies are also organized by the research platforms to stimulate networking and cooperation with industry.

Efficiency of these mechanisms can be illustrated by growth of SCOPUS indexed publications in the period of 2013–2019. The total number of the publications increased from approximately 440 publications per year in 2013 to 879 in 2021. Number of SCOPUS publications per researcher (expressed in full-time-equivalent (FTE)) increased from circa 0.9 in 2013 to circa 1.7 publications/FTE per year in 2021 (the data were obtained from Elsevier “SciVal” database on 16 November 2021).

Vertical research platforms of the Latvian Maritime Academy:

1. Shipping digitization and cyber security engineering systems
2. Safe and efficient marine engineering systems and their technical operation, incl. remote and autonomous ship systems
3. Smart and environmentally friendly port technologies

The horizontal research platforms of RTU LMA are Maritime education and history and human resources in maritime, their effective management and shipping safety. Horizontal research platforms are an integral part of the implementation of vertical research platforms.



Horizontal and vertical research platforms are further developed into detailed research areas. In addition, all horizontal research directions include issues of both digitalization and engineering systems, as today mechanical systems are inseparable from IT systems and vice versa. It should be mentioned that RTU LMA participates in the current study of cyber security issues and is included in the circle of participants of the "Network of competence centers and the European Cybersecurity Research and Competence Center /Counsil of the EU".

In general, research at RTU LMA corresponds to the goals of the university's study directions and the level of scientific development of the maritime industry.

2.4.5. Specify how the involvement of the students in scientific research and/ or applied research and/or artistic creation activities is promoted. Provide the assessment and description of the involvement of the students of all-level study programmes in the relevant study field in scientific research and/ or applied research and/or artistic creation activities by giving examples of the opportunities offered to and used by the students.

RTU has mechanisms for involvement of students from all study levels and programs in research activities. There are activities aimed at strengthening the Masters studies and providing career opportunities during the study period to young researchers.
Student scholarships are awarded through a competitive process, with international calls for attracting student research projects regularly announced. Additionally, an internal excellence scholarship for research in young scientists was established in 2018 as RTU's mechanism to involve students from all levels and programs in research activities. Various activities are conducted to strengthen master's studies and provide career opportunities for aspiring researchers. Moreover, internal research excellence, a new initiative providing 270,000 EUR over a 3-year period, is open to international competition (conditions similar to the EC EPP grant with international project calls and evaluation conducted externally by well-recognized foreign researchers). This grant enables young and talented researchers to establish their research groups and build a research career at RTU. Internal project competitions provide additional funding for publishing opportunities in SCOPUS / WoS-indexed journals, and internal projects within six research platforms encourage the involvement of doctoral and master's students in multidisciplinary and inter-faculty research projects in collaboration with industry representatives.
The Research Support Fund (10% of the research base funding is allocated to this fund) provides support to students (attending conferences, publishing papers and thesis, etc.).
Internal project calls within the six research platforms, which are organized every year, have criteria regarding the involvement of students in the project, giving an additional

score if students at the Bachelor, Master or Doctoral level are involved in the project. The Design Factory (DF) of RTU Science and innovation centre (see additional information about the DF below) organizes the study course "Vertically Integrated Project" (VIP), during which interdisciplinary student teams develop a challenging long-term research project under the guidance of experienced researchers. The course is implemented in cooperation with researchers from the Georgia Institute of Technology (the USA). Within the course, cross-disciplinary student teams are assembled, bringing together students from at least three different study programmes, and ranging from first-year Bachelor students to Doctoral students, as well as involving pupils from the Engineering High School (EHS) of RTU. During the course, students participate in research work under supervision of RTU researchers, working together with students of other study programmes and gaining experience in research as well as in team and project work. At the end of the course, each team presents its progress and demonstrates the results obtained.
A success story is the establishment of DF Labs (http://rtudf.rtu.lv) for design and prototyping. Idea of having the Lab at RTU was inspired by a positive example of Aalto University in Finland. Its task is to provide expertise and shared infrastructure for developing prototypes of new products and technologies, based on ideas of students and researchers. RTU DF also works with industry, start-ups and spin-offs and has established a very good reputation. We could observe that it considerably improved the involvement of students at all study levels in research and innovation activities and promoted cooperation of RTU with industry.
On the basis of DF, in January 2022 the RTU Science and Innovation Centre was opened (https://www.rtu.lv/en/research/science-and-innovation-centre). The Science and Innovation Center (SIC) enables the capacity of innovators, implements innovation and knowledge transfer processes, attracting, balancing and adjusting the resources necessary to ensure the innovation system and operation in the following main aspects:

1. Helping innovators to improve their knowledge and skills in various entrepreneurship development programmes. More than 1,000 RTU students and 300 students from other universities take part in them every year.
2. By implementing various activities that ensure the generation of ideas: development of ideas (prototyping), pre-incubation, an incubator of science-intensive ideas and an accelerator of climate neutrality. More than 150 teams receive support every year.
3. Implementing partnerships, representing innovation and knowledge ecosystems in Latvia and the Baltics.

ZIC's support to students and scientists by enabling their skills and providing open infrastructure develops their prototyping skills and collaboration with industry. The goal is to integrate ZIC activities in the distribution of state funding, as an important parallel process in the improvement of educational research.
At the same time, the ongoing of cooperation with the European institutions is taking place. It ensures the transfer of experience, knowledge, mobility and promotion of RTU services. An important direction is the development of products with added value, where it is necessary to stabilize the flow of requests.
In the field of innovation capacity in security, there is close cooperation with the Ministry of Defense of the Republic of Latvia. In 2020 the first "Security Hackathon" was implemented, where more than 100 participants within 48 hours developed prototypes of security solutions, demonstrating their operation to the jury. This successful event and active participation of RTU scientists in the "Innovation grant competition" of Defense, a repeated event was held in 2022. At the same time, active work is underway to the implementation of the NATO acceleration programme “Defence Innovation Accelerator for the North Atlantic” (DIANA) in Latvia, which would provide additional support to start-ups in the security sector.

During the reporting period, 66 elected staff members have been employed in the academic and research work of LMA, as well as additional research staff.
Elected staff in research:

- 19 senior researchers;
- 19 researchers;
- 28 scientific research assistants.

Additional research staff:

- 5 professors;
- 9 associate professors;
- 6 assistant professors;
- 9 lecturers.

The academic staff of RTU LMA is elected to both academic and scientific positions. This means that the academic staff are maximally involved in the implementation of scientific projects and in

writing new project applications, thus involving students in research teams in synergy with experienced leading researchers. Students participate in annual LMA student scientific conferences and international scientific conferences. Under the guidance of their thesis supervisors, students work on the development of scientific publications within the scope of their research topics.

In 2020, the Chair of the Scientific Council of LMA renewed the scientific activities, elected the scientific staff, established a new Scientific Council and resumed the implementation of research projects related to the scientific activities, as well as renewed the student scientific conferences. In 2018 and 2019, the LMA Student Scientific Conferences were organised. On 21 December 2020, the Student Scientific Conference "Sustainability of Maritime Innovation Ideas 2020" was held online took place online and continues every year to this day.
The conference "Water Transport and Infrastructure" also offers the opportunity for LMA students to present their research findings to an international audience under the guidance of scientific supervisors.

2.4.6. Provide a brief description and assessment of the forms of innovation (for instance, product, process, marketing, and organisational innovation) generally used in the higher education institution, especially in study field subject to the assessment, by giving the respective examples and assessing their impact on the study process.

In 2018, LMA has developed the „Innovation Grants for Students" project, which provided support for student research. The implementation of this project was launched in October 2019. The project closed in January 2023. By January 2023, six innovation scholarship contests have taken place, resulting in grants for students. In total, 238 students participated in the competition, whereas 82 students from different universities received scholarships. In total, 423 students attended practical classes. Students had ample opportunities to take an innovation study course. Within 3 semesters, there were several student flows, and students during the pandemic had the opportunity to study in an online study environment OMARS to take an innovation course on a self-taught path of 12 lectures in both Latvian and English. In practice, students had to prepare project applications and defend their projects in front of their teacher, then the best applications had the chance to apply for the competition and defend their project application in front of the jury. As a result, students were prepared for and successfully participated in innovation hackathons: CrisisLab, Icebreaker, City to Sea, etc.

Summer School SMART SEA 2022 - LMA organised a summer school for young people with an interest in the sea and maritime industry from 6 June to 10 June 2022. Students and learners from from LMA, LMA Maritime school, Liepaja Maritime College, Riga Technical University and other universities were invited to participate in the summer school. Throughout the week, summer school participants took part in lectures, practice sessions, discussions with mentors and industry experts to obtain a closer look and experience in the maritime sector. Young people participated in activities of interest and got acquainted with the maritime sector and obtained information on studies.

On 3-4 July 2021, the first online hackathon „HACK DigitalSea'21" was launched in the Baltics, in which participants sought innovative solutions to the challenges of sustainable aquaculture in the Baltic Sea. In two of the three categories, €4,000 were awareded to teams from Latvia - PureOceans and DronePlan. Within two days, teams validated their solutions, improved business models and consulted 23 industry representatives, experts and business mentors from the three Baltic states. In the autumn semester of 2021, 27 students attended the „Marine Innovation" taught by Kristaps Zalais. The course was conducted on the Zoom platform, where students gained both theoretical knowledge of innovation and the development of new ideas and group work. Students participating in the Innovation contest have also gone through self-training course „Marine Innovation" on OMARS.

On 22-24 April 2022, an international 48-hour hackathon "City to Sea" took place in Riga to promote the development of innovative and sustainable solutions for the "Sea 2030" mission. Hackathon's participants developed ideas that could potentially lead to new worldwide technologies and solutions in the fields of aquaculture and mobility. "City to Sea" was organised by the Latvian Investment and Development Agency,

bringing together public administration, private and research sector organisations. Together with the Latvian Investment anf Development Agency, the event was organised by Riga Technical University (RTU), Latvian Maritime Academy (LMA) and the innovation movement “VEFRESH” with the support of the European Innovation and Technology Institute Innovation Community “EIT Food” and “EIT Urban Mobility”, as well as the Lithuanian Digital Innovation Centre “Agrifood”. In the hackathon, challenges were addressed in the following areas: aquaculture and blue biotechnologies; active and future mobility; shipping and green ports; energy and public transport; pollution reduction, etc.

Urban mobility solutions provide an improvement in the quality of life for citizens, as well as convenient, accessible and environmentally friendly urban movements. The challenges in the field of aquaculture contribute to economic growth by offering solutions in the framework of food supply chains, environmental protection and the digital transformation of ports.

Researchers, entrepreneurs, students and experts from different fields were invited to participate in the hackathon. New aquaculture and mobility solutions were developed in cooperation with them. Both individual members and teams with ideas in different phases of development could apply for participation in the event. The “City to Sea” total prize fund was €9,000 in each of the thematic areas. The best teams received monetary awards and were given the opportunity to try their solutions in real environment, in cooperation with the leading industry representatives.

The N-LAB/Wise river team won in the nomination “Biggest progress within the hackathon”, and received a prize of €2,000. The team presented the idea of an unmanned water vehicle. This was the LMA nomination. Team leader was paid a single grant of EUR 2,000 from the Fund's resources.
Additional benefits from the implementation of this project are described in section 2.4.2 of this document. in the subdivision.

2.5. Cooperation and Internationalisation

2.5.1. Provide the assessment as to how the cooperation with different institutions from Latvia (higher education institutions/ colleges, employers, employers’ organisations, municipalities, non-governmental organisations, scientific institutes, etc.) within the study field contributes to the achievement of the aims and learning outcomes of the study field. Specify the criteria by which the cooperation partners for the study field and the relevant study programmes are selected and how the cooperation is organised by describing the cooperation with employers. In addition, specify the mechanism for the attraction of the cooperation partners.

The selection of partners focuses on the partner's reputation, activity, linking it to the needs of the field of study “Seafaring” and the particulars of the relevant study programmes. During the reporting period, RTU LMA has implemented the following forms of cooperation in Latvia:

1. **Cooperation with non-governmental organisations**:
   - Latvian Shipmaster’s Association – a public organisation established to strengthen and support the prestige of ship captains, promote the history of shipping and the occupation of seafarers in Latvia; promote the development of maritime science and the introduction of the latest methods and achievements in the maritime sector; use the experience of masters to increase the qualifications of seafarers;
   - Latvian Maritime Union - association brings together the largest maritime organisations of Latvia (including Riga Freeport Authority, Ventspils Freeport Authority, Liepaja Special Economic Zone Board, RTU Latvian Maritime Academy, Novikontas Maritime College etc.) and is engaged in maintaining the maritime traditions of the Republic of Latvia, conducting activities for promoting the maritime sector (for example, by supporting the local competition “Enkurs” for secondary-school pupils, and issuing the maritime yearbook), as well as

defending the interests of seafarers and maritime-related organisations in the public domain;
- Latvian Stevedoring Company Association – as a public organisation was established to develop economic, organisational and legal measures that would facilitate the provision of services of stividors in Latvia, as well as the competitiveness of the business of stevedors in Latvia;
- Latvian Crewing Companies Association - established as a public organisation to coordinate the activities of manning companies in public and legislative initiatives; disseminating information related to new legislation, local and international regulations, etc.; organising seminars and conferences related to the above; consolidating forces to protect the manning company and Latvian seafarers interests in cooperation with other maritime organisations in Latvia and at international level; coordinate and participate in various activities related to increased interests in maritime professions and maritime activities.

2. Cooperation with employers

Each RTU LMA student is provided with a shipboard practice position throughout the course of study (except for the “Maritime Transport” Master study programme, where students find a place for practice in cooperation with LMA, according to the subject of the Master thesis). In order to ensure the study process, as well as promote the future of student training, LMA closely collaborates with the leading placement companies in Latvia. All companies engaged in the placement of seafarers are monitored and licensed by the Registry of Seamen of the Maritime Administration of Latvia.

The full list of crewing companies is available on: https://www.lja.lv/sites/default/files/page_attachments/Jurnieku%20darba%20iekartosanas%20uznemumi%20-27.09.2021..pdf

The table below shows the leading seafarer recruitment companies in Latvia, with which long-term cooperation has been established, as well as a percentage breakdown by year in the provision of student placement during the reporting period.

RTU LMA long-term partners – leading seafarer recruitment companies in Latvia

Percentage breakdown by year in the provision of student placement during the reporting period	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
LSC	29	38	38	34	35	39	36	36	29	30
LAPA	8	10	9	15	15	14	11	11	15	16
HANZA	4	4	5	9	4	6	5	3	3	1
WELL	-	-	-	1	6	4	2	3	1	2
ASTOR	-	1	5	2	7	7	1	2	2	2
BGI	12	18	6	4	4	10	3	6	1	2
BSM	12	9	10	11	4	7	6	3	1	1
INTERORIENT	1	4	5	8	6	5	1	-	-	1
ANGLO-EASTERN	22	10	15	14	7	4	4	3	3	2
TALLINK	12	6	7	2	12	4	13	-	-	-
Baltic Shipping Services	-	-	-	-	-	-	-	-	-	13

In 2019, new cooperation agreements were established with crewing companies, which had so far not shown an interest in providing shipboard practice opportunities for students. This led to a drop in the percentage of student placement on the lists of leading companies.

LMA provides an opportunity for students to choose and apply for practice in an organisation of their choice, which would provide them with a place of practice, both at sea and ashore. Since practice ships have conventional requirements (gross tonnage and engine power of the ship, kW) regulated by the STCW convention, an inspection shall be carried out on the part of the practice manager to ensure that the ship proposed by the company is fully in line with the needs of the practice. In order to improve the content of study programmes and study subjects in accordance with sectoral requirements, regular surveys are conducted between employers and students. (The results of student practice surveys are summarized in Part 3 of the report).

In order to ensure continued improvement of the study programmes, once a year crewing companies provide feedback on future cooperation opportunities and an assessment of the performance of students during the practice. The survey results and comments are referred by the practice manager to the directors of the study programmes. When assessing the company feedback process RTU LMA came to the

conclusion that this process requires improvement as the student performance information reflects the company manager's view and does not fully reflect the reality of the practice, since the clerk cannot know all the details of the practice, the quality of the performed work and the student's fitness for work on the ship. This process will be improved and the results of student performance will be further evaluated according to the performance criteria that are met on board the ship and signed by the Master or Chief Engineer (depending on the study programme).

Surveys of seafarer placement companies provide answers to questions concerning the need to:

- update study materials;
- update the information on the development of RTU LMA as a scientific institution and challenges to be addressed in the maritime industry, which, based on the recommendations, will be included in students' research projects.

Cooperation with crewing companies is not limited to the provision of student practice placement.

Employers also:

- participate in the state qualification paper defence commission, as well as in the advisory activities and review of final theses/diploma papers;
- participate in research and innovation grant competitions as experts, advisers or members of the jury;
- participate in the evaluation of study programmes and the improvement development teams;
- provide authentic study materials and specialized literature, such as loading/unloading schemes, descriptions of transshipment technologies, information on new energy and navigation equipment, which is actively used in the training process, furthermore extending and improving RTU LMA library fund;
- ensure the involvement of professionals in the study process;
- provide company scholarships and support for students, as well as organisation of guided tours in industry-related organizations during career days events;
- act in the role of an expert or adviser in RTU LMA during innovation contests.

Collaboration with representatives of the maritime industry also takes place during the study process, for example, the lectures in "Port Terminal Operational Technologies" partly take place in Riga Freeport.

3. Cooperation with other Latvian institutions

In order to promote full-time study programmes at RTU LMA to foreign students, 10 agreements have been concluded with the Latvian institutions regarding cooperation in the field of education, training and studies, scientific activity and innovation, ensuring practice placement opportunities, and promoting the acquisition of practical skills.

4. Cooperation with Latvian higher education institutions

RTU LMA implements both direct and indirect cooperation with other higher education institutions in Latvia.

Before joining RTU, in terms of indirect cooperation, the Rector of RTU LMA served as a full member of the Council of Rectors of Latvia, a collegial consultative institution which coordinates cooperation between higher education institutions and organises the necessary joint activities. Moreover, LMA was a member of the Consortium of Latvian Technological Universities and Higher Education Institutions. The main objectives of the Consortium are to promote the development of technological education in Latvian universities and higher education institutions, to advocate and enhance the role of technological education in the Latvian economy, to promote innovation, knowledge and technology transfer and cooperation with employers, to facilitate the attraction of Latvian and foreign students, to create, as far as possible, a common infrastructure for the implementation of higher technical education, modernisation and development of the scientific and study process, etc.

Direct cooperation with higher education institutions in Latvia includes:

- Ongoing cooperation with the National Defence Academy to implement the maritime transport related section of the professional bachelor study programme "Naval Forces Military Leadership";

- Cooperation with other higher education institutions, colleges and scientific

institutions in Latvia, aiming to establish general cooperation to improve the quality of higher education, achieve scientific excellence, as well as attract students and ensure student exchange;

- RTU LJA has concluded cooperation agreements with RTU, Transport and Communications Institute (TSI) and Liepāja Maritime College on mutual student exchange;

- Of particular importance is the active cooperation with other Latvian maritime education institutions (Liepaja Maritime College and Novikontas Maritime College) to ensure successful organization of maritime-industry related events and competitions.

5.Cooperation with Latvian schools and local municipalities:

- RTU LMA has established successful ongoing cooperation with secondary schools in Latvia by organising guided tours in maritime industry related establishments and participating in career days organized by schools. During the visits, RTU LMA representatives provide information on study possibilities and career opportunities. RTU LMA has visited 17 cities in Latvia (see figure below);

Image. Cooperation partners of RTU LJA - Latvian municipalities

- Cooperation with local municipalities to promote the maritime profession - RTU LMA participates in Job Shadowing events. During this activity RTU LMA staff promote the seafaring profession and describe the study possibilities and career opportunities.
- RTU LMA, including the Student Council of RTU LMA, actively participates in the organisation of the local maritime industry competition for secondary school students "Anchor", supporting the main organiser of the competition – Maritime Administration of Latvia. For several years, the event was held at RTU LMA premises. RTU LMA team develops the tasks of the competition, provides support team for the implementation of the competition, premises and the necessary equipment, traditionally hosts the participants in their premises on the final days of the competition. The aim of the competition: to introduce and promote the seafaring profession to secondary school students, to attract attention to the fact that there is a worldwide shortage of qualified seafarers, a promising and highly rewarding profession. The winners of the competition receive a scholarship from the Latvian Seafarers' Union of Merchant Fleet, of which LMA is an active member.

Summarising the above mentioned types of cooperation with various Latvian institutions, it is evident that the range of cooperation partners has been sufficiently wide and representative (non-governmental organisations of the maritime transport industry, employers, higher education institutions, schools and municipalities, etc.) and the implemented forms of cooperation and activities have significantly contributed to the preparation of specialists with higher maritime education whose knowledge, skills and competences meet the needs of the maritime transport industry today and in the near future.

2.5.2. Provide the assessment as to how the cooperation with different institutions from abroad (higher education institutions/ colleges, employers, employers' organisations, municipalities, non-governmental organisations, scientific institutes, etc.) within the study field contributes to the achievement of the aims and learning outcomes of the study field. Specify the criteria by which the cooperation partners suitable for the study field and the relevant study programmes are selected and how the cooperation is organised by describing the cooperation with employers. In addition, specify the mechanism for the attraction of the cooperation partners.

The long-term strategic goal of RTU LMA in terms of cooperation and internationalisation is to become an internationally recognised centre for maritime education and development in the Baltics and Eastern Europe.
The selection of international cooperation partners is based on the assessment of student and staff mobility opportunities in maritime study programmes, as well as opportunities for joint research projects. The selection of cooperation partners is based on the previous experience in the field of study and expert cooperation with foreign institutions in terms of studies, research, project development, membership in associations, etc.

In the reporting period RTU LMA has implemented the following forms of international cooperation:
1. Cooperation with non-governmental international organisations, some of which regulate the activities of RTU LMA:
- European Maritime Safety Agency (EMSA) provides technical expertise and operational assistance to improve maritime safety, pollution response, and maritime security; EMSA conducts an audit at Maritime Administration of Latvia and RTU LMA every 5 years, the last EMSA audit was carried out in 2017;
- International Maritime Organisation (IMO) is a specialised agency of the United Nations responsible for maritime safety and the prevention of marine and atmospheric pollution from ships;
- European University Association (EUA) hosts international rectors' conferences and meetings. Up until its reorganisation in November 2022, the rector of LMA also participated in these events as a member of the Council of Rectors of Latvia.

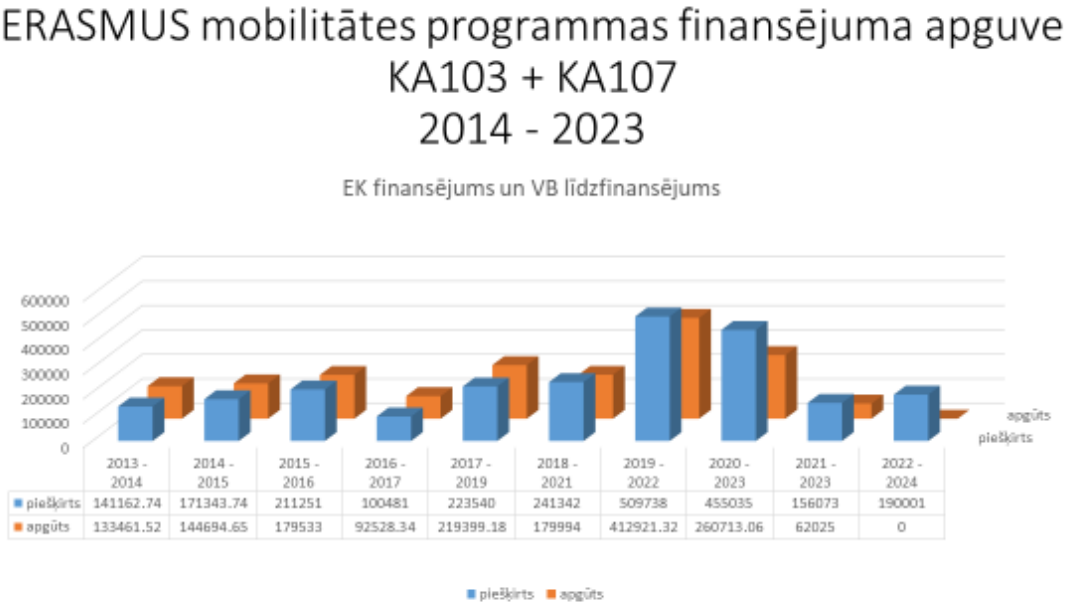
2. Cooperation with employers
RTU LMA graduates are in demand not only as seafarers, but also as management employees in well-known shipping companies worldwide listed below. LMA has established cooperation with companies such as:
- VITOL (representation in Latvia - LSC Riga), a global enterprise with more than 40 offices worldwide and access to energy infrastructure on all continents;
- NORBULK (representative office in Latvia - Hanza Riga), a company established 35 years ago to provide ship owners with ship management, maintenance and technical services. The current managed fleet consists of bulk carriers, chemical and oil tankers, container vessels, gas carriers and reefer vessels with management offices in Glasgow and Riga, as well as satellite offices in Manila, St. John, St. Petersburg and Kaliningrad;
- STOLT (representative office in Latvia - LAPA Riga) - the company employs more than 6000 people in 30 countries. The company's main subsidiaries are:

- Stolt Tankers - manages the world's largest and most sophisticated global fleet of deep-sea, regional, coastal and inland tankers, providing safe, reliable and high-quality transportation services to the world's leading manufacturers of chemicals and other bulk liquids;
- Stolthaven Terminals - a global network of state-of-the-art terminals providing high quality storage and distribution services for chemicals, clean petroleum products, vegetable gas oils, biofuels and oleochemicals in key markets and hubs around the world;
- Stolt Tank Containers - the world's leading provider of logistics and transportation services for door-to-door bulk shipments of liquid chemicals and food products;
- Stolt Sea Farm - the world's most advanced high-tech aquaculture company and a leading supplier of high quality turbot and sole in an environmentally sound way.

3. Cooperation to promote student exchange and attract international students

By 31 May 2022, 78 cooperation agreements have been signed by LMA. This includes 65 cooperation agreements with 58 foreign institutions (see annex):
- Erasmus+ partnership agreements have been signed with 41 universities in 20 countries;
- bilateral cooperation agreements in education and research have been signed with 8 institutions;
- cooperation agreements on joint study programmes with 2 partner universities, which have become obsolete due to objective reasons;
- 1 cooperation agreement on participation in a joint project;
- 11 agreements on recruitment of potential foreign students to study at LMA, including 6 foreign institutions.

In 2023 it is foreseen to review and renew ERASMUS+ partnership agreements for the new EC financial period (2021-2027) with 34 partner institutions with which the renewal of the agreements was delayed due to technical reasons, e.g. delayed access to the ERASMUS+ Dashboard web platform.
Erasmus+ student mobility placements are implemented in cooperation with Latvian-based crewing companies and their partners and/or branches abroad.
In May 2020 RTU LMA prepared the application for Erasmus Charter for Higher Education and in February 2021 RTU LMA was granted Erasmus Charter for Higher Education for the period from 2021 to 2027, but due to the reorganisation of LMA and its integration into Riga Technical University, the Erasmus Charter for Higher Education and PIC code of RTU LMA were cancelled as of February 2023.
The mobility of RTU students has been highly appreciated in the 2019 U-Multirank ranking, placing RTU in the "Global Top 25 performers" and awarding RTU with the corresponding logo.
The amount of funding allocated to the ERASMUS mobility programme at RTU LMA is also increasing. Since 2016, EC funding for ERASMUS mobility has been granted for two years per application. The dynamics of the allocated funding and its absorption can be seen in the following figure.



	2013 - 2014	2014 - 2015	2015 - 2016	2016 - 2017	2017 - 2019	2018 - 2021	2019 - 2022	2020 - 2023	2021 - 2023	2022 - 2024
piešķirts	141162.74	171343.74	211251	100481	223540	241342	509738	455035	156073	190001
apgūts	133461.52	144694.65	179533	92528.34	219399.18	179994	412921.32	260713.06	62025	0

Figure. Dynamics of the allocated funding and its absorption

Due to the COVID-19 pandemic, the implementation periods of the 2020 projects have been extended by one year, so the disbursement of funding for these projects is still ongoing in parallel with the disbursement of funding for the 2021 and 2022 projects.
Educational visits have also been made on several occasions to the LMA by groups of students and staff from partner universities. The main visits were:
- 2013 - Jade University of Applied Sciences student group (12 students and 2 lecturers);
- 2014 - Delegation of 15 rectors of Polish technical universities;
- 2014 and 2015 - a group of students from the State University of New York (SUNY) Maritime College;
- 2015 and 2016 - delegations from the Batumi State Maritime Academy; a seminar on experience transfer for Navigation department lecturers;
- 2017 - Transport and Logistics student group and two lecturers from Rotterdam University of Applied Sciences;
- 2018 - Meeting with representatives from the European Academy for Science & Technology (EAST) on cooperation in attracting international students;
- 2018 - Visit of a delegation from the Kherson State Maritime Academy from Ukraine. Cooperation agreement was signed;
- 2019 - Visits of delegations from the partner secondary school in Norway (Austevoll secondary school), as well as from the Greek company NAFTOMAR, Sri Lanka and Namibia;
- 2022 - LMA hosted delegations from partner universities in Albania, Georgia and Montenegro for ERASMUS staff mobility;
- April 2023 - LMA hosted an ERASMUS Staff Development and Teaching Week for 23 participants from partner institutions in Albania, Montenegro, Finland and Ukraine.

RTU LMA plans to provide mobility opportunities for 5% of the total number of LMA students and 10% of LMA staff every year. LMA plans to continue cooperation with partner universities on the establishment of joint Masters and/or PhD programmes.
The Head of the External Relations Department of LMA, whose role after the reorganisation of RTU LMA changed to International Cooperation Project Manager, regularly participates in seminars to improve her experience. The most important seminars have recently been organised by the State Education Development Agency:
- On 25 November 2019, seminar on EC initiatives in higher education and Erasmus+ digitalisation, Riga;
- "Erasmus+ as a tool for the internationalisation of educational institutions and the improvement of the quality of education", dissemination conference of the Erasmus+ programme (2014-2020) organised by the State Education Development Agency on 11 December 2019;
- Informative webinar on the Erasmus+ 2020 call for proposals in the higher education sector on 20 January 2020;
- Workshop-discussion for higher education institutions on STUDY IN LATVIA action lines on 18 February 2020;
- Informative webinar on "Results of the International Student Barometer (ISB) survey and topical issues on international student enrolment" on 6 May 2020;
- EURAXESS Latvia and Euroguidance Latvia network joint event on career development issues on 30 September 2019; as well as online workshops on EURAXESS news on 21 April and 16 June 2020;
- the MareMathics project webinar on 21 May 2020;
- The 3rd Erasmus+ International Credit Mobility Virtual Staff Week Virtual Staff Development Workshop organised by the University of Piraeus in Greece on 24-28 May 2020 to share experiences on cooperation with ERASMUS+ partner countries in student mobility as well as staff development and teaching mobility.
- On 28 October 2019, the the Head of the External Relations Department of LMA met with the representative of Educations.com in the Baltics to discuss the possibilities of LMA publicity to attract foreign students via this website. From 1 January 2020 to 30 November 2022, LMA cooperated with Educations.com to attract potential international students for full-time studies at LMA.

4. Cooperation with foreign institutions

During the reporting period, the following agreements were signed with foreign educational institutions:
- 2014 Cooperation Agreement - Maritime Education and Research - Batumi State Maritime Academy;
- 2016 - Cooperation Agreement with the Kyiv State Hetman Petro Konasevich-Sagaidachnov Water Transport Academy;
- 2019 Cooperation Agreement - Maritime Education and Research - Batumi University of Navigation;
- 2021 - ERASMUS + Partnership Agreement - Batumi State Maritime Academy;
- 2021 - ERASMUS+ Partnership Agreement with Kazimierz Pulaski University of

Technology and Humanities in Radom, Poland;
- 2022 - renewed ERASMUS+ Partnership Agreements with Lithuanian Maritime Academy, Ordu University and Piri Reis University, Turkey; SE Finland University of Applied Sciences; Gdynia Maritime University and Split University. With the other ERASMUS partner universities, the renewal of the contracts was agreed by exchange of e-mails, as they could not be signed in electronic format for technical reasons.

5. Cooperation in international projects
RTU LMA participates in a number of international research projects, listed in Section 2.4.3 of the Report, with the following institutions:
- Project: EfficienSea2 (ongoing): https://cordis.europa.eu/project/id/636329 Partners - University of Copenhagen; Chalmers University of Technology; Technical University of Denmark;
- Projekts OnboardMED (concluded): https://onboardmed.turkuamk.fi/arkisto/en/index.html
Partners: the Turku University of Applied Sciences; Åland University of Applied Sciences; Estonian Maritime Academy; Riga Stradiņš University;
- Project SEANICE (ongoing): https://defence-industry-space.ec.europa.eu/seanice_en
Partners: UNIVERSITE LIBRE DE BRUXELLES (Brussels);
- ERASMUS+ KA102 – Cooperation for innovation and exchange of good practice programme project: BLUe growth connects European Seas: https://www.facebook.com/BluesGrowth Partners: University of Piraeus (Greece);
- Project MareMathics (concluded) – Innovative Approach in Mathematical Education for Maritime Students: https://maremathics.pfst.hr/
Partners: University of Split; Estonian Maritime Academy of TalTECH University; Polish Naval Academy;
- Project: PESCAVET - Professionals' innovation training for pescatourism activities: https://www.prismonline.eu/pescavet/;
- Project: Green Diving – Enhancing green skills, sustainability and attractiveness of maritime VET – Partners: association CEIMAR, which includes 7 universities: https://campusdelmar.com/en/home/;
- Project: DERIN – Digital Education Readiness in Maritime and Inland Navigation: http://www.derinnet.eu/
Partners: Technical University of Varna; STC Group in the Netherlands; Mainport Institute Rotterdam;
- Project: MareLAW – Upgrading and harmonization of Maritime law STCW based curriculum for Maritime students: https://www.unist.hr/en/news/new-faculty-of-maritime-studies-in-splits-erasmus-project-marelaw - Partners: University of Split; Polytechnic University of Catalonia, Barcelona.
Summarising the above mentioned cooperation of RTU LMA and the study field "Seafaring" with various foreign institutions, it is evident that the range of cooperation partners has been sufficiently broad and representative (cooperation with non-governmental international organisations, some of which regulate the activities of LMA; cooperation with employers, cooperation to promote exchange of experience within the ERASMUS+ programme; cooperation with foreign educational institutions; cooperation for implementation of international projects; attraction of guest lecturers, etc.) and that the implemented forms of international cooperation and activities have significantly contributed to the training of specialists with higher maritime education, whose knowledge, skills and competences meet the global needs of the maritime transport industry today and in the near future.

2.5.3. Specify the system or mechanisms, which are used to attract the students and the teaching staff from abroad. Provide the assessment of the incoming and outgoing mobility of the teaching staff in the reporting period, the mobility dynamics, and the issues which the higher education institution/ college faces with regard to the mobility of the teaching staff.

During the reporting period, RTU LMA has implemented its activities in several directions to attract foreign students and academic staff: providing study opportunities in English, various events promoting RTU LMA, improvement of RTU LMA website in English, etc.).

In 2017, RTU LMA developed and licensed several undergraduate and higher level study

programmes in English in order to attract foreign students:

- Maritime Transport - Marine Electrical Automation (professional Bachelor's degree programme);
- Maritime Transport - Navigation (professional Bachelor's degree programme);
- Maritime Transport - Marine Engineering (professional Bachelor's degree programme);
- Port and Shipping Management (professional Bachelor's degree programme);
- Maritime Transport (professional Master's degree programme).

After the provision of opportunities to study in English, various promotional activities have been continuously carried out in recent years.

To attract foreign students RTU LMA has:

- In 2017, signed a cooperation agreement "Maritime Education and Research" with Baltovents Limited to attract students from India;
- started cooperation with REC Campus, a college in Sri Lanka, to attract international students at all levels of study;
- RTU LMA has signed 3-year guest student contracts with the following agencies between April 2019 and November 2022:
- Fast Track Education Consultancy, Pvt. Ltd (Nepal);
- Join in campus education Pft. Pupil Consultancy Ltd (India);
- C&W Resources Ltd (United Kingdom);
- Sayoon International Education Consultancy Pvt. Ltd.;
- Alpha for Global Education Services LLC (Egypt);
- Educom Immigration Services Pvt. Ltd. (India);
- Belko International Pvt. Ltd. (Pakistan);
- Edlanta-Education Abroad (Bulgaria);
- ITEBS (Turkey);
- Home Consultants Melbourne Australia Ltd (Australia);
- Oasis Abroad Study Services and Consultancy Pvt. Ltd. Ltd;
- Apply Study, Ltd (Latvia).

Other measures have been also taken to attract foreign students:

- Improvement of the RTU LMA website in English;
- Participation of RTU LMA in international educational exhibitions (EAIE; APAIE; NAFSA, etc.);
- Open Doors events at RTU LMA;
- Developed marketing plan for attracting foreign applicants for full-time studies at RTU LMA, etc.

To attract full-time foreign students, information on the study programmes offered and the application procedure is posted on:

- LMA website in English under 'Studies', http://www.latja.lv/en/studies/;
- until 30 November 2022, also on the LMA website www.educations.com, https://www.educations.com/study-abroad/latvian-maritime-academy/.

Since the academic year 2019/2020, several foreigners have been studying at RTU LMA undergraduate and higher level study programmes: one full-time student from Turkey - in the bachelor study programme "Maritime Transport - Navigation", another full-time student from Nigeria - in the bachelor study programme "Maritime Transport – Marine Engineering" and a third full-time student from Ukraine - in the bachelor study programme "Port and Shipping Management". Several students from Lithuania are studying the Master's degree programme "Maritime Transport"

at LMA, one of them graduated in 2023.

Due to travel restrictions to combat the COVID-19 pandemic worldwide, face-to-face teaching and staff development mobility, as well as student mobility and enrolment of foreign students did not take place as of the academic year 2020/2021. In the spring semester of 2020/2021, the mobility of lecturers was suspended from March 2020 to April 2021 due to the declaration of a state of emergency in Latvia.

To ensure the development of RTU LMA activities and increase of competitiveness at the national and international level, as well as for the internationalisation of studies and exchange of good teaching practices, the attraction of foreign teaching staff is encouraged. This may be achieved by using the resources of the University and the opportunities of ERASMUS+ projects. Foreign academics are also recruited for guest lectures or full study courses within the framework of Erasmus+ cooperation agreements.

The dynamics of the number of international students and staff recruited, as well as the dynamics of inbound and outbound staff mobility are presented in the Annex.

Overall, the assessment of RTU LMA inbound and outbound mobility of teaching staff shows a positive trend. Outward mobility of lecturers has increased by 5% in the post-Covid-19 period, while staff mobility has tripled. In contrast, inbound mobility of lecturers has remained at the same level over the same period.

Following the integration of LMA into the RTU ecosystem, new opportunities are opening up for attracting more international students and staff, as well as for activating inbound and outbound faculty mobility.

To attract foreign students to RTU, two communication target groups are mainly addressed:

- the internal: management team; general staff, academic staff; existing students;
- the external: prospective foreign students (foreign students studying in Latvia, foreign pupils and students, parents of foreign pupils and students); foreign graduates; mass media; opinion leaders; educational institutions; student recruitment education agencies; diplomatic and consular missions of the Republic of Latvia.

The communication strategy uses several types of information channels, choosing the most appropriate for each target audience – paid advertising channels, earned and owned ones. Marketing communication is an essential part of addressing foreign audience using all the traditional marketing tools – advertising in media and other channels, event marketing, direct marketing, digital marketing etc. The main marketing tool used to reach foreign audience is participation in various educational exhibitions and seminars organized by educational agencies in target markets. Continuity in the provision of information and promotion of studies is ensured by the long-term partner universities and educational agencies. In order to ensure a permanent presence and the provision of quality information about studies at RTU and the selection of students, RTU has opened its own information and study centres in specific countries.

Various virtual seminars are widely used to address potential students, with the participation of RTU ICFSD (The RTU International Cooperation and Foreign Students Department) employees, existing delegated employees of students and study program directors, who acquaint prospective students with RTU infrastructure, study opportunities and requirements for foreigners, study program content, further study opportunities, as well as career opportunities after graduation.

ICFSD foreign student admission staff provides potential students with the opportunity to use online consultations to solve issues related to admission and study program selection. Consultations are arranged by appointment, every week, for a period of two months before the end of the admission

period.

Potential students who have provided their contact information to RTU in connection with the commencement of studies, but have not submitted their applications for studies, are regularly addressed at least once a month.

Public relations tools (press releases, media events, face-to-face meetings, interviews, opinion polls, etc.) and RTU social media channels (Facebook, WeChat, WhatsApp, YouTube, etc.) are used in corporate communication. RTU internal channels (ORTUS portal, email, etc.), information seminars and special events are used for internal communication.

2.6. Implementation of the Recommendations Received During the Previous Assessment Procedures

2.6.1. Assessment of the fulfilment of the plan regarding the implementation of the recommendations provided by the experts during the previous accreditation of the study field, as well as the assessment of the impact of the given recommendations on the study quality or the improvement of the study process within the study field and the relevant study programmes.

The report of the Accreditation Commission for the field of studies (13 May 2012) provides an overview of 8 programmes in the study programme group „Mechanics and metal working, except materials science, heat engineering, power engineering and mechanical engineering”:

- Short-cycle study programme “Marine engineering” (41525);
- 1st level study programme (implemented after the short-cycle study programme) “Marine engineering” (44525);
- Professional bachelor study programme “Maritime transport – marine engineering” (42525);
- Short-cycle study programme “Navigation” (41525);
- 1st level study programme (implemented after the short-cycle study programme) “Navigation” (44525);
- Professional bachelor study programme “Maritime transport - Navigation” (42525);
- Professional bachelor study programme “Maritime transport – Marine Electrical Automation” (42525);
- Professional Master’s study programme “Maritime transport” (47525).

For all the programmes, a single Expert Report has been produced, concluding with a total of 6 expert recommendations:
1) More attention has to be paid to quality management in the Academy as well as to the implementation of the latest Manila amendments to the STCW Convention.
Implementation: since 2005 RTU LMA has implemented and maintained a certified quality management system compliant with ISO 9001. Scope of certification: higher professional maritime education and, since 2015, training of seafarers. As of 1 March 2023, the RTU quality management system (QMS) of LMA has been successfully re-certified - the management system certificate expires on 28 February 2026. To maintain the QMS, an internal quality audit is conducted annually during the

academic year, auditing RTU LMA departments in accordance with the annual audit programme. The audit shall be carried out by a team of internal auditors of RTU LMA. The external audit of the QMS of RTU LMA is regularly carried out annually by DNV GL Latvia SIA. The Registry of Seamen of Latvian Maritime Administration conducts an annual evaluation of study and training programmes. The European Maritime Safety Agency (EMSA), on behalf of the European Commission, audits the professional training and certification system for Latvian seafarers every five years in order to assess the compliance of the system with the requirements of Directive 2008/106/EC. During the academic year, a report on the progress of each internal and external audit is prepared and included in the annual RTU LMA Management Report.

2) The Academy should be more active in receiving financial assistance, especially from European programmes.
Implementation: during the reporting period, the LMA success in receiving financial assistance has been variable, with a particular increase from 2018 onwards (see section 2.3 "Study programme resources and provision" and the relevant annexes, as well as the section 3.3 "Study programme resources and provision" of the study programmes submitted for evaluation) of the self-assessment report.
3) The Academy should be more open to the corporate goals of industry organisations in order to align the study process with the needs of industry.
Implementation: Cooperation with employers and industry NGOs has always been one of the priorities of RTU LMA (see Section 2.5 „Cooperation and Internationalisation", paragraphs 2.5.1 and 2.5.2 and the relevant annexes). During the reporting period, cooperation with companies and organisations from the industry with the aim to align the study process with the needs of the industry has been particularly successful within the framework of the European Union Funds Operational Programme "Growth and Employment", Specific Support Objective 8.2.3 "Ensuring better governance in higher education institutions" within the framework of the Academy's project "Latvian Maritime Academy e-learning and management process support information and communication technology (ICT) platform", Action 1 "Analysis of study programme content, assessment of relevance to the needs of the industry development". As a result of this activity "Change Management and Implementation Plan - Modernisation of the LMA Bachelor study programmes "Maritime Transport - Navigation", "Maritime Transport – Marine Engineering" and "Maritime Transport – Marine Electrical Automation" has been developed and implemented, and thus can be successfully used also for the improvement of other LMA study programmes, including the professional Master study programme "Maritime Transport".
4)Create and develop a modern learning environment, including modern technologies.
Implementation: During the reporting period, the Academy has been developing a modern learning environment as far as possible, however, particular progress in this area has been made since 2018 and is mainly attributable to the opportunities provided by the projects implemented by RTU LMA (see Section 2.3 "Resources and Provision of the Study Area", paragraphs 2.3.2-2.3.4 and the relevant annexes). For example, by implementing the SAM 8.2.3 project, LMA has significantly improved and expanded the use of innovative e-learning technologies for the digitisation of study content and study process - the acquisition and implementation of new virtual e-tools, as well as the modernisation of existing ones, has enabled the improvement of study content and process, including theoretical and practical teaching of regulated study courses. Of particular importance are the possibilities of using e-tools also in the distance learning process. The virtual e-learning tools purchased so far are available to students in the LMA e-environment OMARS and as of the cademic year 2023/2024 it will be possible to align these e-tools with the ORTUS system used at RTU.

5) it is necessary to step up efforts in the modernisation and refurbishment of maritime training special equipment. It is necessary to improve the following in order to meet the requirements of international standards:
a. For studies at Bachelor study programme „Maritime Transport-Navigation", a multi-functional bridge simulator with visualization as well as a live GMDSS station is desired. It is recommended that a separate ECDIS simulator be used.
Implementation: For bachelor level navigation studies, the Transas NaviTrainer simulator was acquired in 2011 and updated using multifunction bridge simulator Transas NaviTrainerPro 5000, which includes visualization and ECDIS, in 2015 under the Horizon 2020 project. The updated simulator includes the ship's navigation bridge with a 180-degree visualization and control console.
b. Improve technical equipment (hydraulic and pneumatic equipment, heat exchangers and auxiliary mechanisms) for the bachelor study programme in marine engineering. It is desirable to provide the engine room simulator with the machinery space and the control area. Restore the diesel engine laboratory.
Implementation: In 2014, a FESTO high-pressure hydraulics and pneumatics lab stalls with FluidSim simulation software were purchased. The engine room simulator has 2 control units with ERC2 (for slow-speed propulsion) and MER2 (medium-speed

propulsion). The functions of the diagnostic laboratory for diesel engines, where students practice the management of diesel engine failures and maintenance, have been replaced by a UNITEST TD5 diagnostic simulator. Diesel engines serve as a means of reference for the time being.
c. Studies in marine engineering and marine electrical automation bachelor study programmes should be organised in suitably equipped electrical workshops in order to allow students to undergo appropriate training. Mostly existing electrical and electronic equipment is old-fashioned and should be renovated.
Implementation: RTU LMA electrical equipment workshop was set up and an electrical engineering laboratory equipped with soldering equipment and suction equipment, as well as with machine tools for wiring work. Updated equipment for marine automation and electronics laboratories includes: ACS-1000 analogue automatic control system laboratory stand; electronic equipment kits; Arduino constructors; PLC controllers, etc.
6) The experts would like to encourage the academy to make greater efforts in the development of research equipment.
Implementation: For the progress made in implementing this Recommendation, see section 2.4 of the self-assessment report "Scientific Research" and the corresponding annexes.
A more detailed overview of the implementation of the recommendations is given in Annex P19, as well as in the self-assessment report in line with each study programme.

2.6.2. Implementation of the recommendations given by the experts during the evaluation of the changes to the study programmes in the respective study field or licensed study programmes over the reporting period or recommendations received during the procedure for the inclusion of the study programme on the accreditation form of the study field (if applicable).

In order to attract foreign students to RTU LMA, in 2017 a number of bachelor study programmes, as well as one Master study programme was submitted for the accreditation in English:
- Professional bachelor study programme "Marine Transport – Marine Electrical Automation (Bachelor's degree)";
- Professional bachelor study programme "Marine Transport – Navigation (Bachelor's degree)";
- Professional bachelor study programme "Marine Transport – Marine Engineering (Bachelor's degree)";
- Professional bachelor study programme „Port and Shipping Management (Bachelor's degree)";
- Professional Master's study programme "Maritime Transport (Master's degree)".

As part of the evaluation of the changes to the study programmes identified, an expert report was issued for each programme on 10 July 2017, concluding with the expert recommendations.
An analysis of the recommendations provided by experts shows that they may be relatively divided into two parts: recommendations repeated for all programmes submitted for evaluation and separate recommendations made for specific study programmes.
In the evaluations of all programmes, a number of recommendations have been made on improving the use of English, while highlighting the need for good English skills, not only for teaching staff, but also for future students.
Implementation: Before the admission of foreign students, RTU LMA has prepared an internal environment for the implementation of the study programmes in English. One of the measures taken - the specific objective of the European Union funding programme "Growth and Employment" 8.2.2 "Reinforcing the academic staff of higher education institutions in strategic areas of specialisation", the Academy project "Measures to promote the renewal of the academic staff of Latvian Maritime Academy, international cooperation and capacity building", has been carried out in the framework of the academic project, Professional Maritime English training has taken place (37 academic staff trained). The second measure taken: the inclusion of the requirements on the level of English skills required in the rules on the admission of foreigners (see paragraph 2.1.4 of Section 2.1 of the self-assessment report on "Management of courses of study").

In addition, evaluation of all programmes includes a recommendation: “It should be possible to improve the description of study courses so that the objectives, results to be achieved and annotations of the programme do not differ from the accredited version. The same English terminology should be used in the study course description. The “Latvian Language” course should be simplified with an emphasis on learning the language.
Implementation: New study course descriptions have been developed for all study courses submitted for evaluation, including an improved description of the “Latvian language” study course, taking into account expert recommendations (Refer to the relevant appendix of section 3.2.1.).
All the study programmes carry the the recommendation “It is necessary to take a detailed assessment of the technical and research capacity of the materials at hand, to identify potential bottlenecks, taking into account the expected increase in the number of students, and to plan in good time the necessary measures to increase capacity”.
Implementation: A RTU development strategy for the years 2018-2023, including Annex 3 “Detailed Plan for the Development of the Material-technical resource Base”, has been developed and implemented and has succeeded in achieving its gradual implementation through a number of research projects, such as project SAM No 8.2.3.
Similarly, the assessment of all programmes includes a recommendation “Teaching aids should be modern and consistent with the working language of students (English) – Latvian or Russian literature may prove to be unusable. Outdated literature in course descriptions should be avoided. For the literature to be used, the course description should indicate the ISBN number and other additional identification data to make it easier to find the literature of interest”.
Implementation: all study programmes have developed new descriptions for all study courses and comply with the updated requirements of the Law on Higher Education and the provision of studies in accordance with the bibliography requirements for the sources of information, literature is consistent with the language of the implementation of the programme (compulsory and supplementary literature, other sources of information). Following the reorganisation of RTU LMA, training was conducted under the management of the librarian of RTU on the feasibility of using RTU databases. Following the reorganisation, it is also possible for students, teaching staff and researchers to use other other opportunities offered by the RTU Scientific Library.
Marine engineering study programmes are accompanied by an additional recommendation “The study programme should indicate the programme's compliance with certain provisions of the STCW Convention (Reg. III/1 and III/2).
Implementation: References to IMO model courses indicating the provisions of the STCW Convention (Reg. III/1 and III/2) have been placed in study course descriptions on relevant topics.
A more detailed overview of the progress of the recommendations can be found in Annex "Recomendation fulfilment_MAG", which shows that virtually all recommendations have been implemented or that they are being implemented continuously.

Annexes

I - Information on the Higher Education Institution/ College		
Information on the implementation of the study field in the branches of the higher education institution/ college (if applicable)		
List of the governing regulatory enactments and regulations of the higher education institution/ college	List of internal regulations.zip	Ieksejo normativo aktu saraksts.zip
The management structure of the higher education institution/ college	RTU_Management_Structure.pdf	RTU_Parvaldibas_Struktura.pdf
II - Description of the Study Field - 2.1. Management of the Study Field		
Plan for the development of the study field (if applicable)	RTU_LJA_strategy_2023_2027 v3.docx	RTU_LJA_strategija_2023_2027 v3.docx
The management structure of the study field	Study_Field_Management_Structure.jpg	Studiju_virziena_parvaldibas_struktura.jpg
A document certifying that the higher education institution or college will provide students with opportunities to continue their education in another study programme or another higher education institution/ college (agreement with another accredited higher education institution or college) if the implementation of the study programme is terminated.	Līgumi par studiju parnemšanu ENG.zip	Līgumi par studiju parnemšanu LV.zip
A document certifying that the higher education institution or college guarantees compensation for losses to students if the study programme is not accredited or the study programme license is revoked due to actions (actions or omissions) of the higher education institution or college and the student does not wish to continue studies in another study programme.	Confirmation - on compensation for losses.edoc	Apliecinājums - par zaudējumu kompensāciju.edoc
Standard sample of study agreement	Sample_of_study_agreement.zip	Studiju_līguma_paraugs.zip
II - Description of the Study Field - 2.2. Efficiency of the Internal Quality Assurance System		
Analysis of the results of surveys of students, graduates and employers	Aptauju rezultātu analīze-ENGv4.docx	Aptauju rezultātu analīze-LVv4.docx
II - Description of the Study Field - 2.3. Resources and Provision of the Study Field		
Basic information on the teaching staff involved in the implementation of the study field	Mācībsp sarakst_GALA_LV-ENGv3.xlsx	Mācībsp sarakst_GALA_LV-ENGv3.xlsx
Biographies of the teaching staff members (Curriculum Vitae in Europass format)	CV ENGv2.zip	CV LVv2.zip
A statement signed by the rector, director, head of the study programme or field that the knowledge of the state language of the teaching staff involved in the implementation of the study programmes within the study field complies with the regulations on the state language knowledge and state language proficiency test for professional and official duties.	Confirmation - knowledge of the state language.edoc	Apliecinājums - valsts valodas zināšanas.edoc
A statement of the higher education institution/ college on the respective foreign language skills of the teaching staff involved in the implementation of the study programme at least at B2 level according to the European Language Proficiency Assessment levels (level distribution is available on the website www.europass.lv, if the study programme or part thereof is implemented)	Confirmation - knowledge of the foreign language.edoc	Apliecinājums - svešvalodu prasme.edoc
II - Description of the Study Field - 2.4. Scientific Research and Artistic Creation		
Summary of quantitative data on scientific and/ or applied research and / or artistic creation activities corresponding to the study field in the reporting period.	LJA_proj_sar_EN v2.xlsx	LJA_proj_sar_ v2.xlsx
List of the publications, patents, and artistic creations of the teaching staff over the reporting period.	Publications-Patents-Conferences ENG v2.zip	Publikacijas-Patenti-Konferences v2.zip
II - Description of the Study Field - 2.5. Cooperation and Internationalisation		
List of cooperation agreements, including the agreements for providing internship	Cooperation contacts-student practice.zip	Ligumu saraksts-studejoso prakse.zip
Statistical data on the teaching staff and the students from abroad	Foreign students and staff.zip	Arvalstu studejosie un macibspeki.zip
Statistical data on the incoming and outgoing mobility of students (by specifying the study programmes)	Studējošo mobilitāte_ENG v4.docx	Studējošo mobilitāte_LV v4.docx
Statistical data on the incoming and outgoing mobility of the teaching staff	P18_Staff.mobility.docx	P18_Mācībspēku mobilitāte.docx
II - Description of the Study Field - 2.6. Implementation of the Recommendations Received During the Previous Assessment Procedures		
Report on the implementation of the recommendations received both in the previous accreditation and in the licensing and/ or change assessment procedures and/ or the procedures for the inclusion of the study programme on the accreditation form of the study field.	Recomendation fulfilment v3.zip	Rekomendāciju izpilde v3.zip
An application for the evaluation of the study field signed with a secure electronic signature	02000-2.2.3-e_2.edoc	02000-2.2.3-e_2.edoc
III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		

Sample of the diploma and its supplement to be issued for completing the study programme		
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)		
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)		
Statistics on the students in the reporting period		
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard		
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)		
Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)		
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme		
The curriculum of the study programme (for each type and form of the implementation of the study programme)		
Descriptions of the study courses/ modules		
Description of the organisation of the internship of the students (if applicable)		
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)		
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)		

Other annexes

Name of document	Document
RTU IT sistemu saskarnes.zip	RTU IT sistemu saskarnes.zip
Screenshots of RTU IT systems.zip	Screenshots of RTU IT systems.zip
Dinamika13-21.xlsx	Dinamika13-21.xlsx
Dynamics 13-21.xlsx	Dynamics 13-21.xlsx
Nr-23_Akad_person_vadība_red-0.docx	Nr-23_Akad_person_vadība_red-0.docx
Nr-23_Akad_person_vadība_red-0-EN.docx	Nr-23_Akad_person_vadība_red-0-EN.docx
P2-1 red.11.docx	P2-1 red.11.docx
P2-1 red.11_EN.docx	P2-1 red.11_EN.docx
Rekomend izpilde_MAG.zip	Rekomend izpilde_MAG.zip
Recomendation fulfilment_MAG.zip	Recomendation fulfilment_MAG.zip
OneDrive_2024-02-20 (6).zip	OneDrive_2024-02-20 (6).zip
OneDrive_2024-02-20 (7).zip	OneDrive_2024-02-20 (7).zip
OneDrive_2024-02-20 (8).zip	OneDrive_2024-02-20 (8).zip
OneDrive_2024-02-20 (9).zip	OneDrive_2024-02-20 (9).zip
Stud. turpin. iespējas.docx	Stud. turpin. iespējas.docx
MAG_JT402-24-25_Plāns_Red-0.pdf	MAG_JT402-24-25_Plāns_Red-0.pdf
MAG_JT402-24-25_Plāns_Red-0_ENG.pdf	MAG_JT402-24-25_Plāns_Red-0_ENG.pdf
MAG_Salīdzin. ar PS proj-tu_GALA_11.10.24..pdf	MAG_Salīdzin. ar PS proj-tu_GALA_11.10.24..pdf
Profesiju standarts PS-308.pdf	PS-308.pdf
PKP_JTPV_09.10.2024_PS-308.docx	PKP_JTPV_09.10.2024_PS-308.docx
1_piel_Studiju_rezultātu_vērtēšanas_nolikuma_apstiprināšana_jaunā_redakcijā_17.06.2024_1.docx	1_piel_Studiju_rezultātu_vērtēšanas_nolikuma_apstiprināšana_jaunā_redakcijā_17.06.2024_1.docx
2_piel_Akreditac_macibspeki_papildinats_uz 01092024.xlsx	2_piel_Akreditac_macibspeki_papildinats_uz 01092024.xlsx
Additional requests from experts.docx	Additional requests from experts.docx
3_piel_MAG_Sal. ar PS proj-tu_GALA_11.10.24_Kart-1.docx	3_piel_MAG_Sal. ar PS proj-tu_GALA_11.10.24_Kart-1.docx
3.1.pielikums13-24akad.gads-28.10.24.xlsx	3.1.pielikums13-24akad.gads-28.10.24.xlsx
3.2.Dinamika13-24-28.10.2024.xlsx	3.2.Dinamika13-24-28.10.2024.xlsx

Navigation (41525)

Study field	*Seafaring*
ProcedureStudyProgram.Name	*Navigation*
Education classification code	*41525*
Type of the study programme	*Short-cycle professional higher education study programme*
Name of the study programme director	*Imants*
Surname of the study programme director	*Aleksandrovs*
E-mail of the study programme director	*Imants.Aleksandrovs@rtu.lv*
Title of the study programme director	*Profesionālais bakalaura grāds jūras transportā un kuģu vadītāja kvalifikācija*
Phone of the study programme director	*+37126599476*
Goal of the study programme	*To prepare high-quality, internationally recognized operational-level specialists in the maritime industry who are capable of ensuring safe navigation, cargo handling and stowage on ships, as well as managing ship processes and caring for persons on board at the operational level, in accordance with the International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW) Code A-II/1 standard and the relaxed A-II/2 standard requirements.*
Tasks of the study programme	*To educate students, providing them with the attainment of the 5th level professional qualification "Ship Navigator (operational level)," as well as promoting the competitiveness of program graduates in changing socio-economic conditions and the international labor market.*
Results of the study programme	*Graduates of the study programme:* *- is able to demonstrate comprehensive and specialized knowledge and understanding of facts, theories, regularities, and technologies relevant to the maritime transport field;* *- is able to perform practical tasks in the ship navigator profession based on an analytical approach, demonstrate skills that enable creative problem-solving for professional issues, as well as discuss and argue practical questions and solutions with colleagues, clients, and management;* *- is able to evaluate and improve their own and others' actions, work collaboratively, plan and organize work to accomplish specific tasks in the ship navigator profession;* *- is able to formulate, describe, and analyse practical problems in the ship navigator profession, select the necessary information, and use it for solving well-defined problems, participate in the development of the relevant professional field, and demonstrate an understanding of the ship navigator profession in a broader social context;* *- is able to ensure compliance with the requirements of professional qualifications.*
Final examination upon the completion of the study programme	*1. State exam in Maritime English.* *2. Complex examination in the specialty.* *3. Qualification paper.*

Study programme forms

Full time studies - 2 years - latvian

Study type and form	*Full time studies*
Duration in full years	*2*
Duration in month	*0*
Language	*latvian*
Amount (CP)	*80*
Admission requirements (in English)	*Vocational secondary (maritime) education and fourth level vocational qualification in navigation or comparable education*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	—
Qualification to be obtained (in english)	*Navigator (operating level)*

Places of implementation

Place name	City	Address
Latvian Maritime Academy	RĪGA	FLOTES IELA 12 K-1, KURZEMES RAJONS, RĪGA, LV-1016

Part time extramural studies - 3 years - latvian

Study type and form	*Part time extramural studies*
Duration in full years	*3*
Duration in month	*0*
Language	*latvian*
Amount (CP)	*80*
Admission requirements (in English)	*Vocational secondary (maritime) education and fourth level vocational qualification in navigation or comparable education*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	—
Qualification to be obtained (in english)	*Navigator (operating level)*

Places of implementation

Place name	City	Address
Latvian Maritime Academy	RĪGA	FLOTES IELA 12 K-1, KURZEMES RAJONS, RĪGA, LV-1016

Full time studies - 3 years - latvian

Study type and form	*Full time studies*
Duration in full years	*3*
Duration in month	*0*
Language	*latvian*
Amount (CP)	*120*
Admission requirements (in English)	*Secondary education*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	—
Qualification to be obtained (in english)	*Navigator (operating level)*

Places of implementation

Place name	City	Address

Riga Technical University	RĪGA	ĶĪPSALAS IELA 6A, KURZEMES RAJONS, RĪGA, LV-1048

Part time extramural studies - 4 years - latvian

Study type and form	*Part time extramural studies*
Duration in full years	*4*
Duration in month	*0*
Language	*latvian*
Amount (CP)	*120*
Admission requirements (in English)	*Secondary education*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	—
Qualification to be obtained (in english)	*Navigator (operating level)*

Places of implementation

Place name	City	Address
Latvian Maritime Academy	RĪGA	FLOTES IELA 12 K-1, KURZEMES RAJONS, RĪGA, LV-1016

3.1. Indicators Describing the Study Programme

3.1.1. Description and analysis of changes in the parameters of the study programme made since the issuance of the previous accreditation form of the study field or issuance of the study programme license, if the study programme is not included on the accreditation form of the study field, including changes planned within the evaluation procedure of the study field evaluation procedure.

Since the previous study field accreditation review period, the address of the implementation venue of the study program has not changed, but the legal name of the university has changed due to the reorganization of the Latvian Maritime Academy, according to Cabinet of Ministers Order No. 492 of July 6, 2022. As of November 1, 2022, it has been included in the structure of Riga Technical University. In addition to Cabinet of Ministers Order No. 492, the establishment and operation regulations of RTU LJA are determined by the trilateral agreement "Cooperation Agreement No.2-2e/22/392 on the Integration of the Latvian Maritime Academy into the Structure of Riga Technical University," concluded on October 27, 2022, in accordance with point 4.2 of Cabinet of Ministers Order No. 492. The agreement is between the Ministry of Education and Science, RTU, and the Latvian Maritime Academy as a university. It stipulates that the status of RTU LJA corresponds to the status of an independent institute within RTU. The director of the study program has also changed since the receipt of the previous accreditation page.

Until the 2018/2019 academic year, the study program was only implemented in part-time non-attendance. Starting from the 2018/2019 academic year, students are admitted to this study program on a full-time on-site basis in order to promote the integration of Latvian Maritime Academy's Nautical School graduates into LJA and prevent them from going to other maritime educational institutions where short-cycle professional higher education in the specialty is implemented on-site.

The changes in the short-cycle professional higher education study program "Navigation" since the previous accreditation period are summarized in the table:

	Parameters of the program submitted in the previous accreditation:	**Parameters of the program submitted in the current accreditation:**
Implementation location:	Latvian Maritime Academy, Flotes iela 12, k-1, Riga, LV-1016, Latvia	Latvian Maritime Academy, Riga Technical University, Flotes iela 12, k-1, Riga, LV-1016, Latvia
Program Director:	**Svetlana Izmailova**	**Imants Aleksandrovs**

Taking into account that a new study field in higher education appeared in Cabinet Regulation No. 793, the decision was made to change the study field from "Mechanics and Metalworking, Heat Engineering, Heat Technology, and Mechanical Engineering" to "Maritime" in full compliance with the short-cycle professional higher education study program implemented by Riga Technical University Maritime Academy (RTU LJA). Compared to the study curriculum of 2013, the study program has been improved to provide RTU LJA students with more comprehensive theoretical knowledge and practical skills necessary for obtaining professional qualifications in accordance with

the current trends in the maritime industry. A significant part of the study courses has undergone changes in content, course descriptions, and titles to comprehensively cover the topic of maritime. The short-cycle professional higher education study program is specially designed for graduates of the new maritime school programs (with the qualification of "officer of the watch on ships larger than 3000 BT") who have already completed specific professional courses within the maritime school's curriculum. The changes made to the study curriculum are summarized below.

1. **Study program after obtaining secondary vocational maritime education (study curriculum V220):**

Part A Mandatory study courses:

A-1 General education study courses (20 CP; reduced by 4 CP):

- The study course "Personnel, Bridge Team, and Resource Management" with a volume of 2 CP is moved to elective study courses.
- The study course "Technical Mechanics" with a volume of 1 CP is removed from the curriculum (intended only for the first-cycle study program, which is pursued after completing the short-cycle study program).
- The study course "Foundations of Maritime Law" with a volume of 1 CP is transferred from A-1 (general education study courses) to A-2 (Industry-specific study courses).
- The study course "Engineering Graphics and Descriptive Geometry" with a volume of 1 CP is moved from A-1 (General education study courses) to Part C (elective study courses).
- The title of the study course "English Language" is changed to "Maritime English Language" (4 CP; reduced by 1 CP).
- The study course "Civil Defense" is added according to Cabinet Regulation No. 716 (1 CP).
- The study course "Occupational Safety" (1 CP) is renamed to "Occupational Safety on Ships" and moved from A-2 (Industry-specific study courses) to A-1 (General education study courses).
- The study course "Transport Economics" is renamed to "Maritime Economics".
- The study course "Computer Science" is renamed to "Ship Computer Networks and Cybersecurity".
- The volume of the study course "Mathematics" is reduced by 2 CP (now 4 CP).
- A new study course "Ship Technical Management" (1 CP) is added.

A-2 Industry-specific study courses (37 CP; reduced by 8 CP):

- The study course "Occupational Safety" (1 CP) is renamed to "Occupational Safety on Ships" and moved from A-2 (Industry-specific study courses) to A-1 (General education study courses).
- The title of the study course "Maritime English Language" is changed to "Maritime English Language for Ship Officers" and the volume is increased by 1 CP (now 6 CP).
- The study course "Maritime Astronomy" with a volume of 3 CP is reduced by 1 CP (now 2 CP).
- A new study course "Foundations of Maritime Law" with a volume of 1 CP is added (transferred from A-1 (general education study courses) to A-2 (Industry-specific study courses
- The study course 'Ship Handling and Watchkeeping' with a volume of 4 CP will be increased by 48 contact hours, which are intended for additional simulator training, as the study course 'Radio Navigation, Radar, and ECDIS for Ship Handling' has been removed from the curriculum, with no change in the CP credits.
- The study course 'Navigation' with a volume of 4 CP will be increased by 48 contact hours, which are intended for additional ECDIS training, as the study course 'Radio Navigation, Radar, and ECDIS for Ship Handling' has been removed from the curriculum, with no change

in the ECTS credits.

- The study course 'Ship Cargo Transportation Technology' will have the thesis removed from the curriculum since it is only intended for the first-cycle study program pursued after completing the short-cycle study program. The study course will be increased by 1 CP (now 2 CP).
- The study courses 'Radio Navigation, Radar, and ECDIS for Ship Handling' with a volume of 3 CP and 'Communication Organization and GMDSS' with a volume of 4 CP have been removed from the curriculum as they have been covered in the maritime school and relevant certification has been obtained. These study courses will be combined into a new unified study course 'Radio Navigation and Communication Equipment' with a volume of 2 CP.
- The study course 'Maritime Safety' with a volume of 2 CP has been moved to the Elective Study Course section.
- The title of the study course 'Environmental Pollution Prevention' has been changed to 'Environmental Pollution Prevention at Sea'.
- The volume of the optional Study Courses has been reduced by 2 CP (now 4 CP).

2. Study program after acquiring secondary education (study curriculum V225):

Part A Mandatory study courses

A-1 General education study courses (20 CP; reduced volume by 4 CP):

- The study course "Personnel, Bridge Team, and Resource Management" with a volume of 2 CP has been moved from A-1 General Education study courses to A-2 Industry-specific study courses.
- The study course "Technical Mechanics" with a volume of 1 CP will be removed from the curriculum (intended only for the first-cycle study program after completing the short-cycle study program).
- The study course "Fundamentals of Maritime Law" with a volume of 1 CP has been transferred from A-1 (General Education study courses) to A-2 (Industry-specific study courses).
- The study course "Engineering Graphics and Descriptive Geometry" with a volume of 1 CP has been moved from A-1 (General Education study courses) to Part C (Elective study courses).
- The study course "English Language" has been renamed to "Maritime English Language" (4 CP; reduced volume by 1 CP).
- Added the study course "Civil Defense" in accordance with Cabinet Regulation No. 716 (1 CP).
- The study course "Occupational Safety" (1 CP) has been renamed to "Occupational Safety on Ships" and moved from A-2 Industry-specific study courses to A-1 General Education study courses.
- The study course "Transport Economics" has been renamed to "Maritime Economics".
- The study course "Computer Science" has been renamed to "Ship Computer Networks and Cybersecurity".
- The volume of the study course "Mathematics" has been reduced by 2 CP (now 4 CP).
- New study course "Ship Technical Management" (1 CP).

A-2 Industry-specific study courses (53 CP; increased volume by 5 CP):

- The study course "Occupational Safety" (1 CP) has been renamed to "Occupational Safety on Ships" and moved from A-2 Industry-specific study courses to A-1 General Education study courses.
- The study course "Fundamentals of Maritime Law" with a volume of 1 CP has been transferred from A-1 (General Education study courses) to A-2 (Industry-specific study

courses).

- The study course "Maritime English Language" has been renamed to "Maritime English Language for Ship Operators" and increased its volume by 1 CP (now 6 CP).
- The study course "Ship Cargo Transportation Technology" will remove the study work from the curriculum as it is intended only for the first-cycle study program after completing the short-cycle study program. The study course will increase its volume by 1 CP (now 2 CP).
- Added a new study course "Ship Handling in Emergency Situations" with a volume of 1 ECTS.
- The volume of the study course "Radio Navigation, Radar, and ECDIS in Ship Handling" has been increased by 1 CP (now 4 CP).
- The volume of the study course "Communication Organization and GMDSS" has been increased by 1 CP (now 5 CP).
- The study course "Personnel, Bridge Team, and Resource Management" has been moved from A-1 General Education study courses to A-2 Industry-specific study courses.

Part B Limited elective study courses (Reduced volume by 2 CP, now 0 CP).

Part D Internship and practical training (Reduced volume by 19 CP, now 42 CP).

3.1.2. Analysis and assessment of the study programme compliance with the study field. Analysis of the interrelation between the code of the study programme, the degree, professional qualification/professional qualification requirements or the degree and professional qualification to be acquired, the aims, objectives, learning outcomes, and the admission requirements. Description of the duration and scope of the implementation of the study programme (including different options of the study programme implementation) and evaluation of its usefulness.

In accordance with Cabinet Regulation No. 793 on the establishment of a new study field, accreditation documents are submitted in the study field "Seafaring," which is mostly aligned with the study programs implemented by RTU LJA, including the short-cycle professional higher education study program "Navigation." In accordance with the requirements of the "Seafaring" study field, the study program provides high-quality maritime education, closely aligning it with the demands of the labor market and industry needs, thus ensuring a competitive maritime engineering workforce.

The short-cycle professional higher education study program "Navigation" corresponds to level 5 of the EQF, which enables students to acquire in-depth theoretical knowledge in the field of maritime transport and ship navigation in accordance with the requirements of the International Maritime Organization's International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW with amendments). Practical skills of students are developed within the study process through the use of simulators and by participating in mandatory sea practice, which is a prerequisite for completing the study program and obtaining professional qualifications. The name, professional qualification, objectives, tasks, and admission requirements of the study program comply with the level of implementation of the International Maritime Organization's International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW-78 with amendments). Admission requirements and the content of the study program are interrelated, meet industry requirements, and are aligned with the Latvian Maritime Administration's Seafarer Register.

To achieve the objectives set forth in the study program, standardized admission requirements

have been defined from the early stages of program implementation. In addition to the basic documents (application, copy of the secondary education certificate with presentation of the original, copies of the certificates of compulsory centralized exams specified in the respective graduation year with presentation of the originals), in accordance with Article 29(1) of the "Maritime Administration and Maritime Safety Law" regarding "Health Requirements for Seafarers," the applicant should provide a valid medical certificate issued by a maritime doctor confirming their fitness for work on a ship. The Admissions Committee of LJA should submit a valid seafarer's medical certificate, issued by a maritime doctor, attesting to the person's health condition corresponding to the chosen specialty.

The qualification of a ship navigator is awarded if the student fulfills all the requirements specified in the study process. If the assessment obtained in the state examination is lower than 7 points, the professional qualification can be obtained from the Seafarer Register by retaking the state examination and having discussions with inspectors from the Latvian Maritime Administration.

The duration and volume of program implementation comply with the regulatory acts of the Republic of Latvia. Students have the opportunity to study full-time in person or part-time remotely. Both implementation methods and forms of the study program must maintain a student-centered education provision.

Duration and scope of study program implementation:

Program name:	**Scope of the study program (CP, also recommended in ECTS):**	**Full-time attendance:**	**Part-time absence:**
Short-cycle professional higher education study program: “Navigation”	***120 CP, 180 ECTS or 80 CP, 120 ECTS* (from the academic year 2023/2024) if the student has obtained intermediate professional maritime education.***	***3 years or 2 years if the student has obtained intermediate professional maritime education.***	***4 - 6 years or 3 - 6 years if the student has obtained intermediate professional maritime education.***

3.1.3. Economic and/ or social substantiation of the study programme, analysis of graduates' employment.

As it is well known, the profession of seafarers has a long-standing tradition in Latvia and continues to be highly sought after in modern times. In terms of the number of seafarers per economically active population, Latvia has consistently been ranked first in the European Union and among the top countries globally. As of January 3, 2023, the Maritime Register of the State Limited Liability Company "Latvian Maritime Administration" registered 10,830 seafarers.

The main objective of the LMA short-cycle professional higher education study program "Navigation" is to provide a set of knowledge, skills, and competencies in accordance with the requirements of the 1978 International Convention on Standards of Training, Certification and

Watchkeeping for Seafarers (STCW), Code A-II/1 and relaxed requirements of A-II/2 standards and the framework structure of Level 5 knowledge, skills, and competencies defined in the Latvian Education Classification.

With the introduction of new technologies and digital solutions in maritime transportation, there is an increasing demand for highly skilled workforce. According to data from the Maritime Register and shipping companies, there is a persistent demand worldwide for Latvian ship officers. Considering the continuous demand in the industry for highly qualified ship navigators, the employment outlook remains positive. It is forecasted that all graduates, upon obtaining the appropriate seafarer's certificate, will be employed according to their acquired qualifications or educational diploma. Results from the annual surveys of graduates conducted by LMA clearly indicate that graduates of the "Navigation" short-cycle professional higher education study program are interested in developing their skills and professional competence by continuing to work in the maritime industry. When asked whether they intend to pursue a career in the maritime sector, the program's graduates responded affirmatively with a convincing majority (86%).

Will you work in the maritime industry in the future?

	2021./2022. Academic year	2020./2021. Academic year
Yes	86%	-*
No	14%	-*

Taking into account the constant demand in the industry for highly qualified ship navigators, the employment forecast remains positive. It is projected that all graduates, upon obtaining the appropriate seafarer's certificate, will be employed according to their acquired qualifications or educational diploma. In accordance with the requirements of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW-78, as amended) by the Maritime Labour Convention, the skills and competencies required for ship navigators are periodically updated through qualification courses.

3.1.4. Statistical data on the students of the respective study programme, the dynamics of the number of the students, and the factors affecting the changes to the number of the students. The analysis shall be broken down into different study forms, types, and languages.

Short-cycle professional higher education study program: “Navigation”

Full-time attendance(study language latvian)

In this study program, full-time on-site students have been admitted since the 2018/2019 academic year to promote the integration of Latvian Maritime Academy (LMA) School of Maritime graduates into LMA and discourage them from going to other maritime educational institutions. The majority of students are enrolled in state-funded study places. This can be explained by LMA's desire to attract and retain graduates of the LMA School of Maritime in this specialization.

The number of admissions is not high because the LMA School of Maritime also graduates relatively small groups. However, from the 2018/2019 academic year to the 2020/2021 academic year, the

number of students in the study program has gradually increased. In the 2020/2021 academic year, this study program had the highest number of students during the reporting period.

A slight decline was observed in the 2021/2022 academic year, which is related to the unfavorable economic situation in the country due to the impact of the COVID-19 pandemic, resulting in a significant decrease in student numbers across all study programs. Students from the average vocational education programs of Liepāja Maritime College have also shown interest in this study program.

During the reporting period, there have been 2 cohorts of graduates from the study program. Since the 2020/2021 academic year, the number of graduates has remained almost unchanged (+/- 1 graduate).

During the reporting period, the attrition rate of students in the study program is not significant (1-2 students per year since the 2019/2020 academic year). In the reporting period, 2 students have chosen to change the mode and form of their studies to part-time remote studies in order to manage their academic workload according to an individual schedule in the longer term. Additionally, in the 2021/2022 academic year, 1 student voluntarily discontinued their studies, while 1 student was expelled due to academic underperformance.

Part-time absence (study language latvian)

During the reporting period, the highest number of part-time remote students occurred in the time period from the 2012/2013 academic year to the 2014/2015 academic year, followed by a significant decline in student numbers. This decline is likely related to the accelerated growth of the Latvian economy in 2015, leading potential students to prefer paid employment over education. As we know, not everyone is capable of pursuing part-time remote studies, as it requires great determination and commitment. Statistically, it can be observed that no new students enrolled during the reporting period, and existing students either continued their studies or changed the mode and form of their studies. This particular form of the study program was not extensively popularized since part-time remote studies are not in demand from the first year of study. However, this study program format is maintained, adhering to the principles of student-centered education, providing students with the opportunity to pursue a higher professional education over a longer period according to an individual schedule.

The number of graduates during the reporting period is small: from the 2016/2017 academic year to the 2021/2022 academic year, no student has graduated. In the 2021/2022 academic year, after a longer interruption, one part-time remote student has graduated from the study program.

The attrition rate of students during the reporting period amounts to 7 students or 16.67% of the 42 part-time remote students in the study program. Among them, 6 students were expelled due to academic underperformance, and 1 student voluntarily discontinued their studies.

3.1.5. Substantiation of the development of the joint study programme and description and evaluation of the choice of partner universities, including information on the development and implementation of the joint study programme (if applicable).

3.2. The Content of Studies and Implementation Thereof

3.2.1. Analysis of the content of the study programme. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators with the aims of the study course/ module and the aims and intended outcomes of the study programme. Assessment of the relevance of the content of the study courses/ modules and compliance with the needs of the relevant industry, labour market and with the trends in science on how and whether the content of the study courses/ modules is updated in line with the development trends of the relevant industry, labour market, and science.

The planning, organization, and implementation of the study process (including the choice of study program volume, duration, type, and format) comply with the Constitution of the Republic of Latvia, the Law on Education, the Law on Higher Education, the Law on Professional Education, the Law on Scientific Activity, and the Constitution of the University of Latvia.

The preparation of ship officers is carried out in accordance with the International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW) with amendments, European Union directives, Cabinet of Ministers regulations No. 710 of December 15, 2015, "Regulations for Certification, Implementation, and Monitoring of Professional Seafarers' Training Programs," and other relevant legislative acts in the field, as well as internal regulatory acts of the University of Latvia.

Maritime education is based on the modules of the International Maritime Organization's (IMO) International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW) with amendments. These modules include requirements for various levels of professional competence that must be taken into account in the implementation of study programs. This process is regulated and monitored by the Maritime Administration Unit of the Latvian Maritime Administration. Therefore, maritime education is overseen and evaluated by both the Ministry of Education and Science of Latvia and the Maritime Administration Unit of the Latvian Maritime Administration.

The objectives, tasks, and achievable outcomes of the study program fundamentally reflect the set of knowledge, skills, and competencies acquired during the study courses and internships within the study program. Detailed information on the study courses, including objectives, outcomes, topics, and other relevant details, is provided in the course descriptions, which are updated as necessary, incorporating any changes to the content of the study courses, in consultation with all teaching staff involved in the course, unit managers, and the Maritime Administration Unit of the Latvian Maritime Administration.

To obtain the competence certificates of the Latvian Maritime Administration's Seafarers Register upon graduation from the University of Latvia, the necessary seafarer training courses are integrated into the study program:

SHORT-CYCLE PROFESSIONAL HIGHER EDUCATION STUDY PROGRAM "NAVIGATION"

STUDY COURSE	TRAINING COURSE TITLE	REFERENCE
A-1 General educational study courses		
Management of personnel, bridge crews and resources	*Bridge resource management (including: Leadership un managerial skill)*	IMO Model Course No 1.39 and STCW Code A-II/1, A-II/2
A-3 Industry professional specialization study courses		
Use of RLS and ECDIS in ship management	*Radar Navigation, Radar Plotting and Use of ARPA at Operational Level*	IMO Model Course 1.07 and STCW Code A-II/1
	Operational use of Electronic Chart Display and Information Systems (ECDIS)	IMO Model Course 1.27 STCW Code A-II/1, A-II/2
Maritime english		IMO Model Course 3.17
Maritime safety	*Security training for seafarers with designated security duties*	IMO Model Course No 3.19 and STCW Code A-VI/6-1, A-VI/6-2
	Basic Safety Training – refresher course	IMO Model Course No 1.13, 1.19, 1.20, 1.21, and STCW Code A-VI/1-1, A-VI/1-2, A-VI/1-3 un A-VI/1-4
	Advanced Fire Fighting	IMO Model Course 2.03 and STCW Code A-VI/3
	Proficiency in Survival Craft and Rescue Boats other than Fast Rescue Boats	IMO Model Course 1.23, and STCW Code A-VI/2-1
	Medical First Aid	IMO Model Course 1.14 and STCW Code A-VI/4-1

Communications Organization and GMDSS	*GMDSS General Operator*	IMO Model Course 1.25 and STCW Code A-IV/2

The evaluation of the relevance and compliance of the study course content with industry needs, labor market demands, and scientific trends is carried out in accordance with the University of Latvia's Procedure Handbook Procedure No. P4-3 "Development and Maintenance of Course Documentation" and Procedure No. P4-4 "Maintenance of Study Documentation." The study course descriptions are regularly updated, taking into account the principles of student-centered education, industry relevance, and recommendations from members of the State Examination Commission. The course descriptions for the short-cycle professional study program "Navigation" were last updated in May 2023.

The study program ensures active connectivity between the information included in the study courses, the set objectives, and the achievable outcomes. The results of each individual study course correspond to the outcomes of the study program, as the study course is an integral part of the study program. Analyzing the content of the study courses, it has been found that the selection of topics corresponds to the defined outcomes of the study courses - knowledge, skills, and professional competencies, in accordance with the STCW and the requirements specified in higher education. The achievement of study program outcomes occurs logically and sequentially, and the included study courses ensure the attainment of all study program outcomes. Furthermore, all study courses included in the study program are oriented towards achieving the overall outcomes of the study program.

To ensure continuous improvement of study program content and quality and to update the content of study courses in line with industry needs, labor market demands, and scientific trends, the results of external and internal quality evaluations of study programs are taken into account. These evaluations include surveys of students, graduates, internships, and employers, thereby obtaining a comprehensive assessment of the quality of the study process.

Feedback from employers and professional organizations is based on the opinions formed during student internships and state examinations, and their feedback indicates that the resources of the study program effectively support the achievement of the program's objectives. The obtained results are analyzed annually and used for the enhancement of the study program - additional material and technical resources are procured, the study information base is expanded, and the study courses are improved together with the teaching staff. Overall, the survey data from students, graduates, employers, and industry specialists consistently demonstrate positive evaluations of the study program, and the acquired competencies are relevant in the job market.

To ensure continuous analysis of study courses, throughout the academic year, study program directors and administration regularly plan for on-site and online-based observations. The observations are conducted by connecting the observer to a "Zoom" or "Teams" e-lecture platform.

Additionally, a content audit of the study courses is conducted annually to monitor and update the course content, teaching methods, and revise the expected outcomes.

3.2.2. In the case of master’s and doctoral study programmes, specify and provide the justification as to whether the degrees are awarded in view of the developments and findings in the field of science or artistic creation. In the case of a doctoral study programme, provide a description of the main research roadmaps and the impact of the

study programme on research and other education levels (if applicable).

3.2.3. Assessment of the study programme including the study course/ module implementation methods by indicating what the methods are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study programme. In the case of a joint study programme, or in case the study programme is implemented in a foreign language or in the form of distance learning, describe in detail the methods used to deliver such a study programme. Provide an explanation of how the student-centred principles are taken into account in the implementation of the study process.

The implementation of the study process considers the following student-centered teaching and learning principles: each student is recognized as an individual, and therefore, work with students occurs both in groups and (to the extent possible) through individual consultations to aid in the understanding of course topics. At the beginning of their studies, students are introduced to the requirements, assessment criteria, and expected outcomes of the respective study course. Assessment criteria are selected to provide students with insights into the extent to which they have achieved the expected study results. Students receive feedback that indicates the directions for learning and competency development. The teaching process promotes students' ability to learn independently, search for and select information, and fosters academic and professional growth. Mutual respect is fostered between faculty and students. Procedures have been developed at the institution to gather feedback from students regarding the quality of the study process, thereby providing students with opportunities to influence their own study process. Students are involved in the assessment of program quality each semester.

The implementation of the study program utilizes creative and collaborative teaching methods to enhance understanding, critical thinking, and communication skills, including work in pairs/groups, seminars and discussions, case studies, and problem analysis. PowerPoint presentations with visual materials, instructional videos, and audio materials are used for lecture explanations. Within the study course, students receive feedback from the faculty on their performance and growth opportunities. The organization of the study content ensures sequential and in-depth acquisition of the intended knowledge in the study program and is oriented towards practical examples and problem-solving in the maritime industry.

Ship navigation and engineering systems are currently more technologically advanced than ever before, and therefore, students become acquainted with these technologies within the study program. In accordance with the requirements of the STCW Convention, advanced technologies such as GMDSS, ARPA/RADAR, ship bridge simulators, ship navigation and technical equipment laboratories, as well as navigation laboratories, are actively utilized in professional study courses in the field. Through lectures, students familiarize themselves with ship navigation technical equipment and instrumentation. The use of simulators in the study process offers several significant advantages:

- The use of simulators allows students to experiment with multiple approaches to problem-

solving in a safe environment and provides the opportunity to "review and repeat" complex scenarios and receive feedback from the instructor during the course of study.

- Simulators can be used for both regular and emergency situation training, reducing the risk of endangering individuals or the environment.
- The use of simulators enables students to acquire and demonstrate the skills and competencies specified in the study program. It also allows them to try out different decision-making options during the study process to see which ones yield the desired results, as well as facilitates the development of critical thinking and situational understanding at multiple levels.
- Simulators facilitate targeted exercises within a few minutes, compared to the time it would take to experience the same situation on a ship. They also provide actions that can be repeated multiple times to accelerate student learning and skill development.

Since 2020, due to the impact of the COVID pandemic, LMA has been using the interactive e-learning environment platform omars.latja.lv for distance learning. The platform is based on the Moodle software. In this platform, instructors upload learning materials and coordinate and assess task execution. Conference platforms such as Zoom or Microsoft Teams are used to ensure the study process, which includes the use of video cameras and microphones, and facilitate effective communication between instructors and students. The interactive e-learning environment and conference platforms are employed when it is necessary to organize the study process remotely. All academic units of LMA constantly work on improving the e-learning environment to ensure complete accessibility of the study course content in the online environment. LMA continuously enhances the interactive e-learning platform OMARS, and instructors develop new study materials and activities as needed, as well as adapt existing ones for remote work with students. Pedagogical methods and solutions are carefully selected to achieve the goals of the study course and the acquisition of defined knowledge, skills, and competencies during the distance learning process. This includes providing systematic and high-quality feedback to students on their learning process and performance, as well as necessary improvement measures.

3.2.4. If the study programme envisages an internship, describe the internship opportunities offered to students, provision and work organization, including whether the higher education institution/ college helps students to find an internship place. If the study programme is implemented in a foreign language, provide information on how internship opportunities are provided in a foreign language, including for foreign students. To provide analysis and evaluation of the connection of the tasks set for students during the internship included in the study programme with the learning outcomes of the study programme (if applicable).

For each candidate aspiring to perform the duties of a certified navigation officer on ships with a gross tonnage of 500 GT or more, sea practice is part of the training program. The objective of the practice is to reinforce and complement the acquired theoretical knowledge and practical skills.

RTU LMA practice planner is responsible for ensuring sea practice, preparing tripartite agreements, and keeping track of the practice. The practice planner advises, informs, and educates RTU LMA students on career development matters, provides support in career planning and development, including job search skills. The practice planner monitors the progress of the practice, ensures the implementation of the practice program, and offers practice placements only in companies and

maritime crewing agencies that take care of the trainee's living conditions and the execution of the practice program.

According to the basic curriculum of the short-cycle study program, for full-time studies, the practice on ships at sea is scheduled in the 3rd semester (after Maritime School) with a workload of 16 CP, or in the 3rd and 5th semesters (after secondary school) with a total workload of 42 CP. On the other hand, part-time distance learning students receive an internship task and carry out the practice on ships at sea parallel to their studies. The practice report is defended until the State Examination and serves as proof of the internship on ships, accompanied by a Certificate of Competence for Ship Officer or a statement of obtaining the required sea service days (Seafarer Service Record).

The practice is implemented according to the tripartite Internship Agreement concluded between the Latvian Maritime Academy, shipping companies, and the trainee. The internship agreement includes the objectives and tasks of the practice, as well as the responsibilities and obligations of the parties. The tasks and requirements for the practice report are aligned with the Internship Handbook approved by the Maritime Register of Latvia. The practice report includes a section where students and the ship's captain or the designated ship officer - the practice supervisor can make suggestions for improving the practice program and studies. Upon receiving and evaluating the practice reports, these suggestions are discussed with the students and may serve as a basis for adjusting the internship task.

To ensure internship placements on ships, RTU LMA has cooperation agreements with several companies, including LSC; LAPA Ltd; BaltCrew Agency OU; WELL Co. Ltd; Anglo-Eastern; BSM CSC Latvia (Bernhard Schulte Shipmanagement), etc., to which LJA students go for their sea practice. The largest and most popular provider of internship placements for LMA is LSC. For students, this is an opportunity to gain practical experience on internationally recognized company vessels and later, as graduates, continue their professional careers in these companies.

Cooperation with companies and maritime crewing agencies is carried out as follows:

1. The internship department of the LMA prepares tripartite agreements.
2. The LJA establishes and maintains relationships with crewing companies where graduates of study programs work. Potential employers, observing the students' work during internships, can choose the specialists they need and offer employment contracts.
3. Feedback for the improvement of the learning process. Regular surveys of employers are conducted to determine their satisfaction and the level of preparedness of LMA students.
4. Employers are involved in the qualification defense commission and participate in the defense process.

Student internships are linked to the learning outcomes of the study program, using the Practitioner's Logbook for Ship's Master and preparing reports according to LMA Procedure P6-3 guidelines. During internships, students acquire knowledge and skills in the following competencies:

- Plan and conduct passages and determine the vessel's position.
- Determine the vessel's position and verify the accuracy of the specified locations using all available means.
- Perform safe navigation watchkeeping.
- Determine watchkeeping measures and procedures.
- Maintain safe navigation using information obtained from navigation equipment and systems, assisting in decision-making.
- Use radar and Automatic Radar Plotting Aid (ARPA) for safe navigation.

- Use Electronic Chart Display and Information System (ECDIS) to maintain navigational safety.
- Respond to distress signals at sea.
- Forecast meteorological and oceanographic conditions.
- React in ship handling emergency situations.
- Main propulsion machinery and control of technical equipment and systems at a distance.
- Use IMO Standard Marine Communication Phrases and communicate in written and oral English.
- Transmit and receive information using visual signaling.
- Maneuver the vessel.
- Monitor cargo loading, stowage, securing, and unloading, ensuring necessary conditions during the voyage.
- Plan and ensure safe cargo loading, stowage, securing, and unloading, and provide necessary conditions for the cargo during the voyage.
- Transport dangerous goods.
- Inspect cargo spaces, hatch covers, and ballast tanks, and report defects and damages.
- Evaluate defects and damages in cargo spaces, hatch covers, and ballast tanks as reported and take appropriate actions.
- Control draft, trim, and stress.
- Ensure compliance with pollution prevention requirements.
- Maintain the vessel's seaworthiness.
- Prevent, control, and fight fires on board.
- Develop emergency response plans and damage control plans and act in emergency situations.
- Use life-saving appliances.
- Provide first aid on board.
- Utilize leadership and organizational skills.
- Monitor compliance with legal requirements.
- Apply managerial and teamwork skills.
- Promote personnel and vessel safety.

During the internship, the student-practitioner stands watch with each of the watch officers and performs all assigned duties, participates in vessel operations and cargo operations, practically learns the vessel's operations, navigation safety, and environmental protection regulations, and acquires skills in the preparation of documents related to vessel operations. The intern must fulfill the specified internship task on board the vessel while simultaneously completing the specific elements of the internship outlined in the "Practitioner's Logbook for Ship's Master." At the end of the internship, the student must submit the internship logbook to the captain or other responsible officer for the final assessment of the practitioner's competencies, which is confirmed by the responsible officer's signature. If any of the main tasks were not mastered during the internship, it should be indicated that this task was not evaluated. The report on the internship task is prepared by the student in accordance with the main tasks and subtasks outlined in the logbook, which were completed during the internship. Each completed task should include references to precise sources of information to prevent plagiarism. The student should avoid copying textual information and infringing on the rights of other authors, focusing more on personal notes, diagrams, and calculations. Upon returning from the internship, the student fills out a post-internship survey questionnaire within two working days and registers in the academy system by entering the start and end dates of the internship (as stated in the "Certificate of Work on Board the Vessel") and attaching scanned copies of the "Certificate of Work on Board the Vessel" and the "Characteristics of Sea Practice" for the respective internship. The results of the internship, the content of the report, and the achieved outcomes are discussed in department meetings and through

collaboration with the internship planner.

Since the previous accreditation of the study program, a student survey on sea practice has been introduced during the review period, in which students are required to assess their progress, communication, responsiveness, living conditions, employment, and their desire to pursue a career in the designated shipping company on a scale from 1 (poor) to 4 (excellent).

	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022
Working conditions in the company	-	-	3.33	3.22	3.06
Responsiveness of the ship's crew in carrying out the internship task	3.33	3.41	3.42	3.35	3.27
Contact (communication) with team members	3.37	3.62	3.64	3.54	3.52
Personal progress in acquiring the specialization	3.68	3.78	3.39	3.3	3.3
Would you agree to return to this company?	-	3.33	3.44	3.36	3.04
Your professional readiness for the internship	3.25	3.3	3.25	3.05	2.96

According to the compiled average survey data shown in the table, students have rated all criteria higher than 3 points on a 4-point scale, which is considered a very good rating. The highest rating is given to communication with team members, which is an essential part of training, as well as the evaluation of personal progress in specialization, which is the second-best rating. The indicator of professional readiness for the internship is slightly below 3 points, indicating the need for additional instruction before starting the internship. Such survey data indicates that the overall situation in providing internships and students' preparedness is very good.

3.2.5. Evaluation and description of the promotion opportunities and the promotion process provided to the students of the doctoral study programme (if applicable).

3.2.6. Analysis and assessment of the topics of the final theses of the students, their

relevance in the respective field, including the labour market, and the marks of the final theses.

At the end of the study process, a state examination in maritime English, a comprehensive examination in the specialization, as well as the defense of a qualification paper are planned.

The table below summarizes the average arithmetic ratings of students in the final examinations during the review period, taking into account that there were no students in the study program until the 2018/2019 academic year. Therefore, information for the review period is only available for the last 2 academic years.

	2020/2021	2021/2022
Complex examination in the specialty	6.39	6.83
State exam in Maritime English	7.02	6
Qualification paper	7.05	7.17

During the review period, the qualification paper examination shows average score fluctuations ranging from 7.05 to 7.17, indicating that the improvement of the study program is evaluated positively as the students' performance in the final examination has significantly improved. The performance of students in the comprehensive examination in the specialization has also shown significant improvement, although the evaluation of the state examination in maritime English has declined, which is attributed to the students' low level of motivation and poor attendance in classes.

The development of students' qualification papers (qualification works) is regulated by the Guidelines No.10 of the Latvian Maritime Academy (LMA) "On the Implementation Procedure of the State Examination by LMA," where Section III, "Description of Practical Calculation Tasks and Evaluation Criteria," provides a detailed description of the final examination, assessed competencies and skills, as well as evaluation criteria. The aim of students' qualification papers (QP) is to systematize and consolidate theoretical knowledge and practical skills in the planning and provision of ship passage in accordance with the STCW-78 Convention Code A-II/1 standard and in compliance with the requirements of SOLAS-74 Convention Rule V/34, while following IMO Resolution A.893(21) on Guidelines for Passage Planning. The specific route is determined by the teaching staff of the "Navigation" study course.

KD includes the following chapters and their subchapters, which are supervised by the respective teaching staff of the study course:

- Navigation and Piloting (preparation of the ship passage plan)
- Ship Handling and Watchkeeping
- Ship Construction and Theory, Actions in Emergency Situations
- Nautical Astronomy

During the stage of developing the qualification paper, the student submits the relevant sections of the QP to the respective teaching staff, who perform the initial evaluation of the work. Subsequently, the evaluation of the qualification paper, based on a 10-point system, is conducted

by the State Examination Commission established for the specific state examination in the specialization.

3.3. Resources and Provision of the Study Programme

3.3.1. Assessment of the compliance of the resources and provision (study provision, scientific support (if applicable), informative provision (including libraries), material and technical provision, and financial provision) with the conditions for the implementation of the study programme and the learning outcomes to be achieved by providing the respective examples.

The teaching staff at RTU LMA is provided with appropriate workspaces equipped with necessary computer technology (desktop and laptop computers in each classroom, wireless internet network, required computer programs and licenses, projectors), as well as a library collection and reading room where both teachers and students have access to computerized workstations and the ability to print and copy study materials. In order to meet the requirements of the STCW Convention and IMO module courses, simulators, trainers, navigation visualization tools, as well as ship handling models with appropriate software and visualization are maintained for the implementation of professional specialization study courses in the industry. If necessary, responsible teachers are provided with instructions and IT technical support for working with the equipment. The mentioned equipment is available to students and teachers during the implementation of specialization study courses, as well as outside of those times if the specific equipment is not being used for student training. The navigation safety study course is implemented at the RTU LMA Training Center and on the "Kadets" pontoon, where training takes place, and ship operations are also conducted.

Information about the material and technical equipment used in the study program is summarized in the table below.

№	*NAME*	*Quantity/Units*	*Classroom*
A.	**Simulators, training laboratories, classrooms**		
1	Navigation simulator Transas „Navi Trainer Professional 5000” - ARPA / RADAR with ECDIS	12 work stations	410/411
2	Navigation simulator Transas „Navi Trainer Professional 5000” - full mission navigation bridge [ARPA/RADAR ar ECDIS un BRM] with seven visualisation channels	1 set	417
3	GMDSS simulator Transas TGS-5000	10 work stations	409

4	Wartsila liquid cargo handling simulator	6 work stations	314
5	Maritime Safety Management Support System Simulator includes SAR functions simulator with VHF GMDSS elements)	3 work stations	314
6	The classroom "Ship Navigation Equipment" is equipped with traditional ship navigation instruments and the Satellite Compass PK-2306.	1 set	405
7	The Navigation classrooms (rooms 418 and 403) are equipped with navigation charts and publications featuring 45 chart tables.	2 classrooms	418/403
8	Naviplanner 4000 pārgājiena plānošanas simulators	31 stacija	418, 403 (tikai pasniedzēja stacija), B3 (bibliotēka)
9	VHF (very high frequency) radio station set with DSC (digital selective calling)	1 set	409
10	MF/HF (medium frequency/high frequency) radio station set with DSC and Radiotelex	1 set	409
11	INMARSAT C sattelite terminal	1 set	409
12	NAVTEX	1 set	409
13	GPS	1 set	409
14	EPIRB	3 units	409
15	SART	1 unit	409
B	**Equipment, tools**		
1	Navigational chart tools: Navigational triangle ruler	92 pcs	418/403/408/411
2	Navigational chart tools: paralel ruler	79 pcs	418/403/408/411
3	Navigational chart tools: navigational dividers	21 pcs	408
4	„Star Finder”	1 set	211
5	Star globe	3 sets	211
6	Sextant	10 pcs	418/211

7	Protractor	6 pcs	418
C	**Demonstration equipment, software**		
8	Laptops (for lecture preparation and reading in classrooms)	3 pcs	322
11	Portablr projectors (for presentations)	3 pcs	126, 405, 418
D	**Teaching charts, yearbooks, and handbooks**		
1	Admiralty Tide Tables	16 pcs	403/418
2	Astronomical yearbook (55.lpp)	70 pcs	211
3	Manual for use by Maritime Mobile and Maritime Mobile- Satellite Services ITU	3 pcs	409
4	List of Coast Radio Stations ITU	3 pcs	409
5	Admiralty list of radio signals	65 pcs	403/409/418
6	Admiralty list of light and fog signals	100 pcs	403/418
7	Guide to port entry	9 pcs	403/418
8	Inmarsat maritime handbook	3 pcs	409
9	Handbook for GMDSS operators	1 pcs	409
10	Ports and terminals guide	3 pcs	418
11	Admiralty Sailing Directions	211 pcs	403/418
12	Ships routeing	4 pcs	403/418
13	Browns nautical almanac	15 pcs	418
14	NP 294 How to keep Your charts up-to-date	14 pcs	418
15	Chart Symbols, Abbreviations and Terms	3 pcs	418
16	Tabulated ranges of Natural Trigonometric Functions	3 pcs	418
17	GMDSS Manual, IMO	3 pcs	409
18	List of Ship Stations, ITU	2 pcs	409

19	Model course 1.25, General Operator’s Certification for GMDSS, IMO	1 pcs	409
20	Model course 1.26, Restricted Operator’s Certification for GMDSS, IMO	1 pcs	409
21	List of radio determination	1 pcs	409
E	**Navigational charts**		
1	Chart 1011 Baltijas jūra/Rīgas jūras līcis, Ziemeļaustrumu daļa 1:100 000	83 pcs	418
2	Chart 1013 Baltijas jūra/Rīgas jūras līcis, Irbes jūras šaurums 1:100 000	77 pcs	418
3	Chart 1014 Baltijas jūra, No Irbes jūras šauruma līdz Ventspils ostai 1:100 000	75 pcs	418
4	Chart 1015 Baltijas jūra, No Ovīšu bākas līdz Pāvilostai 1:100 000	25 pcs	418
5	Chart 1016 Baltijas jūra, No Pāvilostas līdz Šventojas ostai 1:100 000	54 pcs	418
6	Chart 1021 Baltijas jūra/Rīgas jūras līcis 1:200 000	1 pcs	418
7	Chart 1022 Baltijas jūra, No Ventspils līdz Ristnas bākai 1:200 000	1 pcs	418
8	Chart 1023 Baltijas jūra, No Ventspils līdz Klaipēdai 1:200 000	53 pcs	418
9	Chart 1251 Baltijas jūra/Rīgas jūras līcis 1:250 000	12 pcs	418
10	Chart 1252 Baltijas jūra, No Irbes jūras šauruma līdz Gotlandes salai 1:250 000	43 pcs	418
11	Chart 2100 Baltijas jūra, Ventspils osta ar pieejām 1:10 000	43 pcs	418
12	Chart 2102 Baltijas jūra, Rīgas ostas Ziemeļu daļa 1:10 000	11 pcs	418
13	Chart 2103 Baltijas jūra, Rīgas ostas Dienvidu daļa 1:10 000	21 pcs	418

14	Chart 2253 Baltijas jūra/Rīgas jūras līcis, Rīgas osta ar pieejām 1:25 000	2 pcs	418
15	Chart 2257 Baltijas jūra, Pieejas Ventspils ostai 1:25 000	4 pcs	418
16	Chart 2259 Baltijas jūra, Pieejas Liepājas ostai 1:25 000	100 pcs	418
17	Chart 3502 Baltijas jūra, Liepājas osta 1:5 000	85 pcs	418
18	Chart 3531 Baltijas jūra/Rīgas jūras līcis, Mērsraga osta 1:5000	1 pcs	418

Training simulators and laboratories used in the study program:

- Are suitable for training purposes and tasks.
- Can simulate the operational capabilities of the relevant ship equipment as realistically as necessary for training purposes, including the equipment's functionalities, limitations, and possible malfunctions.
- Provide realistic conditions for human action, enabling students to acquire the skills corresponding to the training objectives.
- Ensure a controlled operating environment that allows the simulation of various conditions, including emergency, hazardous, or unusual situations in line with the training objectives.
- Provide an interface through which students can interact with the equipment, simulated environments, and, if applicable, with the instructor.
- Enable the instructor to guide, monitor, and record the training sessions for effective analysis of the results.

LMA's radar simulators can simulate the operational capabilities of navigation radar equipment in compliance with all applicable performance standards:

- Operate in stabilized relative motion mode and stabilized true motion mode relative to the sea and seabed.
- Simulate meteorological conditions, tidal movements, currents, shadow sectors, false echo signals, and other factors affecting the propagation of radio waves, as well as display coastlines, navigation buoys, and search and rescue radar responders.
- Create a real-time operational environment that includes at least two ship stations capable of changing their course and speed, and involve parameters for at least 20 target vessels and corresponding communication means.

LMA's Automatic Radar Plotting Aid (ARPA) simulator is capable of simulating the operational capabilities of ARPA equipment that complies with all applicable International Maritime Organization (IMO) performance standards. It is equipped with the following devices:

- Manual and automatic target acquisition capabilities.
- Provision of information about previous routes.
- Utilization of restricted areas.
- Display of vector/graphic time scales and data on the screen, as well as conducting trial maneuvers.

In general education courses and theoretical basic courses in the field, such as "Bridge Team and Resource Management," the Transas NaviTrainer Professional 5000 navigation simulator with seven visualization channels is used, providing a full mission navigation bridge experience [ARPA/RADAR with ECDIS and BRM].

Simulators and specialized software are utilized in professional specialization courses in the field. The NaviTrainer Professional 5000 navigation simulator - ARPA/RADAR with ECDIS (12 workstations) and NTPRO 5000 ver.5.40 navigation simulator are used in courses such as "Ship Handling, Maneuvering, and SAR" and "Use of Radar and ECDIS in Ship Handling.

GMDSS simulators, specifically the Transas TGS-5000 (with 10 workstations), are utilized in the course "Communication Organization and GMDSS."

The "NAPA Loading Computer" is employed to solve various practical tasks in study courses such as "Ship Cargo Transportation Technology," "Ship Theory," and "Ship Construction and Operation."

The study course "Ship Navigation Equipment" is equipped with a training room containing traditional ship navigation instruments and the PK-2306 Satellite Compass.

The study courses "Navigation," "Maritime Astronomy," and "Navigation Meteorology" are facilitated by training rooms furnished with chart tables, instruments, paper charts, and collections of navigation publications.

The study course "Maritime Safety" is conducted both in the premises of the Training Center and on the pontoon "Kadets," which is equipped with specialized technical equipment corresponding to the specific course program approved by the Maritime Register (e.g., lifeboats, life rafts, firefighting equipment, towing and mooring devices, first aid kits).

All the aforementioned simulators and technical equipment enable "learning through practice." With their assistance, students:

Gain the ability to independently acquire knowledge and relate their studies to real situations.

Develop their capacity to utilize their experience and acquire new skills.

Learn to work collectively and take responsibility for their work results.

Demonstrate proficiency in handling non-standard situations.

Develop analytical skills to assess situations.

LMA's e-learning platform:

For remote studies, LMA utilizes the interactive e-learning platform omars.latja.lv, which is based on the Moodle software framework.

In case of emergency situations, all necessary study materials, including course descriptions, are uploaded to the platform https://omars.latja.lv. The platform is regularly updated to ensure convenient access to study materials for both instructors and students.

LMA Library:

The Study Center Library provides access to previous years' students' theses/projects, methodological materials prepared by LMA faculty, and other types of technical support. The results of the 2021/2022 academic year Student Survey indicate that a portion of students (approximately 57%) believe they could obtain the necessary study books from the library, but students remain dissatisfied with the insufficient quantity of newer literature resources in their professional field.

Students expressed their desire for a larger number of professional books to be available not only for reading within the library but also for loaning. Additionally, students would like to have more e-books. It should be noted that in the maritime industry, books are mostly available in foreign languages, with limited resources in Latvian.

Due to the measures implemented in response to COVID-19, aimed at reducing possible risks and declaring a state of emergency, the LMA Library continued its operations with significant restrictions. Users had the opportunity to remotely order the necessary study materials, which were prepared and provided to users in a safe manner following epidemiological guidelines.

Students and faculty have access to subscribed databases for studying and research purposes, including:

- EBSCO: Access to full-text and review databases in the humanities, social sciences, and exact sciences. Collection: National package AcademicSearchComplete.
- EBSCO: INSPEC: Access to full-text database in the exact sciences.
- KR - CON:2: Access to a subscription code for a specialized maritime regulatory document database.
- International Maritime Organization (IMO): Database of current IMO documents.

The review of the study program's methodological and informational support, as well as the determination of procurement and improvement measures, takes place at least once during the academic year, through the preparation of annual reports and quality objectives by the relevant structural units of LJA for the upcoming accreditation review period.

3.3.2. Assessment of the study provision and scientific base support, including the resources provided within the framework of cooperation with other science institutes and higher education institutions (applicable to doctoral study programmes) (if applicable).

3.3.3. Indicate data on the available funding for the corresponding study programme, its funding sources and their use for the development of the study programme. Provide information on the costs per one student within this study programme, indicating the items included in the cost calculation and the percentage distribution of funding between the specified items. The minimum number of students in the study programme in order to ensure the profitability of the study programme (indicating separately the information on each language, type and form of the study programme implementation).

The funding for RTU LMA from the state basic budget is determined by the list of study programs and the number of students, corresponding to the study base funding. It includes funds for utilities, taxes, infrastructure maintenance, procurement of inventory and equipment, as well as salaries for personnel, and funding for scientific activities. The number of study places is allocated after negotiations with the Ministry of Education and Science. The amount of study base funding is determined based on the state-determined number of study places at RTU, as well as the base costs of study places set by the state and the coefficients of study costs for educational thematic areas.

The funding for the short-cycle professional higher education program "Navigation" includes:

1. Grant or basic budget funding (state budget student training)
2. Fee-paying student funding (both full-time on-site and part-time distance fee-paying student training, as well as fees for retaking exams)
3. Performance funding (research support funding)
4. Science base funding.

Analyzing the overall funding of the study program, it can be seen that in the case of basic budget and local fee-paying students, long-term funding is determined based on the state's principles. In the process of determining the funding amount, thematic area coefficients, values of study cost coefficients corresponding to the program level, and the number of students in the study program and the corresponding study courses are taken into account. As mentioned earlier, using the coefficients of study costs for educational thematic areas, it is possible to determine the required funding for the implementation of a specific study program and study course.

The tuition fee for one student for the short-cycle professional higher education program "Navigation" is 3,570 EUR per year, 3,000 EUR for part-time distance learning.

The calculation of tuition fees includes the following items:

Compensation – 80.48%; Study, work, and business trips, official duty trips, work-related travel – 0.27%; Service fees – 12.44%; Acquisition of stocks, materials, energy resources, goods, office supplies, and inventory – 3.18%; Real estate tax – 0.15%; Formation of basic capital – 2.23%; Deductions for sports and culture – 0.26%; Deductions for ensuring scientific activities – 0.99%.

The minimum number of students to ensure the profitability of the study program in 2023/2024 is 7 full-time students for budget fee or 11 part-time distance students with self-financing.

The minimum number of students to ensure the profitability of the study program in 2024/2025 could be 9 full-time students or 14 part-time distance students.

The budget of the study program can be supplemented by donations from Latvian and foreign institutions or individuals.

see attached annex "Rentability modeling LV-ENG".

3.4. Teaching Staff

3.4.1. Assessment of the compliance of the qualification of the teaching staff members (academic staff members, visiting professors, visiting associate professors, visiting docents, visiting lecturers, and visiting assistants) involved in the implementation of the study programme with the conditions for the implementation of the study programme and the provisions set out in the respective regulatory enactments. Provide information on how the qualification of the teaching staff members contributes to the achievement of the learning outcomes.

In the implementation of the study programs, both the university's selected academic staff and guest lecturers and industry specialists are involved to enhance the quality of education and ensure

the relevance to the field. The faculty members engaged in the implementation of the study programs are highly qualified with completed higher education degrees. They possess the necessary research skills, theoretical knowledge, and expertise to provide students with the required learning outcomes within the scope of the conducted courses, in accordance with STCW and higher education requirements. The qualification requirements for lecturers at maritime education institutions and training centers are determined by the Cabinet of Ministers Regulation No. 710 of December 15, 2015, "Regulations on Certification, Implementation, and Monitoring of Professional Preparation Programs for Seafarers." To deliver maritime professional education study programs or courses and assess the knowledge and skills acquired by the trainees, instructors-evaluators must be trained according to the requirements of STCW Convention Regulation I/6 and qualified in the field of instruction and evaluation. Compliance with STCW Convention requirements for instructor-evaluator is evidenced by a certificate issued by the Maritime Register of Latvia. This requirement does not apply to the faculty members of educational study programs who teach courses unrelated to the competencies defined in the STCW Convention (general courses specified in Section A-1 of the curriculum). To obtain an instructor-evaluator certificate, a person must receive training in teaching and assessment methodologies as well as maritime legislation. An instructor-evaluator providing training with a simulator must be trained to work with the specific type of simulator. After receiving the certificate, an instructor-evaluator renews their knowledge of the STCW Convention and other international regulatory requirements in the field of professional seafarer training every five years. All faculty members teaching specialized courses within the study program have obtained the appropriate instructor-evaluator certificates and regularly update their competencies and knowledge.

At the time of submitting the accreditation documents in the academic year 2022/2023, a total of 34 faculty members from the LMA staff are involved in the implementation of the short-cycle professional higher education study program "Navigation". The faculty provision for the short-cycle study program is as follows:

Position	**Number**
Researchers	2
Assistants	2
Lecturers (including guest lecturers and acting lecturers)	9
Docents (including guest docents and acting docents)	15
Asoc. Professors	3
Professors	3

Total	***34***

The compliance of visiting professors, associate visiting professors, visiting docents, visiting lecturers, and visiting assistants is evaluated based on Section 4 of the Regulations No. 4 "On the Management of Academic Staff at the Latvian Maritime Academy" of the Latvian Maritime Academy dated February 24, 2003, specifically under the provision "Conclusion of Individual Employment Contracts." The evaluation criteria for the academic staff of LMA, who are eligible for additional or adjunct status, are specified in the Annex 2 of the mentioned regulations and include the following sections with respective subsections: pedagogical qualification, scientific qualification, organizational competence, as well as qualification for the faculty of specialized study courses in the respective field.

According to the aforementioned regulations, the minimum number of criteria for assessing the compliance of the job applicant's performance is summarized in the table.

Academic position	Scientific qualification	Pedagogical qualification	organizational competence	Professional qualification
Professor	5	6	3	-
Asoc. professor	4	5	2	-
Docent	3	4	1	1
Lecturer	2	3	-	1
Assistant	-	-	-	-

As stated in Annex 2 of the Regulations No. 4 "On the Management of Academic Staff at the Latvian Maritime Academy" of the Latvian Maritime Academy dated February 24, 2003, considering the practical considerations to ensure the educational process with professional faculty members who possess relevant professional work experience, relaxed criteria may be applied, with the basic criterion being the highest professional education and professional work experience corresponding to the course being taught.

The academic staff involved in the implementation of study programs are provided with regular opportunities for the improvement of methodological and didactic skills. The personnel of LMA actively participate in training courses organized by the LMA Training Center, professional English language courses, instructor-evaluator courses, as well as within the framework of the European Union's operational program "Growth and Employment," specific support objective 8.2.2 "Strengthening the strategic specialization of academic personnel in higher education institutions."

Within the framework of the project implemented by the Ministry of Education and Science, the teaching staff had the opportunity to enhance their professional qualifications through courses facilitated by external service providers. Thanks to the interest and responsiveness of the employees, a large number of staff members—53 in total—have undergone qualification training in the 2021/2022 academic year, primarily due to the implementation of various projects. Detailed information on the qualification enhancement measures for LMA personnel is summarized in the table 8.2.2.

Qualification Enhancement for LJA Staff in the 2021/2022 Academic Year

Table 8.2.2

No.	Time Period	Name of Qualification Enhancement Course	Number of Hours	Number of Employees
1.	From 2021.august	Internship with a Commercial Entity in 2021	200 h	11
2.	15.09.-17.11.2021.	Project Management	60 h	14
3.	08.11.-12.11.2021.	English Language Internship with Foreign Language Department Lecturers	40 h	6
4.	08.11.-03.12.2021.	SOLAS basic safety course	56 h	7
5.	11.11.2021.-30.04.2022.	Advanced training in fire fighting	30 h	7
6.	13.11.2021.-21.05.2022.	Operation of Life-Saving Equipment (excluding Fast Rescue Boats)	31 h	6
7.	15.12.-17.12.2021	ISO 9001:2015 Internal Auditor Course	24 h	2
8.	30.12.2021.	Leadership and Team Building Skills in Maritime Industry	9 h	10
9.	16.03.-13.06.2022.	Bridge resource management	45 h	5
10.	01.04.2022.	Cybersecurity	2 h	16
11.	19.04.-18.05.2022.	Course on Online Course Development and Digitization of Study Content	19 h	15
12.	09.05.-10.05.2022.	Training on Eco-Innovation, Green Workplace, and Application of Green Public Procurement in Institutional Management Processes	4 h	13
13.	10.05.-27.05.2022.	Bridge resource management	40 h	8

14.	21.05.2022.	Quality Management of Studies in the European Higher Education Area	3 h	11
15.	09.06.2022.	Financial Management. Financial Sustainability of Higher Education Institutions	3 h	16
16.	27.06.-01.07.2022.	Communication and Collaboration in Digital Communication Management	8 h	15
17.	29.06.-30.06.2022.	Organization of Teamwork Remotely and In-Person	8 h	15
18.	04.07.-08.07.2022.	Digital Tools for Remote Work Teams	8 h	15
19.	15.08.-18.08.2022.	Training on CAD Technology in Shipbuilding - SolidWorks	28 h	5
20.	22.08.-26.08.2022.	Training on CAD Technology in Shipbuilding - SolidWorks	40 h	5

Qualification enhancement is promoted both locally and internationally by encouraging staff mobility to partner universities, participating with presentations, or attending international scientific conferences.

With the aim of improving competencies and enriching the study content, including addressing current industry problems through student research projects and familiarizing oneself with the latest technologies used in the field, academic staff members can undergo internships in industry companies. The companies where academic staff internships will take place include SIA LSC, SIA KlipMarineShipmanagement, SIA Selandia Marine Shipmanagement, SIA Novikontas Jūras Koledža, HydroBalt, RĪGAS BRĪVOSTAS FLOTE, WT-terminal, SIA LAT-B.G.I., SIA Cryogenic and Vacuum Systems, STREK, and others.

The administration of LMA continuously monitors the quality assurance of the academic staff involved in the implementation of study programs. In the assessment conducted by internal and external auditors, the academic staff involved in the implementation of the study program meets the conditions for the implementation of the study program, the achievement of study results, and the requirements of regulatory acts. Analyzing the mechanisms implemented at LMA, auditors conclude that the qualifications and opportunities for qualification enhancement offered to academic staff contribute to the achievement of study program outcomes. Support for professional development and scientific activities facilitates the transfer of newly acquired knowledge and experience to the content of study courses, which significantly impacts the quality of education.

Additionally, LMA plans regular observations (hospitations) every semester, both on-site and through remote access to e-lectures, during which program directors monitor the study process and its quality.

3.4.2. Analysis and assessment of the changes to the composition of the teaching staff over the reporting period and their impact on the study quality.

The implementation of the study program involves teaching staff of various levels and professional qualifications. The teaching staff includes both practicing mariners (mostly LMA graduates) and professionals from maritime industry companies who can provide students with insights into industry trends and the latest developments that align with the current job market. Although the low level of remuneration in higher education complicates the recruitment of new teaching staff for independent work at LMA, auditors have repeatedly noted that the provision of teaching staff for ensuring the quality and sustainability of the study program is at a very high level.

The analysis of changes in the composition of teaching staff is summarized in the table (*the table does not differentiate between elected and non-elected academic personnel).

	2019/2020	2020/2021	2021/2022	2022/2023
Researcher*	0	0	0	2
Assistant *	0	0	0	2
Lecturer *	9	10	12	9
Docent *	13	12	11	15
Asoc. Prof.*	2	3	3	3
Prof. *	2	2	2	3
KOPĀ	***26***	***27***	***28***	***34***

As seen in the table, the total number of teaching staff involved in the study program gradually increases. This is related to the fact that previously, individual teaching staff members taught multiple courses within the study program, but currently, each course can be assigned a dedicated teaching staff member. It is also noteworthy that during the 2022/2023 academic year, researchers and assistants are also involved in the implementation of the study program. Overall, the changes in the number of teaching staff do not impact the study process and quality, as all courses are implemented with highly qualified teaching staff.

3.4.3. Information on the number of the scientific publications of the academic staff members, involved in the implementation of doctoral study programme, as published during the reporting period by listing the most significant publications published in Scopus or WoS CC indexed journals. As for the social sciences, humanitarian sciences, and the science of art, the scientific publications published in ERIH+ indexed journals or peer-reviewed monographs may be additionally specified. Information on the teaching staff included in the database of experts of the Latvian Council of Science in the relevant field of science (total number, name of the lecturer, field of science in which the teaching staff has the status of an expert and expiration date of the Latvian Council of Science expert) (if applicable).

3.4.4. Information on the participation of the academic staff, involved in the implementation of the doctoral study programme, in scientific projects as project managers or prime contractors/ subproject managers/ leading researchers by specifying the name of the relevant project, as well as the source and the amount of the funding. Provide information on the reporting period (if applicable).

3.4.5. Assessment of the cooperation between the teaching staff members by specifying the mechanisms used to promote the cooperation and ensure the interrelation between the study programme and study courses/ modules. Specify also the proportion of the number of the students and the teaching staff within the study programme (at the moment of the submission of the Self-Assessment Report).

The study process cannot be fully realized without the mutual collaboration of teaching staff, which needs to be developed by adopting best practices. Therefore, LMA implements various mechanisms such as informal meetings of teaching staff, departmental meetings, discussions on study outcomes and quality assurance principles, and other events. Teaching staff involved in the implementation of the study program collaborate in the realization and updating of study course content, coordinating topics to avoid duplication and enhance the improvement and interconnectedness of study courses.

Informal meetings of teaching staff are organized by LMA employees themselves to discuss relevant issues in an informal atmosphere. If a formal decision is required to address a specific issue (e.g., amending internal regulations, establishing certain restrictions, etc.), departmental managers are informed, and the matter is included in departmental meetings.

During the planning process for the next academic year, departmental managers and teaching staff discuss and update the content of study courses, as well as align the goals, tasks, outcomes, and other issues related to the teaching process and organizational activities. Departmental meetings are regularly organized, at least once a month, to promote communication among departmental employees, distribute responsibilities, exchange experiences and opinions on current issues, as well as link study courses to developments in scientific research and the industry as a whole. The improvement of study courses is based on suggestions from students, teaching staff, and members of the state examination commission. These meetings are recorded in minutes, allowing all departmental employees to access the information and facilitating information exchange even if an employee cannot attend the meeting.

Analyzing the total number of students in the study program compared to the number of teaching staff (full-time on-site and part-time online studies), the ratio of teaching staff to students is as follows: in the 2021/2022 academic year, the short-cycle professional higher education study program "Ship Management" had 35 teaching staff and 12 students, on average, resulting in a ratio of 2.92 teaching staff per student (data as of October 1, 2022). Detailed information on the teaching staff involved in the study program can be found in Appendix 2.3.7.

Annexes

III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		
Sample of the diploma and its supplement to be issued for completing the study programme	KV-I-diploms&pielikums-ENG.zip	KV-I-diploms&pielikums-LV.zip
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)		
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)		
Statistics on the students in the reporting period	5.pielikums KV 1.lim..xlsx	5.pielikums KV 1.lim..xlsx
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard	P06_UKV0(41525)_AtbilstibaValstsStandartam_IsaisCikls_ENGv2.docx	P06_UKV0(41525)_AtbilstibaValstsStandartam_IsaisCikls_LVv2.docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)	P07_UKV0(41525)_AtbProfStand_IsaisCikls_ENGv2.docx	P07_UKV0(41525)_AtbProfStand_IsaisCikls_LVv2.docx
Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)	Compliance with the specific regulatory framework of the relevant industry KV-Iv2.docx	Atbilstība atbilstošās nozares specifiskajam normatīvajam regulējumam KV-Iv2.docx
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme	P08-1_UKV0(41525)_Kartejums_IsaisCikls_ENGv2.zip	P08-1_UKV0(41525)_Kartejums_IsaisCikls_LVv2.zip
The curriculum of the study programme (for each type and form of the implementation of the study programme)	KV-I-ENG.zip	KV-I-LV.zip
Descriptions of the study courses/ modules	SKA KV-I220-225_ENG.zip	SKA KV-I220-225_LV.zip
Description of the organisation of the internship of the students (if applicable)	PRAKSES_NOLIKUMS ENG.docx	P_UKV0(41525)_PRAKSES_NOLIKUMS.docx
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)		
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)		

Maritime Transport (47525)

Study field	*Seafaring*
ProcedureStudyProgram.Name	*Maritime Transport*
Education classification code	*47525*
Type of the study programme	*Second-cycle (professional master's) study programme*
Name of the study programme director	*Valdis*
Surname of the study programme director	*Priednieks*
E-mail of the study programme director	*Valdis.Priednieks@rtu.lv*
Title of the study programme director	*Dr.habil.sc.ing.*
Phone of the study programme director	*+37126510766*
Goal of the study programme	*To provide students with professionally – oriented Master's studies in maritime transport, based on the theoretical foundations of maritime sciences, aligned with the current and future needs of the industry and in accordance with the requirements set forth in national regulatory documents, and to ensure their practical applicability.*
Tasks of the study programme	*- Provide study opportunities for candidates who have completed various maritime study programs with the right to pursue a master's degree, as well as graduates of other equivalent study programs after fulfilling the specified additional requirements.* *- Educate students in the program, ensuring the acquisition of a professional master's degree in maritime transport and promoting their competitiveness in a changing socio-economic environment and the international job market in the maritime transport industry.* *- Ensure the achievement of study outcomes in accordance with the European Qualifications Framework level 7 knowledge, skills, and competence defined in the Latvian Classification of Education.* *- Provide in-depth and/or expanded knowledge, skills, and competencies in the specific field of maritime transport, as well as an enhanced understanding of the latest advancements and development trends in the theory and practice of the industry.* *- Prepare students for independent management, creative work, and research in the field of maritime transport and related areas involving the utilization of maritime transport in the economy, national defense, etc.* *- Develop students' understanding and foster their reasoned, responsible, and active attitude towards matters related to the potential impact of professional activities on the environment and society.*

Results of the study programme	*After completing the Master's study program in Maritime Transport, students should be able to:* *- Demonstrate in-depth and/or expanded knowledge and understanding of the latest advancements in theory and practice in the maritime transport industry, including aspects related to maritime transport operations and/or management engineering.* *- Demonstrate in-depth and/or expanded knowledge and understanding that provides a basis for creative thinking or research, including working with maritime and port engineering systems and technologies, environmental management, digitalization, management, safety, and other relevant areas.* *- Demonstrate in-depth and/or expanded knowledge and understanding that provides a basis for professional competence in business within the maritime transport industry.* *- Independently apply theory, methods, and problem-solving skills for research and/or highly qualified professional work in the fields of maritime transport operations and/or management engineering.* *- Effectively explain and discuss complex or systemic aspects of maritime transport operations and/or management engineering, both orally and in writing, to both specialist and non-specialist audiences.* *- Independently develop their competencies and specialization in the field of maritime transport operations and/or management engineering, as well as work, research, or engage in further learning in complex and unpredictable conditions.* *- Undertake entrepreneurship and innovation in the maritime transport industry, as well as take responsibility for the work results and analysis of personnel groups.* *- Independently formulate and critically analyze complex professional problems in the maritime transport industry, including in business, and justify their decisions.* *- Integrate knowledge from various fields (maritime and port engineering systems and technologies, environmental management, digitalization, management, safety, etc.) and contribute to the creation of new knowledge and the development of professional work methods.* *- Demonstrate understanding and ethical responsibility regarding the potential impact of professional activities on the environment and society.*
Final examination upon the completion of the study programme	*State examination - Master’s Thesis development and defence*

Study programme forms

Full time studies - 1 years, 6 months - latvian

Study type and form	*Full time studies*
Duration in full years	*1*
Duration in month	*6*
Language	*latvian*

Amount (CP)	*60*
Admission requirements (in English)	*First cycle professional higher education and sixth level professional qualification in maritime or transport services thematic field, or comparable education*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	*Professional master degree in maritime transport*
Qualification to be obtained (in english)	*Manager of Maritime Transport Processes*

Places of implementation

Place name	City	Address
Latvian Maritime Academy	RĪGA	FLOTES IELA 12 K-1, KURZEMES RAJONS, RĪGA, LV-1016

Full time studies - 1 years, 6 months - english

Study type and form	*Full time studies*
Duration in full years	*1*
Duration in month	*6*
Language	*english*
Amount (CP)	*60*
Admission requirements (in English)	*First cycle professional higher education and sixth level professional qualification in maritime or transport services thematic field, or comparable education and knowledge of the English language at least at B2 level*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	*Professional master degree in maritime transport*
Qualification to be obtained (in english)	*Manager of Maritime Transport Processes*

Places of implementation

Place name	City	Address
Latvian Maritime Academy	RĪGA	FLOTES IELA 12 K-1, KURZEMES RAJONS, RĪGA, LV-1016

Part time extramural studies - 3 years - latvian

Study type and form	*Part time extramural studies*
Duration in full years	*3*
Duration in month	*0*
Language	*latvian*
Amount (CP)	*60*
Admission requirements (in English)	*First cycle professional higher education and sixth level professional qualification in maritime or transport services thematic field, or comparable education*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	*Professional master degree in maritime transport*
Qualification to be obtained (in english)	*Manager of Maritime Transport Processes*

Places of implementation

Place name	City	Address

Latvian Maritime Academy	RĪGA	FLOTES IELA 12 K-1, KURZEMES RAJONS, RĪGA, LV-1016

Part time extramural studies - 3 years - english

Study type and form	*Part time extramural studies*
Duration in full years	*3*
Duration in month	*0*
Language	*english*
Amount (CP)	*60*
Admission requirements (in English)	*First cycle professional higher education and sixth level professional qualification in maritime or transport services thematic field, or comparable education and knowledge of the English language at least at B2 level*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	*Professional master degree in maritime transport*
Qualification to be obtained (in english)	*Manager of Maritime Transport Processes*

Places of implementation

Place name	City	Address
Latvian Maritime Academy	RĪGA	FLOTES IELA 12 K-1, KURZEMES RAJONS, RĪGA, LV-1016

3.1. Indicators Describing the Study Programme

3.1.1. Description and analysis of changes in the parameters of the study programme made since the issuance of the previous accreditation form of the study field or issuance of the study programme license, if the study programme is not included on the accreditation form of the study field, including changes planned within the evaluation procedure of the study field evaluation procedure.

The changes in the parameters of the Master's study program in Maritime Transport made since the receipt of the previous accreditation page, as well as the planned changes within the study field evaluation procedure, are reflected in the table.

Changes in the parameters of the Master's study program in Maritime Transport

Parameters	Changes
Study field	To ensure full compliance of the program with the study field, the program is removed from the previous study field "Mechanical Engineering and Metalworking, Thermal Energy Engineering, Heat Engineering, and Mechanical Engineering" and included in the study field "Seafaring." These changes are in accordance with the Cabinet of Ministers of the Republic of Latvia Regulation No. 793 of 11 December 2018 "Regulations on the Opening and Accreditation of Study Fields" and are planned within the evaluation procedure of the study field "Seafaring."
Study program's name	During the evaluation period, the program name has not changed. However, considering the industry's need for management specialists with advanced knowledge, skills, and competence in engineering, the program specialization "Maritime Transport Management" was transformed into an interdisciplinary one, namely "Maritime Transport Management Engineering," as decided by the Senate of the Latvian Academy of Sciences on 7 September 2015. This change aligns with the trends in developing study programs abroad.
Study program name in English	The name of the specialization "Maritime Transport Management" was changed to "Maritime Transport Management Engineering" based on the decision of the Senate of the Latvian Academy of Sciences on 7 September 2015.
Study program code according to the Latvian Classification of Education	The current code is 47525, in accordance with the requirements of the Cabinet of Ministers Regulation No. 322 of 13 June 2017 "Regulations on the Latvian Classification of Education" (hereinafter referred to as Regulation No. 322). Prior to that, the program code changed multiple times during the evaluation period to align with the changes/requirements of relevant national regulations.

Type of study program	Professional Master's study program - no change during the evaluation period. In order to ensure the fulfilment of the requirements of Cabinet of Ministers Regulation No. 305 of June 13, 2023 "Regulations on the Standard of State Professional Higher Education" (hereinafter referred to as "Cabinet of Ministers Regulation No. 305"), on November 6, 2023, the decision by the Council of LMA was adopted: "To retain the Master's program "Maritime transport" as a professional, at the same time granting a professional qualification of level 7. The program director must take all actions to implement it" (protocol No. 12).
Level of qualification (EKI/LKI)	Level 7 – no change during the evaluation period
Study program volume	60 Latvian credit points (90 ECTS credits) – no change during the evaluation period.
Form, type, and duration of program implementation	Full-time on-site – 1.5 years, Part-time distance learning – 1.5-3 years – no change during the evaluation period.
Language of program implementation	Latvian, but starting from the 2017/2018 academic year – English as well (accreditation page No. 59, 02.08.2017).
Implementation location of the study program	Flotes Street 12, Riga, Latvia, LV 1016 – no change during the evaluation period.
Director of the study program	Valdis Priednieks, Professor Dr.habil.sc.ing. – no change during the evaluation period.
Admission requirements	As of July 21, 2023, the admission requirements have been specified - "First-cycle professional higher education and sixth-level professional qualification in maritime or transport services, or equivalent education".

Degree, professional qualification, or degree and professional qualification awarded	The professional Master's degree in maritime transport - during the evaluation period, it hasn’t changed until 13.06.2023, when the regulations of the Cabinet of Ministers No. 305 were adopted, according to which a master's degree and the seventh-level professional qualification are awarded after completing the program. In order to ensure the fulfilment of the requirements of Regulation No. 305 of the MK, on November 6, 2023, the decision of the LJA Council was adopted: "To keep the Master's program "Maritime Transport" as a professional one, while awarding the 7th level professional qualification. The program director must take all actions to implement it" (protocol No. 12). Since the beginning of the study course evaluation period, the RTU Latvian Maritime Academy, in accordance with the requirements of the Law on Higher Education Institutions of the Republic of Latvia and other relevant regulatory acts, has awarded the graduates of the program a professional Master's degree in maritime transport and plans to do so until June 30, 2024. Taking into account the changes in the Law on Universities and the new Regulation of the Cabinet of Ministers No. 305 requirements, according to which a master's degree and seventh-level professional qualification are awarded after completion of the master's study program, RTU Latvian Maritime Academy has developed a change plan for the master's study program "Maritime transport" and started its implementation (see the corresponding section 3.2.1 of the program's self-evaluation report appendix). In accordance with the change plan of the Master's study program "Maritime transport", RTU Latvian Maritime Academy, starting with the summer admission of 2023, in accordance with the above-mentioned requirements of the Higher Education Law and Regulation No. 305 of the Cabinet of Ministers, after completing the program, will award a Master's degree in maritime transport and the professional qualification corresponding to the seventh level "Manager of Maritime Transport processes ". On the proposal from the LMA, the Council of experts in the Transport and Logistics sector, by decision of 06 December 2023, has supported the inclusion of the qualification “Manager of Maritime Transport processes” (seventh level of the Latvian qualifications Framework) in the map of the qualification structure of the transport and logistics sector.
Possibilities for continuing studies	Eligibility for doctoral studies – no change during the evaluation period.

Other study program offered by another relevant higher education institution or college, where the institution ensures the opportunity for students to continue their education in the event of program closure	An agreement has been reached on the possibilities for continuing studies between Riga Technical University, Latvian Maritime Academy, and Klaipeda University (Faculty of Marine Technology and Natural Sciences). (See the appropriate annex of chapter 2.1.4 of the Self-assessment report of the study direction)
Study program objectives	During the evaluation period, the program objective has been changed/clarified multiple times to ensure compliance with Regulations by Cabinet of Ministers and the Development Strategy of the Latvian Maritime Academy, as well as to better reflect the general purposes of the program implementation. The Study program objectives shall conform to Regulation by Cabinet of Ministers No 305.
Study program specific tasks	During the evaluation period, the program tasks have been changed/clarified multiple times to ensure compliance with the sector needs and the Development Strategy of the Latvian Maritime Academy, as well as to more accurately reflect the specific purposes of program implementation. The "Change Management and Implementation Plan for the Modernization of Study Program Offerings at the Latvian Maritime Academy" developed as a result of the implementation of the SAM 8.2.3 project of the European Union's Operational Program "Growth and Employment" 8.2.3 specific support objective "Improving Governance in Higher Education Institutions" is also taken in to account.
Achievable study outcomes of the program	During the evaluation period, the achievable study outcomes of the program have been changed/adjusted multiple times to ensure compliance with the current and related Regulations by Cabinet of Ministers, and the Development Strategy of the Latvian Maritime Academy, as well as to more accurately reflect the specific outcomes. In addition, the "Change Management and Implementation Plan for the Modernization of Study Program Offerings at the Latvian Maritime Academy," developed as a result of the implementation of the Latvian Maritime Academy's SAM 8.2.3 project, has been taken in to account. Achievable study outcomes of the program shall conform to Regulation by Cabinet of Ministers No 305.
The final assessment in the study program.	This requirement of the Master's thesis development and defence has remained unchanged during the evaluation period.

3.1.2. Analysis and assessment of the study programme compliance with the study field. Analysis of the interrelation between the code of the study programme, the degree, professional qualification/professional qualification requirements or the degree and professional qualification to be acquired, the aims, objectives, learning outcomes, and the admission requirements. Description of the duration and scope of the implementation of the study programme (including different options of the study programme implementation) and evaluation of its usefulness.

The name of the master's study program, "Maritime Transport," clearly and unambiguously indicates its affiliation with the maritime transport industry and the only study field in this field in Latvia, which is "Seafaring". The study program "Maritime Transport" corresponds to one of the main objectives of the Bologna Declaration - the implementation of a three-cycle degree system. In the study field "Seafaring," it provides higher education at the master's level in RTU LMA - the only institution of higher maritime education and research in Latvia at present. This means that the master's study program "Maritime Transport" makes a necessary contribution to the fulfilment of the prescribed tasks and objectives of the study field "Seafaring" and the field's goal of "Providing sustainable, multi-level, high-quality, and internationally recognized higher professional maritime education, thereby ensuring the economy of Latvia with academically educated and job market-ready, competitive maritime industry specialists." For example, in the execution of the task "Prepare highly qualified specialists for the maritime industry, developing their ability to independently acquire, critically analyse and apply knowledge in solving current tasks," special attention is paid in the program to deepening and expanding students ' knowledge about the industry's situation and its development trends in areas such as shipping infrastructure, ship technology and engineering, and other areas, as well as increasing knowledge, skills, and competencies in areas such as shipping digitization, problem-solving, research and innovation work, shipping and environmental management, and other areas.

The interconnection of the program's name, code, degree, professional qualification, goals and objectives, expected study outcomes, and admission requirements in the program has been ensured during the program's development and further improved in its implementation. This has been achieved by systematically assessing the requirements of binding national regulatory acts, as well as the needs and specific requirements of the maritime transport industry, while taking into account that the program "Maritime Transport" was initially created and further developed as the only integrated professional Master's study program in the maritime transport industry, encompassing the most significant further study and applied research directions in that field.

The current **program code** is 47525. During the evaluation period, the program code has changed several times in accordance with the changes/requirements of current national regulatory acts. However, the basic information included in the code has been retained - the first two digits 47 (or previously 46) indicate the level of education and the type of program, and the subsequent three-digit code 525 is determined in accordance with the study field "Seafaring," including the affiliation of the study program "Maritime Transport" and indicates the thematic group and field of education (52 - engineering and technology), as well as the corresponding program group - machinery engineering.

The degree and professional qualification **to be obtained** have been determined in accordance with the requirements of the Law on institutions of higher Education and the Cabinet Regulation No. 305. The Master's degree and the seventh level professional qualification is obtained by a student after completing the program, namely, after successfully achieving the required set of study results assessment, which, in turn, is determined in accordance with the program's objectives and specific tasks, as well as the objectives and tasks of the included study courses.

The objectives and specific tasks of the study program are determined in accordance with the Cabinet Regulation No. 305, and the Development Strategy of RTU LMA, also to ensure the fulfilment of the functions intended for the Master's program "Maritime Transport" in the study field "Seafaring" and the achievement of the expected study outcomes. The program includes several specific tasks, such as providing study opportunities for applicants who have completed any study program in the maritime industry with the right to pursue master's studies, as well as graduates of other equivalent study programs after fulfilling additional requirements (see Section 3.1.1.).

The expected study outcomes in accordance with the program's objectives (see Section 3.1.1.) are determined in accordance with the 7th level knowledge, skills, and competencies defined in the Latvian/European Qualifications Framework, systematically considering the current and future needs and specific requirements of the maritime transport industry. Meanwhile, **the expected**

outcomes of each individual study course in the program are determined with the consideration that the integrated set of outcomes across all courses in the program ensures the achievement of the study program's outcomes.

The interconnection of the admission requirements with the other aforementioned program characteristics, as a prerequisite for successful program implementation, has been ensured during the review period:

- In accordance with the program's objective and specific tasks, graduates of various bachelor's and professional higher education study programs in the maritime sector, including graduates of the bachelor's study program "Naval Military Leadership" at the National Defence Academy of Latvia, as well as graduates of other relevant study programs are admitted to the program;
- In accordance with the program's objectives, a master's degree and a seventh level professional qualification are obtained upon its graduation, and the program therefore admits applicants with the sixth level or corresponding professional qualification obtained in previous studies in order to fulfil the requirements of the Cabinet Regulation No 305;
- To ensure the fulfillment of the specific tasks, applicants who have graduated from other comparable study programs must fulfil additional requirements for admission to the Master's study program "Maritime Transport", namely, obtain a successful evaluation of knowledge, skills, and competencies in the field of maritime transport in accordance with Level 6 of the Latvian/European Qualifications Framework (LQF/EQF).

The duration of the study program implementation is determined as 1 year and 5 months full-time and no longer than 3 years extramural studies, with a minimum amount of 60 Latvian credit points (90 ECTS credit points), thereby ensuring compliance with the Higher Education Law and the Cabinet Regulation No. 305. When determining such duration and amount of program implementation, the experience of several foreign and Latvian universities in implementing similar study programs has been taken into account, such as the World Maritime University (WMU, Sweden, Malmö) Master's study program "Maritime Affairs " with 7 specializations (88 ECTS), Klaipeda University's Master's study program "Innovative Process Engineering" (90 ECTS), Riga Technical University's professional Master's study program "Automotive Transport" (90 ECTS) and "Railway Engineering" (90 ECTS). At the same time, the peculiarities of the Master's study program "Maritime Transport" have also been considered, such as:

- As indicated above, the master's studies at RTU LMA are not implemented as a direct continuation of previously acquired specialization, but rather as the only integrated professional master's studies in the maritime transport sector. This requires providing all students in the program with unified and comprehensive studies to fulfil the specific tasks of the program in order to achieve the objectives and expected study outcomes.
- Part-time studies are conducted in extra-mural learning format, and their duration is twice as long as full-time studies, taking into account the specific nature of part-time students, primarily professional characteristics of ship officers of different ranks. It should be noted that the designated 3-year study duration often proves to be insufficient for successful completion and graduation from the program.

In conclusion, it can be observed that such a systematic approach in developing the program's descriptors has ensured their logical coherence. Furthermore, the initial choice of study duration and amount has been validated during the evaluation period, with the program's goals, necessary study outcomes, and objectives being achieved. This has been confirmed by the State Examination Commissions (see section 3.2.6), as well as program graduates and their employers (see section 2.2.4 and the corresponding annex). However, it should be noted that this does not imply that there are no weaknesses in the program's implementation or that the highest quality of study outcomes has been achieved. For issues related to the program and planned solutions, please refer to the relevant sections of this report.

Refer to the ANNEX for:

- Sample professional master's diploma for the study program "Maritime Transport" (Annex of Section 3.1.2).
- Sample of the professional master's diploma supplement for the study program "Maritime

Transport" (Annex of Section 3.1.2).
- Sample agreement for master's studies at RTU LMA (Annex of Section 2.1.4).

3.1.3. Economic and/ or social substantiation of the study programme, analysis of graduates' employment.

The implementation of the Master's study program in "Maritime Transport" is economically and socially justified, and the following are the main justifications:

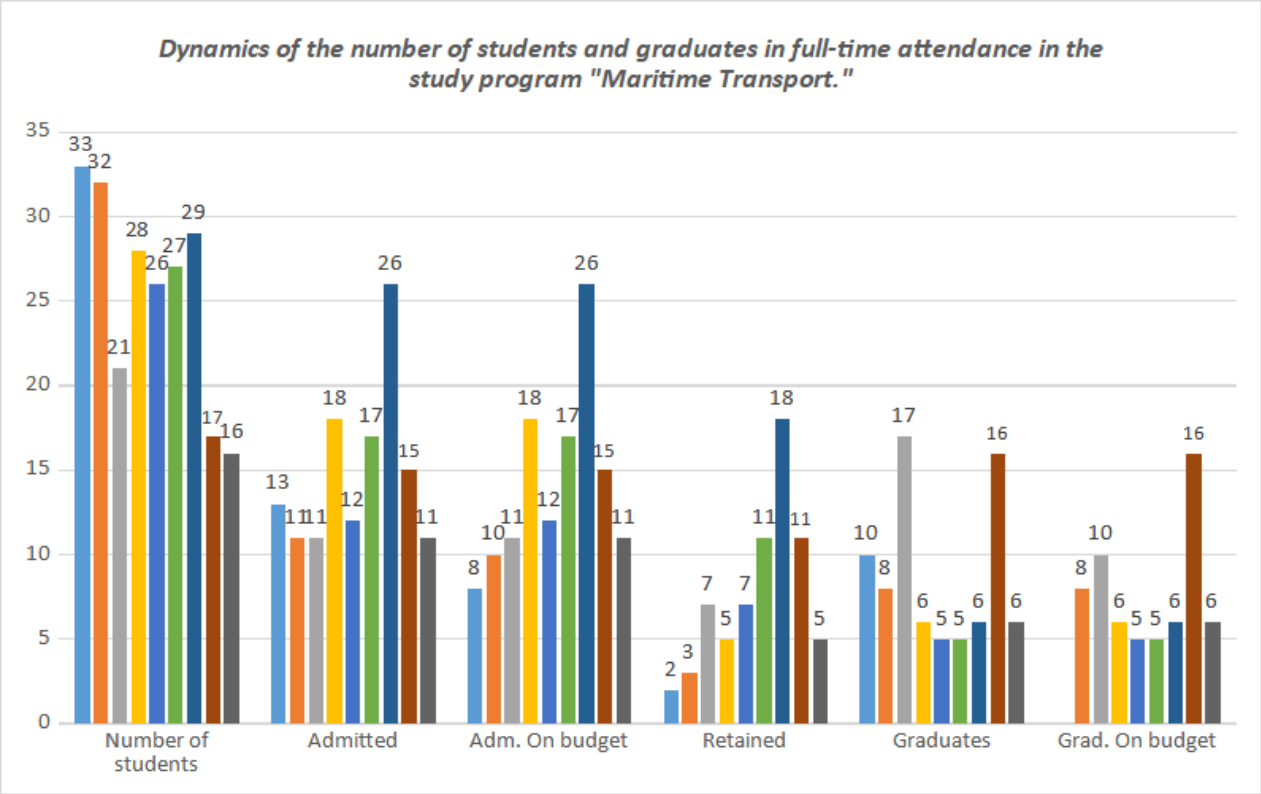
- As mentioned earlier (refer to section 3.1.2), the study program "Maritime Transport" in the study field of "Seafaring" provides higher education at the master's level at RTU LMA, which is currently the only institution in Latvia offering higher education and research in maritime studies. This means that the Master's study program "Maritime Transport" contributes to the fulfillment of the designated tasks and goals of the study field "Seafaring" by providing sustainable, multi-level, high-quality, and internationally recognized professional education in maritime studies, thereby ensuring Latvia's economy with academically educated and market-ready competitive professionals.
- The Master's study program "Maritime Transport" at RTU LMA is the only second-cycle professional higher education study program in Latvia that prepares competitive master's level maritime specialists for the Latvian transport industry.
- The students of the Master's study program "Maritime Transport" are in demand in the job market not only after completing their studies but also during their studies. This is evidenced by the fact that practically all the students in the program are employed in various maritime transport companies/organizations in positions corresponding to their professional qualifications.
- The study program "Maritime Transport" also serves a social function by providing the desired level of maritime education to the appropriate number of students while meeting the needs of the maritime transport industry for internationally competitive specialists and also meeting the needs of RTU LMA for master's level researchers who have the opportunity to continue their studies in doctoral programs.
- The annual surveys of graduates and employers (see Annex P8) provide evidence of the preparedness level of graduates from the study program "Maritime Transport" and the relevance of their knowledge, skills, and competencies to the current and future needs of the maritime transport industry (see appendix to section 2.2.4).

In unanimous agreement on the necessity of graduates from the study program "Maritime Transport" for the industry, employers also encourage program implementers to continue improving the program and pay even more attention to current industry issues such as environmental management, cybersecurity, digitalization, the impact of the political situation on the industry, etc. They also emphasize the importance of providing students with practical knowledge, skills, and competencies that are highly valuable in their professional careers.

3.1.4. Statistical data on the students of the respective study programme, the dynamics of the number of the students, and the factors affecting the changes to the number of the students. The analysis shall be broken down into different study forms, types, and languages.

During the evaluation period, two study forms were used in the Master's study program

"Maritime Transport" - full-time on-site and part-time distance learning. The language of instruction for the program is Latvian, but starting from the 2017/2018 academic year, English is also used.The dynamics of student enrollment and graduates during the evaluation period are reflected in the charts below (data recorded on October 1st of each calendar year).



The number of admitted students in full-time studies throughout the reporting period practically corresponds to the number of budget-funded places. During this time, only a few students have opted for the paid full-time study mode. Particularly high numbers of admissions (26) were recorded in the academic year 2019/2020 when the academy increased the number of budget-funded places and organized winter admissions for the first time in addition to summer admissions, which continued in the following three academic years. Analyzing the composition of admitted students based on their chosen specialization in the master's study program, it is evident that the most popular specialization throughout the reporting period has been "Maritime Transport Management/Engineering" (MTM), chosen by approximately 75% of admitted students , while the rest opted for the specialization "Maritime Transport Operation" (MTO). Furthermore, analyzing the composition of full-time on-campus students based on their previous educational institutions, it can be observed that the majority of admitted students during the evaluation period were graduates of RTU LMA, with around 12% of students having graduated from other higher education institutions, including Riga Technical University and the National Academy of Defense and other.

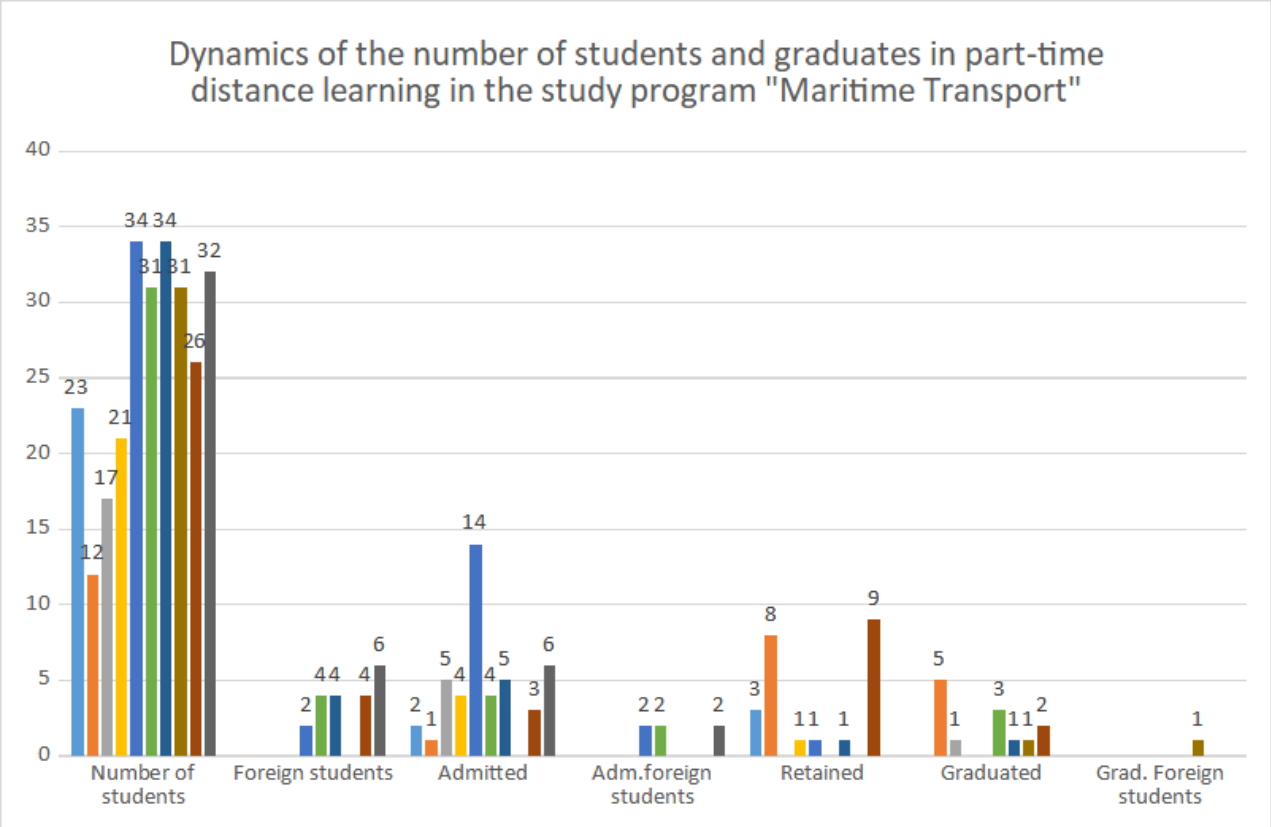
Approximately 60% of the total admitted students have completed the bachelor's study program "Maritime Transport - Navigation" (KV), leaving the program "Port and Shipping Management" (OKV, around 17%) in second place, followed by "Maritime Transport - Marine Engineering" (KM, around 14%) and "Maritime Transport - Marine Electrical Automation" (KEA, around 9%).

Characteristics of admitted/studying students in the study program "Maritime Transport"

Full-time	Number of students	Admitted	Chosen specialization		Previous completed study program/university					
			JTV	JTE	KV	KM	KEA	OKV	other	Other universities

2014./2015.	33	13	12	1						
2015./2016.	32	11	9	2	7		1	1	2	RTU
2016./2017.	21	11	8	3	8	1			2	RTU, Turiba
2017./2018.	28	18	15	3	10	2	1	5		
2018./2019.	26	12	10	2	8	2		2		
2019./2020.	27	17	7	10	5	5	1		6	NAA, RTU
2020./2021.	29	26	17	9	14	3	5	4	3	NAA*
2021./2022.	17	15	13	2	8	1	1	5	1	RTU

The number of admitted students in part-time distance learning is significantly smaller. This study format is primarily used by professionals whose work activities are not compatible with full-time studies, and often students who have started the program in full-time mode continue their studies at a slower pace in this form. It is evident that the overall number of part-time distance learning students is relatively high, mainly due to the slow and lengthy process of program completion. It is particularly noteworthy that 6 of the part-time distance learning students in the program are foreigners - graduates of the Lithuanian Maritime Academy.



In their professional activities, practically all students are closely associated with the maritime transport industry. Among the students, there are both recent graduates of bachelor's programs and experienced professionals in the industry, such as senior inspector at the State Environmental Service, ship commander at NBS, captain at Mērsrags Port, captain of LAT BGI vessel, as well as teaching staff from RTU LMA, LMA Jūrskola, and SIA "Novikontas Jūras koledža," among others.

Overall, since June 2009, when the first two part-time distance learning students graduated from the master's program in "Maritime Transport," a total of 155 graduates have obtained a professional master's degree in maritime transport. This includes 101 graduates during the evaluation period, of which 87 completed full-time studies and 14 completed part-time distance learning. It is worth noting that in February 2023, the program had its first foreign student graduate, who had completed the bachelor's program at the Lithuanian Maritime Academy.

The data also shows a significant number of students who have dropped out of the program. There are several explanations for this, including immediate enrollment in the program after

completing a bachelor's degree and leaving the program after receiving attractive job offers, the inability to combine studies with professional work, family circumstances, change of study format, and others.

Please refer to the appendix for statistics on students during the reporting period (Annex P23 (5)).

3.1.5. Substantiation of the development of the joint study programme and description and evaluation of the choice of partner universities, including information on the development and implementation of the joint study programme (if applicable).

3.2. The Content of Studies and Implementation Thereof

3.2.1. Analysis of the content of the study programme. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators with the aims of the study course/ module and the aims and intended outcomes of the study programme. Assessment of the relevance of the content of the study courses/ modules and compliance with the needs of the relevant industry, labour market and with the trends in science on how and whether the content of the study courses/ modules is updated in line with the development trends of the relevant industry, labour market, and science.

The content of the study program is designed in accordance with the requirements of Cabinet Regulation No.305 and taking into account the current and future specific needs of the maritime transport industry. Therefore, the program's content consists of several interconnected study course blocks that contribute to achieving specific study program outcomes. For example, there are study courses that provide in-depth knowledge and practical application in the theoretical knowledge and practice of the maritime transport industry, as well as courses that develop professional competence in entrepreneurship. Each study course block typically includes courses with related information and outcomes that collectively contribute to achieving the intended study program outcomes. For instance, in the block aimed at developing professional competence in entrepreneurship, the course LJA 056 -"Organization and Management of Maritime Transport Enterprieses" contributes to the achievement of the study program outcome "Ability to independently formulate and critically analyze complex professional issues in the maritime transport industry, including entrepreneurship, justify decisions, and, if necessary, conduct further analysis," while the courses LJA057 "Economics and Finance of Maritime Transport Enterprises" and LJA075 "Document Management" contribute to the achievement of the study program outcome "Ability to demonstrate advanced and/or extended knowledge and understanding, providing a basis for professional competence in entrepreneurship in the maritime transport industry," and so on. Of course, the mastery of these courses also contributes to the achievement of other study program outcomes. Thus, the integrated set of study course outcomes within the program ensures the expected study program outcomes.

Significant contributions and opportunities for ensuring the alignment of objectives, tasks, and achievable outcomes of study courses, as well as the inclusion of information and their interrelation with the objectives, tasks, and achievable outcomes of the study program, have been provided by the utilization of the study course mapping since the 2016/2017 academic year and the implementation of activities within the LMA SAM 8.2.3. project "Enhancement and Adaptation of Existing Study Program Content to the Needs of Industry Development" resulting in the development of the plan "Change Management and Implementation Plan for the Modernization of LMA Study Program Offerings" in 2020 and its implementation.

The benefits of course mapping, such as creating a clear overview of how the study program outcomes are reflected in the courses offered within the program, and how the outcomes of the study courses contribute to the program objectives and expected outcomes, have allowed for significant improvements and alignment of the study program and individual study course descriptors during the evaluation period. For example, in the initial assessment period (2013/2014 academic year), the study course LJA077 "Practical training" had the outcome stated as "Acquired knowledge and practical skills obtained during the comprehensive program, as well as acquired competence in solving relevant tasks related to the chosen study specialization." However, now there are defined nine internship-related study outcomes, each of which contributes to the achievement of program study outcomes to a greater or lesser extent. The use of course mapping has also facilitated more effective collaboration with course instructors and, as a result, a more thorough analysis of the interrelation and content of study courses within the program, as well as their alignment with the study program objectives and expected outcomes. This, in turn, has enabled the identification and improvement of weaknesses in the content, such as eliminating content duplications or justifying their necessity, addressing insufficiently covered topics, and adding supplementary content, among others.

Therefore, **the alignment and interrelation of objectives, tasks, and achievable outcomes of study courses with the study program objectives and expected outcomes have always been ensured** during the evaluation period (see also sections 3.2.4 and 3.2.6).

When evaluating **the content of the study courses of the program**, it should be noted that it is developed and regularly reviewed during the assessment period, usually before each academic year or as needed, in accordance with the current objectives, tasks, and achievable results of the program.

The necessary assessments, recommendations/suggestions, ideas, opinions, and advice for updating and ensuring the conformity of the content of the study courses of the program are obtained from external expert recommendations, reports from the state examination commission on the defense of master's theses, lectures by guest lecturers, ERASMUS mobility periods, formal and informal discussions with employers, maritime professional organizations, and other industry professionals, as well as surveys among students, graduates, employers, etc. Additionally, the contribution of program students, gained through work in various industrial companies and organizations parallel to their studies, as well as through internships and the development of master's theses, should be acknowledged. Particularly significant evaluations and recommendations for program modernization, including the continuous/periodic evaluation of the current and future needs of the industry, have been obtained as a result of the implementation of the LMA SAM 8.2.3. project 1st activity "Improvement and adaptation of existing study program content to meet the needs of the industry."

The relevance and conformity of the content have been achieved during the assessment period by:

- Updating the program specialization to meet the needs of the maritime transport industry for management specialists with higher knowledge and skills in engineering fields. With the academic year 2015/2016, the specialization "Maritime Transport Management" was transformed into an interdisciplinary specialization called "Maritime Transport Management Engineering";
- Updating the scope and content of the study courses, considering the suggestions of the program students and graduates, starting from the academic year, the course "Maritime Policy and Legislation" was replaced with the course LJA053 "Topical Aspects of Maritime Law" and simultaneously the course "Information Technologies" was replaced with the course LJA062 "Information and Communication Technologies in Maritime Transport";
- Introducing a new elective study course LJA070 "Cybersecurity in Maritime Transport" (starting from the academic year 2020/2021). This course was introduced as part of the plan "Change Management and Implementation Plan for the Modernization of Study Programs at LMA," developed as a result of the LMA SAM 8.2.3. project. It addresses the current needs of the industry, such as "Higher knowledge, skills, and competence of LMA graduates to work in the digital environment, including cybersecurity," which is defined as "Practical professional digital knowledge, skills, and competencies" in terms of future needs of the industry.
- Introducing other new restricted elective study courses such as LJA068 "Maritime transport equipment accident investigation methodology" (from the academic year 2018/2019),

LJA069 "Refitting of Ships: environmental, technological and design aspects" (from the academic year 2019/2020);

- Introducing new open elective study courses,for instance, LJA075 "Document Management" (from the academic year 2015/2016) and LJA076 "Project Management in Maritime Transport" (from the academic year 2016/2017).

Furthermore, the integration of the latest achievements and insights from the transportation industry, especially the maritime transport and infrastructure subsectors, into the content of the study courses is facilitated by the active collaboration among teachers, researchers, professionals, students, industry companies/organizations, and others. This collaboration is reflected in the increasing activities of the LMA in scientific research and project work in recent years. The individual research work, publication development, participation in research projects, and self-education of each program faculty member also contribute to the integration of the latest knowledge and trends. Access to scientific databases such as EBSCO, INSPEC, IMOdoc, KR-CON provided by RTU LMA enhances this self-education process (see chapter 3.3.1.).

The program of study courses, including content revision/update, is implemented by the teaching staff of the study program, in cooperation with each other and with the head of the study program, on the basis of what is presented above in this section and their own vision of the development of the subject of the study course being taught. The approach of annual review of study courses used in the program significantly increases the impact of the position of the program manager, teaching staff, students, graduates, employers, external experts and industry scientists and a clear understanding of the relevance of the study program and the compliance with the expected study results of the labor market, industry needs and scientific trends. At the same time, as already stated above, the mapping of study courses has made it possible to significantly more clearly identify the knowledge, skills and competences to be acquired within the framework of both the block of study courses and each individual study course, as well as to align them more closely with the goals, tasks and expected study results of the study program.

In summary, it is evident that the content of the master's program has always been relevant and appropriate to the current and future needs of the maritime transport industry and the job market. It also aligns with scientific trends and significantly contributes to achieving the intended study outcomes and preparing maritime specialists with a professional Master's degree for the international job market.

While inspecting the issue of program content within the context of program’s sustainability, several further development trends within context of anticipated quality rise of study results, came into focus, for instance, considerable improvement of practical possibilities of study course content, including modernization of information and program’s material and technological support.

For further information, refer to the attachment 3.2.1.:

- Table on the compliance of the study program with the national education Standard;
- Study program implementation plans in Latvian and English;
- Study course descriptions of Study programs;
- Mapping of study courses for achieving study program outcomes.

3.2.2. In the case of master’s and doctoral study programmes, specify and provide the justification as to whether the degrees are awarded in view of the developments and findings in the field of science or artistic creation. In the case of a doctoral study programme, provide a description of the main research roadmaps and the impact of the study programme on research and other education levels (if applicable).

In the Master's study program "Maritime Transport," the awarding of a professional Master's degree in maritime transport is based on achievements and insights in the sub-sector of Waterway Transport and Infrastructure within Transportation Engineering field.

This claim is supported by the following reasons:

- During their studies, students have successfully completed the entire program's curriculum and achieved the study outcome: "Ability to demonstrate in-depth and/or extended knowledge and understanding of the latest achievements in the theory and practice of the

maritime transport industry, some of which correspond to the fields of maritime transport operation and/or management engineering."

- One of the significant requirements for assessing the achievement of study outcomes in the Master's thesis is novelty, which refers to theoretical and/or practical innovations, contributions, or insights in the respective field or interdisciplinary area. The novelty of the Master's thesis demonstrates that the student has also achieved the following study outcomes such as "Ability to independently apply theory, methods, and problem-solving skills for research and/or highly qualified professional activities in the fields of maritime transport operation and/or management engineering" and "Ability to integrate knowledge from various areas (ships, maritime and port engineering systems and technologies, environmental management, digitization, management, safety, etc.) and contribute to the creation of new knowledge and the development of professional methods".

The pursuit of novelty (theoretical and/or practical contributions to the field) is followed as a guideline throughout the development of the Master's thesis, starting with the approval of the topic, conducting a situation analysis in the research area, determining the niche of the research, and continuing with theoretical and practical research, culminating in the development of a thesis summary. The pursuit of novelty is also one of the central topics discussed in scientific seminars dedicated to Master's thesis work. As mentioned above, the novelty and value of the thesis for the field primarily determine the overall evaluation and the awarding of the Master's degree to the candidate. The evaluation of the Master's thesis is significantly influenced by the thesis review conducted by high-level specialists in the relevant field, who assess both the theoretical and practical value of the thesis.

During the review period, 101 Master's theses have been developed and defended. Among them are theses in which high evaluations from the thesis supervisor, reviewer, and State Examination Commission were received for both the theoretical and practical contributions to the field. An example is the Master's thesis (2017) "Assessment of Underwater Noise Impact Generated by Ship Traffic on the Ecosystem of Riga Bay," which was conducted as an interdisciplinary study on topics relevant to engineering and environmental sciences. In this thesis, data related to the key descriptors "Energy and Noise" of the Marine Strategy Framework Directive were analyzed for the first time in Latvia. By using analytical and empirical calculation methods, as well as specialized software with high levels of detail, the level of underwater noise generated by ships in Riga Bay was determined, and its impact on marine mammals and fish was assessed. The exceptional theoretical value of the thesis was noted, while the author's produced noise maps for species with different sound sensitivity levels in Riga Bay and the research conducted were recognized as practical significance and valuable references for exploring underwater noise propagation in Latvian waters within international projects with a research focus.

Other Master's theses developed and defended during the review period have also achieved appropriate theoretical and practical value. However, an analysis of the results achieved in these theses shows that in most cases the practical value of the conducted research has been predominantly recognized. This refers to contributions made to the maritime transport industry or to other associated industries in the case of interdisciplinary research. The research outcomes have led to the development of specific proposals, concepts, models, methodologies, etc., for addressing relevant issues in maritime transport companies/organizations and other significant industry/interdisciplinary areas (see also section 3.2.6):

- *In the field of marine engineering systems and technology,* for example, in the Master's thesis "*Analysis of Fuel Consumption Reduction Opportunities for a Ship*" (2020), it is demonstrated that the use of technologically improved types of the propeller blade significantly reduces fuel consumption. In another thesis, "*Analysis of Intermediate Shaft Failure in Ship Propulsion Systems*" (2021), it is proven that changing the operational conditions and design parameters of the propulsion system can increase the durability of the intermediate shaft.
- *In the field of port engineering systems and technologies,* for instance, in the Master's thesis "*Study of Technical Issues Related to the Deepening Prospects of Riga Port's Ship Channel*" (2016), significant amendments to the technical operational regulations of Riga Port's terminals are developed. In another thesis, "*Enhancement of Monitoring Equipment for Tanker Mooring Using Digital Devices*" (2020), the application of the author's developed computer application on ships is shown as an important step towards a long-term ship

autonomy, while also reducing human factors and improving the quality and efficiency of specific processes, among other things.

- *In the field of maritime environment protection and safety on ships, in ports, and at sea,* for example, in the Master's thesis "*Analysis of Ballast Water Control Technologies for Baltic Sea Passenger Ships*" (2019), a proposal for implementing a technologically integrated system based on combined treatment methods is developed, thereby ensuring faster and more effective ballast water treatment.
- *In the field of efficiency and development of port and terminal operations,* for instance, in the Master's thesis "*Analytical Assessment of the Impact of Small Ports on Coastal Economic Development in Latvia*" (2015), the evaluation results can be used for the development of strategies for small ports and associated regions, as well as for managerial decision-making regarding the development of small ports and associated regions to promote coastal economic growth.
- *In the field of cargo and passenger transportation,* for example, in the Master's thesis "*Analysis of Possible Improvements in Unrefined Phosphoric Acid Transportation Technologies*" (2018), a proposal for installing a mixer/diffuser in the tanks of a chemical cargo tanker is developed, thereby reducing the vessel's waiting time at the berth, making the unloading process safer, and facilitating the cleaning process of cargo tanks.
- *In the field of seafarer training, employment, workload, and social security, f*or instance, in the Master's thesis "*Improvement of Personnel Management on Coast Guard Patrol Vessels*" (2015), a new specialized training course is developed, which, when integrated into the training program for junior ratings at the Training Center of the Latvian Navy, has improved the fulfilment of seafarer duties and maritime safety in the Latvian Navy, etc.
- *In various other fields,* for example, in the Master's thesis "*Development Opportunities of Ship Recycling in Latvia*" (2015), a methodology for integrating ship recycling into an existing shipbuilding company in Latvia is developed, with the example of AS "Riga Shipyard". In another thesis, "*Possibilities for Modernization of Fish Processing and Transport Vessels with a Freeze-Drying Equipment and its Innovative Solutions*" (2023), a methodology for calculating the heat in the sublimation technological process is developed, along with modernization proposals for fish processing and transport vessels, including the implementation of innovative freeze-drying equipment, etc.

At the same time, it should be noted that the collaboration between supervisors and students often continues beyond the completion of the program, with participation in scientific conferences and joint scientific publications. For example:

- *Kalniņa, R. a.o. (2020) "Theoretical Analysis of Biological Treatment Methods of Ships' Sewage in the Baltic Sea," 24th International Conference Transport Means 2020, October 2, 2020, Kaunas, Lithuania.*
- *Kalniņa, R. a.o. (2020) "Technology Analysis of Ballast Water Treatment on Ships Operating in the Baltic Sea Region," RTU, Transport and Aerospace Engineering 2020, vol. 8, pp. 15-20; ISSN 2255-9876 (online); ISSN 2255-968X (print).*
- *Priednieks, V. a.o. (10.2015). "Technical Feasibility Study of the Introduction of Ship Breaking to a Shipyard," TRANSPORT MEANS: 19th International Conference, Kaunas University of Technology, October 22-23, 2015, pp. 286-289, ISSN 1822-296X (print); ISSN 2351-7034 (online). Database: SCOPUS research, etc.*

or larger-scale work on the results of collaborative research such as *J.Brunavs a.o., Green Bunkering with liquid natural gas, GlobeEdit (Germany) 2016. 110 P* or other publications topical to the sector, for example, *a promotional article on the Master's study programme "Maritime Transport" in the magazine "Jūrnieks" (Seafarer) issued by the Maritime Administration of Latvia (V.Priednieks, etc. 2016)*, etc.

In conclusion, it should be mentioned that practically every tenth graduate of the program

continues studies in a doctoral program, including the RTU LMA program "Maritime Transport" in one of the specializations, such as "Marine Engineering Systems and Technical Operation" or "Smart Port Technologies." During the evaluation period, four program graduates have obtained doctoral degrees.

3.2.3. Assessment of the study programme including the study course/ module implementation methods by indicating what the methods are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study programme. In the case of a joint study programme, or in case the study programme is implemented in a foreign language or in the form of distance learning, describe in detail the methods used to deliver such a study programme. Provide an explanation of how the student-centred principles are taken into account in the implementation of the study process.

The Master's study program "Maritime Transport" can be pursued **in full-time or part-time extra-mural studies mode**, according to the study program implementation plan approved by the Senate / Council of Latvian Maritime Academy (see annexes under Section 3.2.1.). Full-time studies allow students to also follow **an individual plan**, as long as they complete the program within the prescribed normative period of 1 year and 5 months. Part-time studies are primarily organized in **an extra-mural format**, but students are also offered the opportunity to participate in full-time face-to-face classes, which they take advantage of within their possibilities. They complete the rest of the program through individual studies, collaborating with the teaching staff. Since the spring semester of the academic year 2019/2020, when it was necessary to limit the spread of the "Covid-19" virus, and still ongoing, the program also partially utilizes remote learning as part of the face-to-face education process, where students learn using information and communication technologies without physically being present in the classroom with the instructor. **Face-to-face studies, including remote online studies**, take place according to the timetable of classes, which is created using the module-based study system. The implementation of a study course occurs intensively within a specified period of time, sequentially organizing the necessary activities and concluding the course with an end-of-the-term test and/or an examination. Considering the specific nature of part-time extra-mural learning students' professional activities, the module-based study system significantly increases their opportunities to participate in face-to-face classes, thereby promoting the achievement of expected study outcomes. In the case of restrictions on face-to-face studies, the program mainly uses a blended learning format, ensuring learning activities both in-person and online. The proportion between in-person and online learning during the "Covid-19" period is determined depending on the epidemiological situation, also taking into account the specific objectives and expected outcomes of each study course, and if necessary, providing fully remote studies. The proportion during the "Covid-19" period is determined in the Cabinet Regulation No. 111, "Procedure for Organizing and Implementing Remote Learning", dated February 8, 2022.

Regular **consultations with teaching staff** are provided to students according to a schedule. Consultations can also be conducted electronically or by phone, using the contact information provided by the Latvian Maritime Academy of RTU. Collective academic group emails and WhatsApp groups have been created to facilitate the quick exchange of necessary information.

Various **forms of study organization** are used in the program implementation, including lectures, practical classes, seminars, and consultations, including those conducted remotely online, laboratory work, student’s course paper, study trips, practical training, and research/master's theses, among others. It should be noted that several interdisciplinary or complex study courses involve two or more teaching staff members, for example, the following courses: LJA058 – “Maritime Transport Research Methodology”, LJA057 – “Economics and Finances of Maritime Transport Enterprises”, LJA056 – “Organization and Management of Maritime Transport Enterprises”, LJA064 – “Port Terminal Operation Technology Management”, etc.

During the reporting period, **various methods of student and teaching staff collaboration/cooperation** have been employed in the implementation of study courses. Lectures are practically used in all study courses as monological methods, while discussions, group work, dialogues, etc., predominantly serve as dialogical methods, for example, a dialogue between the student and the supervisor of his/her thesis. A broader range of research methods is also utilized, such as workshops, scientific and other creative seminars, situation analysis, literature studies, problem-solving tasks, as well as study trips, project-based learning, etc. In terms of information

delivery, a wide range of methods is employed, including laboratory work, as well as previously mentioned study trips and lectures that demonstrate real industry objects and processes, or the use of computer presentations and various teaching aids, such as presentations and handouts, whiteboards, projectors, multimedia, etc. (see the annex under Section 3.2.1.). A significant portion of these methods belongs to the group of interactive methods, such as discussions, group work, scientific/creative seminars, project-based learning, where both the instructor and students actively work and mutually influence each other.

The system for evaluating study performance in the program is developed in accordance with the Cabinet Regulation No. 305, as well as the internal regulatory requirements of the Latvian Maritime Academy (LMA) of Riga Technical University (RTU) (Regulation No. 10 "On Semester Examinations at Latvian Maritime Academy," Regulation No. 6 "On State Examinations at Latvian Maritime Academy," and Regulation No. 7 "On Master's Studies at Latvian Maritime Academy"). When implementing the evaluation system and assessing the degree of study result attainment, the basic principles and procedures specified in these documents are followed. In addition to these, **other assessment methods and techniques** may be used for assessing study performance within each specific program course, such as preliminary assessment conducted through surveys, dialogues, etc. In practically all study courses, ongoing assessment is carried out during the learning process, mainly through discussions, individual or group independent research projects, and situation analysis. Other forms of ongoing assessment are also used, including presentations, assignments, laboratory work, etc.

Examinations and tests, as well as individual or group independent research projects, including study papers, practice reports, assessment of combined theoretical and practical parts of study courses are used for the final assessment of a study course or its parts in the program. The study program ends with the final examination, which comprises the development and defense of a master's thesis.

The set of requirements for evaluating study results is determined in accordance with the program objectives and tasks, as well as the objectives and tasks of study courses, which are described in the course syllabi. In examinations, tests, including the one after practice, study papers, and the final examinations, the mastery of the program is evaluated on a scale of 10 points, except for specific cases specified in the course syllabi, where a binary scale of "pass" or "fail" is used.

The evaluation of study performance employs various forms of **written, practical, and oral assessments individually, as well as their combinations**. Study performance assessment in each study course is conducted by one or several participating faculty members, except for the practice reports, which are evaluated by an expert group appointed by the program director. The master's thesis is evaluated by a state examination committee approved by the Rector of Riga Technical University

The implementation methods of study courses and additional methods and criteria for assessing study performance in the course are determined by the responsible faculty member in cooperation with the program director, primarily based on the following criteria:

- Study course objectives, tasks, and study results to be achieved;
- Study course content and scope;
- Adherence to student-centered education principles;
- Faculty members' skills and confidence in the effectiveness of selected methods, etc.

In the case of remote studies, the implementation methods of study courses, as well as the assessment of study performance, are adapted for online education, ensuring as much similarity as possible to the face-to-face study process and planned assessment of study results.

Summarizing the above mentioned, it is evident that the implemented methods in the master's study program, including the implementation of study courses, encompass practically all the necessary groups of methods expected for achieving study results. These include methods for knowledge acquisition (lectures, etc.), skills and competence development methods (laboratory work, etc.), utilization and reinforcement of creative activities and competence-building methods (project-based learning, group work, scientific and other creative seminars, etc.), as well as methods for assessing study performance. For example, the teaching methods, incl. those for lectures, group work, study research paper development and presentation, etc. used in the study courses , such as LJA056 – “Organization and Management of Maritime Transport Enterprises” and LJA057 – “Economics and Finances of Maritime Transport Enterprises”, play a significant role in achieving the program's study results, such as demonstration of in-depth and/or expanded knowledge and understanding, which provides a foundation for professional competence in entrepreneurship of the maritime transport industry and ability to do business and perform innovations in the maritime transport industry, as well as take responsibility for the work results of personnel groups and their analysis.

Thus, it can be concluded that, overall, the methods for implementing the program, including study course implementation and expected study result assessment methods, are chosen in

accordance with the program's objectives and tasks and significantly contribute to the planned achievement of study results. However, the experience gained during the evaluation period, especially during the epidemiological situation, also highlights the need for further improvements, such as digital teaching methods, cooperative learning methods focused on group work, etc.

3.2.4. If the study programme envisages an internship, describe the internship opportunities offered to students, provision and work organization, including whether the higher education institution/ college helps students to find an internship place. If the study programme is implemented in a foreign language, provide information on how internship opportunities are provided in a foreign language, including for foreign students. To provide analysis and evaluation of the connection of the tasks set for students during the internship included in the study programme with the learning outcomes of the study programme (if applicable).

According to the requirements of the Cabinet Regulation No. 305, the Master's study program "Maritime Transport" includes a 9 (nine) ECTS credit practice. The aim of the practice is to provide the master's student with the opportunity to enhance the theoretical knowledge acquired during the studies and develop practical skills and abilities related to the chosen specialization and the solving of relevant problems related to the master's thesis in order to enhance the student's technical intellect, organizational qualification and to develop leadership skills. In the implementation plan of the full-time study program with the exception of some individual cases the practice is planned for the second and third study semesters and it can be partially carried out during the summer period as well (see annexes under Section 3.2.1). All organizational, management, evaluation,and development, etc. activities related to the student's practice are specified in the LMA Regulation No. 4 "On Practice for Persons Studying for Master's Degree at Latvian Maritime Academy" as of 15.12.2008, as amended (see relevant annex under Section 3.2.4). The following documents are required for organizing the practice (see annexes under Section 3.2.4):

- Trilateral agreement "On Practice for Persons Studying for Master's Degree at Latvian Maritime Academy" concluded between the receiving company, RTU Latvian Maritime Academy and the trainee, or a decision of RTU Latvian Maritime Academy regarding the provision of a traineeship placement within the university/academy (the Cabinet Regulation No. 481 of 29 August 2023, "Procedures for Organisation of Practice in Professional Education Programmes" (https://likumi.lv/ta/id/344976-prakses-organizesanaskartiba-profesionalas-izglitibas-programmas));
- Traineeship program/tasks, which also indicate the study results to be achieved during the practice;
- Evaluation of the trainee.

In most cases persons studying for Master's degree find their traineeship placements themselves, using additional opportunities and support from the Latvian Maritime Academy of Riga Technical University:

- If a person studying for Master's degree conducts research on the employer's problems in the master's thesis, usually their traineeship placement is the employer’s organization/company/specific vessel, including RTU Latvian Maritime Academy;
- If a person studying for Master's degree conducts research on topics offered by a maritime transport industry organization or company in the master's thesis, the traineeship placement is the specific organization/company/vessel;
- In other cases, which constitute a minority of the conducted research, the supervisor/consultant of a particular master's thesis assists in finding the traineeship placement and, if necessary, the program management and experts appointed by the

program director take part using their contacts in the maritime transport industry and also in other industries, including those abroad, for cases of interdisciplinary research.

Traineeship placements are approved in the second half of the second study semester, taking into account the following aspects:

- Compliance of the study results to be achieved during the traineeship with the program study results planned and achievable;
- Relevance of the study results to be achieved during the traineeship to the selected and approved topic of the master's thesis;
- Possible time for implementing the traineeship relevance to the individual plan/schedule of the master's thesis development, as well as the overall study plan of the program.

The traineeship of each person studying for Master's degree is supervised/coordinated by the master's thesis supervisor, as well as the representative of the traineeship company/organization specified in the trilateral agreement. After completing the traineeship, the trainee receives an Evaluation from the traineeship supervisor and prepares a traineeship report, which is submitted to the Master's Degree Program divison at Latvian Maritime Academy.

The selected traineeship placement, traineeship tasks, and the achieved results, including the connection of these results with the master's thesis being developed and the program's study results, are discussed and evaluated in scientific seminars dedicated to these issues. Usually, these seminars also address other issues related to the development of the master's thesis, and several experts appointed by the program director, and if necessary, other invited experts participate in these seminars (see Section 3.2.6).

During the reporting period, all 101 graduates of the program have been provided with traineeship placement in a timely manner. Practically half of the traineeships have been carried out in shipping and stevedoring companies, ports, and terminals, such as the shipping company SIA LSC, SIA "Termināls Vecmīlgrāvis," etc. (approximately 50% in total), while the remaining traineeships have been carried out in the transportation sector, including institutions related to maritime transport and interindustry management, such as the Ministry of Transport, State Joint Stock Company Maritime Administration of Latvia, State Environmental Service of Latvia, etc. , as well as ship service and repair companies, such as AS Riga Shipyard, SIA Jūras servisa centrs (Marine service centre), etc. (approximately 32% in total), the Naval Forces of the National Armed Forces, such as the Patrol Ship Squadron, the Coast Guard Service, etc. (approximately 10% in total), and maritime education and research institutions, such as RTU Latvian Maritime Academy, Latvian Institute of Aquatic Ecology, etc. (approximately 8% in total). It should be noted that during the reporting period, almost one-third (approximately 35%) of the traineeships have been conducted on various types of vessels, such as liquefied natural gas (LNG) tankers, chemical tankers, bulk carriers, patrol ships, coast guard vessels, etc.

Starting from the academic year 2018/2019 several foreign students, particularly 5 graduates from Lihuanian Maritime Academy in Klaipeda (Lithuania), have also pursued part-time studies in the programs. So far, only one of them has completed a traineeship - the traineeship place was a logistics company "Golfinas Shipping Agency" (Klaipeda, Lithuania). The process of all organizational, management, evaluation, etc. activities related to the traineeships of foreign students does not differ from the one for the full-time and part-time studies in the national language.

The most important condition for implementing the Master's study program "Maritime Transport" is to ensure the attainment of the European/Latvian Qualifications Framework’s level 7 knowledge, skills, and competencies, including study results that correspond to the industry's specifics. This is possible only if each of the study courses, including LJA077 "Practical Training" provides study results whose integrated set across all program courses corresponds to the attainable study results of the program. By analyzing the relationship between the task of practice and the study results to be achieved the study course LJA077 “Practical Training” with the achievable study results in the study program, it can be observed that:

- The qualitative execution of each task of practical training ensures the attainment of at least one corresponding traineeship study result. For example, the task of practical training "*Provide an opportunity* to evaluate the practical relevance of the topic of the thesis selected by a person studying for Master's degree, as well as the novelty and significance of the solutions forecasted in the research in solving the problems of the traineeship company (industry)" ensures the traineeship study result "*The student* is capable to evaluate independently the practical highlights of the planned research as well as the novelty and

significance of the solutions forecasted in solving maritime transport industry problems," et al;

- Each of the traineeship study results, in turn, contributes to the attainment of at least one program study result. For example, the aforementioned achieved traineeship study result contributes not only to the program study result "*The student* is able to independently formulate and critically analyze complex professional issues in the maritime transport industry, including business, as well as to justify decisions", but also to the program study result "*The student* is able to use theory, methods, and problem-solving skills independently for carrying out research and/or highly qualified professional activities in the fields of maritime transport operation and/or management engineering", et al;
- All tasks of practical training are closely related to the achievable study results of the study program and contribute to their attainment.

The contribution of study results of the study course LJA077 "Practical Training" to the overall study results of the program is evident in the course mapping of the program's study courses (see the relevant annex under Section 3.2.1).

3.2.5. Evaluation and description of the promotion opportunities and the promotion process provided to the students of the doctoral study programme (if applicable).

3.2.6. Analysis and assessment of the topics of the final theses of the students, their relevance in the respective field, including the labour market, and the marks of the final theses.

According to the requirements of the Cabinet Regulation No. 305, the study program concludes with a state examination - the development and defense of a master's thesis, which is evaluated by a state examination commission. The master's thesis is a qualified, practical, publicly defensible research. Except for specific cases, the master's thesis is developed during the 2nd and 3rd study semesters according to the "Guidelines for the Development, Formatting, and Defense of a Master's Thesis", as well as RTU guidelines titled as "Guidelines for the execution of study and graduate paper" (https://www.rtu.lv/writable/public_files/RTU_metodiskie_noradijumi_ievf_2016.pdf). The master's thesis is developed by the student independently, in collaboration with the thesis supervisor and, if necessary, consultants.

For each full-time academic group and each part-time student studying for Master's degree, a plan of "Development of the Master's Thesis and Related Activities" is created and approved. According to this plan, as well as based on the individual master's thesis development plan derived from it, each student presents the results of his/her work multiple times in scientific seminars, starting with the justification of the selection of the master's thesis topic and ending with the pre-defense of a practically completed thesis. Several experts appointed by the program director and, if necessary, other invited experts participate in the discussion of the prospective master's theses in scientific seminars.

The topics of master's theses shall normally be selected by students at the beginning of the 2nd semester in accordance with the plan for the implementation of the study programme, taking into account the following main aspects:

- The students' own professional interests and opportunities;
- Possible topicality of the research;
- The availability of the subject and object of the research;
- Practical feasibility of the research in question;

- Possibilities for obtaining research data and other information, et al.

Besides, when selection the topic (and the supervisor) of the thesis as well as during further planning and development of the thesis, the student studying for Master's degree has to repose in the fact that a Professional Master's degree in Maritime Transport is awarded upon graduation and that the LMA Master's study program "Maritime Transport" (educational classification code 47525) belongs to the educational thematic field "Engineering Sciences and Technologies." This means that both individual parts and the entire thesis should be developed from the perspective of the maritime transport industry and the thesis should be either a specific technical/technological study or an integrated/interdisciplinary study, for example, in the field of maritime and port engineering systems and technologies, environmental management, digitalization, management, safety, etc. During the reporting period several different from the guidelines but at the same time applicable theses have also been implemented, e.g. theses with a methodological or pedagogical orientation, theses for solving problems important to the Latvian Navy etc.

During the assessment period, the relevance and suitability of master's thesis topics to the current and future needs of the maritime transport industry have been ensured through the following measures:

- Identifying recommended research directions for master's theses in line with the maritime transport industry's near and long-term development trends worldwide, in Europe, and in Latvia (using, for instance, the results achieved in the activities of the Latvian Academy of Sciences project 8.2.3 "Improvement and Adaptation of Existing Study Program Content to the Needs of the Industry"), as well as the priority research areas specified in the development strategy of RTU LMA;
- Actively selecting and encouraging the choice of research topics offered or supported by industry companies/organizations and participating in national or international research projects;
- Appointing master's thesis supervisors, advisors, and reviewers who are highly knowledgeable about the chosen research field, the addressed issues, and their real-world relevance;
- Reviewing the applications for master's thesis topics and the proposed candidacy of thesis supervisors, as well as discussing the further progress of thesis work in the program's scientific seminars.

During the evaluation period, a total of 101 master's theses have been developed and defended. The analysis of the thesis topics shows that all the master's theses are dedicated to addressing relevant issues in the maritime transport industry, covering various significant areas of the industry, such as:

- *In the field of marine engineering systems and technologies* - (approximately 25% of the topics), for example, master's theses - "Inspection of the Technical Condition of the Ship's Intermediate Shafts" (2016), "Evaluation Methods for Ship's Stability in Wave Conditions" (2016), "Utilization of Renewable Energy for Improving Ship Lighting Systems" (2019), "Renovation of Baltic-type Fishing Trawlers for Improving Their Current State in the Fisheries Sector" (2023), etc.;
- *In the field of port engineering systems and technologies* - (approximately 12% of the topics), for example, master's theses - "Analysis of Practical Aspects of Port Operation Safety" (2016), "Technical Evaluation of High-Voltage Shore Power Supply Connection for Ships in the Freeport of Riga" (2019), "Analysis of Alternative Energy Application for Electric Power Supply to Ships in the Freeport of Riga" (2023), etc.;
- *In the field of maritime environment protection and safety on ships in ports and at sea* - (approximately 21% of the topics), for example, master's theses - "Opportunities for Improving Ship and Passenger Safety through the Use of Smartphones" (2021), "Analysis of Explosion Hazard Risks in Petroleum Product Storage Facilities" (2017), "Assessment of the Impact of Ship Traffic-Generated Underwater Noise on Riga Bay Ecosystem" (2017), "Analysis of Innovative Approaches to Reduce Microplastic Pollution Generated by Ship Wastewater" (2021), etc.

- *In the field of the efficiency and development of port and terminal operations* – (approximately 10 % of the topics), for example, master's theses – "Analytical Assessment of the Impact of Activities of Small Ports of Latvia on Coastal Economic Development" (2015), "Improvement of the System of Performance Indicators for the Technical Performance of the Terminal" (2015), "P Exploration of Possibilities for Development of Passenger Terminal Infrastructure in Riga Port" (2019), "Analysis and Forecast of the Freeport of Riga Project "CAPESIZE" (2021), etc.;
- *In the field of freight and passenger transportation* – (approximately 12 % of the topics), for example, the master's theses - "Analysis of Feeder Container Ships' Capacity and Speed Selection" (2016), "Technological Economic Analysis of Shipments of Sawn Timber in Flat Containers" (2019), "Mathematical Analysis of Passenger Traffic in the Escape Corridors of the Ro-Ro/Pax Vessel" (2021), etc.;
- *In the field of seafarer training, employment, workload, and social security* - (approximately 8% of the topics), for example, master's theses - "Analysis of Multi-functional Training Pool Requirements for Collective Rescue Equipment" (2021), "Evaluation and Optimization of the Operations of Navigation Officers on Tankers" (2015), "Research on Social Security of Seafarers in Latvia - Problems and Solutions" (2014), "Development of Innovative Teaching Methods for Conventional Courses for Seafarers" (2021), etc .
- *In various other areas* - (approximately 12% of the topics), for example, master's theses - "Development Opportunities of Ship Recycling in Latvia" (2015), "Possibilities of Modernization of Fish Processing and Transport Vessels with Lyophilization Equipment and Its Innovative Solutions" (2023), etc.

It is evident that the average assessment of the theses during the evaluation period has been 8 - very good.

Results of the state examination in the Master's study program "Maritime Transport"

	Academic year										***During reporting period***
	2013/ 2014.	***2014/ 2015.***	***2015/ 2016.***	***2016/ 2017.***	***2017/ 2018.***	***2018/ 2019.***	***2019/ 2020.***	***2020/ 2021.***	***2021/ 2022.***	***2022/ 2023.***	
Number of defended master's theses	9	13	18	6	5	9	7	18	6	10	101
Avarage grade	8.4	8.3	7.8	8,5	7,6	8.1	8.7	7.4	7.1	7.7	8.0

For the continuous improvement of the quality of the program, including the quality of master's theses, the reports of the state examination commissions on the specific procedure and results of each state examination are particularly significant. The key evaluation highlights from the reports of the 20 state examination commission sessions held during the evaluation period are summarized below.

- **The overall assessment of the state examinations** during the program evaluation period has been positive, with emphasis consistently placed on the innovative solutions achieved in the works and their practical significance, as well as the state of the art and relevance of the selected topics, e.g. addressing significant problems for maritime transport companies/organisations in the various areas of the industry covered by this section over a given period of time. Additionally, the evaluation reports of the state examination commissions have noted other positive aspects characteristic of the master's thesis defense sessions. These include pleasant surprises regarding the quantity and quality of master's theses defended during the academic year, as well as the recognition of the high skills of the students in conducting analytical research and presenting their findings (academic year

2015/2016). While a slight decrease in the average grade has been observed, the commissions have acknowledged significant improvements in the students' knowledge and the selection of thesis topics with an engineering focus (academic year 2017/2018). The master's thesis topics have been found to be relevant to areas such as maritime safety, maritime environment protection, and the professional preparation of maritime industry specialists with an engineering focus (academic year 2019/2020). Innovative solutions to current problems, such as ballast water treatment in compliance with international standards and the reduction of microplastic pollution, have been positively evaluated. The successful conduct of the state examination sessions via the ZOOM platform has also been commended (academic year 2020/2021). The search for innovative engineering solutions for technological improvements on ships to reduce pollution resulting from the vessels' operations has been highly regarded (academic year 2022/2023), among others.

- **Evaluation of the program's learning outcomes:** The students' knowledge, skills, and competencies, including the master's theses they have produced, meet the requirements set for candidates of the professional master's degree (in all evaluation reports).
- **Identified deficiencies in the study process and their rectification**: No significant deficiencies have been identified (in all evaluation reports).
- **Recommendations and suggestions for improving the study process:**

- It is advisable to pay more attention to economic aspects and practical problem-solving in the development of master's theses, utilizing the theoretical and practical knowledge acquired during the study process (academic years 2013/2014, 2014/2015);
- The integration of engineering courses into the existing master's program should continue (academic year 2015/2016);
- Presentation skills need further development (academic year 2017/2018);
- Actively address current topics in the study process and master's thesis development, offering innovative solutions (academic years 2018/2019, 2019/2020);
- Engage scientific consultants from other higher education and research institutions, such as Riga Technical University, the University of Latvia, the Latvian Institute of Aquatic Ecology, etc., in the research of master's theses to assist with experimental work within the respective topics. Considering that the increasingly relevant problems and their solutions transcend the boundaries of a single industry, conducting interdisciplinary research by involving specialists from other fields, such as natural sciences, economics, or information technology, is recommended (academic year 2020/2021);
- Propose the creation of a database or "idea bank" for future master's thesis topics, where industry specialists and faculty members can submit topics for the master's theses of Latvian Maritime Academy students (academic year 2022/2023);
- The training of international students in the master's program at the Latvian Maritime Academy of Riga Technical University is positively assessed. It is suggested that in the future, a supervisor or consultant from RTU LMA should be included in addition to involving an international supervisor/consultant to ensure compliance with the academy's requirements during the development of foreign students' master's theses. Considering that the master's theses of international students are in English, and the presentations and questioning are conducted in English, the involvement of a qualified English language specialist in the work of the state examination commission is appreciated (academic year 2022/2023).

The analysis and evaluation conducted confirm that the topics of the students' final works during the program evaluation period have been directed towards addressing current and future relevant issues in the industry. The main research areas covered in the master's theses align fully with the priority research areas of Latvian Maritime Academy. It should be noted that the recommendations and suggestions of the state examination commissions, as well as the

evaluations of the final works and the activities carried out by the program implementers, indicate several directions and opportunities for improving the development of these works and expanding the visibility of their results. For example, the possibility of providing public access to the defended master's theses is being considered.

3.3. Resources and Provision of the Study Programme

3.3.1. Assessment of the compliance of the resources and provision (study provision, scientific support (if applicable), informative provision (including libraries), material and technical provision, and financial provision) with the conditions for the implementation of the study programme and the learning outcomes to be achieved by providing the respective examples.

During the evaluation period, a set of resources and provisions was selected and developed to ensure their alignment with the requirements for implementing the study program and achieving the study outcomes, both within each individual study course and the program as a whole. The resources and provisions utilized in the program implementation can be categorized into three groups: RTU LMA shared and program-specific resources, as well as external resources and provisions.

The implementation of the program is primarily supported by the *shared study, research, informational, and material-technical infrastructure of RTU LMA* at 12 Flotes Street (see Section 2.3.2 and 2.3.3 of the Self-Evaluation Report). To facilitate the study process of the program, including the research related to the development of master's theses, several facilities of RTU LMA's Faculty of Maritime Engineering (as of November 1, 2022 - Maritime Engineering Center), Faculty of Navigation and Maritime Management (as of November 1, 2022 - Navigation and Maritime Management Center), and Study Center (as of November 1, 2022 - Study Office) are utilized. These facilities include classrooms and laboratories such as the chemistry laboratory, computer labs, etc. The arrangement of the classrooms, laboratories, and the provision of non-specific equipment such as stationary and portable computers, projectors, screens, whiteboards, web cameras, microphones, etc., as well as the necessary support personnel, are ensured by the RTU LMA units responsible for these facilities, including the academy's IT specialists group (since November 1, 2022 - RTU IT Department). Internet access is available in the classrooms, laboratories, and faculty workspaces, and free wireless internet is provided within the RTU LMA premises. To facilitate the distribution of study materials, communication, and online management of classes/events, LMA has established an e-learning environment - the program faculty actively utilize the LMA platform "OMARS" (www.omars.latja.lv), the internal network ("L" disk), as well as online meeting platforms such as Microsoft Teams and "ZOOM," among others. For studies and research, simulator facilities such as ship bridge and engine room simulators, as well as the following software, are available:

- Dialog-Statik: a universal program for determining ship theoretical parameters, such as hydrostatics, volumes, stability, etc.
- Auto CAD 2014 SLM EDU: designed for computer-aided 2D and 3D object design.
- MATLAB and Simulink software: a multi-paradigm numerical computing environment and fourth-generation programming language, among others.

RTU LMA library provides students and faculty with access to necessary information resources, including databases and periodicals, both from its own collection and other libraries. The library uses the integrated library information system ALEPH 500 and participates in the creation of the

national library catalog. The library also provides access to the final theses of previous years' graduates, offers consultations to students, faculty, and staff on the use of the electronic catalog and digital databases, and provides various services such as computer workstations, copying, printing, etc. Additionally, the library offers access to globally recognized research, business, and other databases.

• EBSCO, a multidisciplinary electronic full-text database that includes a wide range of e-journals, e-books, and other electronic resources, offering extensive search capabilities at multiple levels.

• The INSPEC database, one of the largest and leading bibliographic databases in the world, providing abstracts and indexes of scientific and technical literature.

• The International Maritime Organization (IMO) document database IMOdoc, which includes the latest/relevant IMO documents in electronic format, such as resolutions, circulars, etc.

• The specialized maritime regulatory document database KR-CON, which is an internet version of the Korean Register of Shipping's product, including the latest maritime conventions, codes, etc.

• Open Access resources for scientific information, including e-journal databases, e-book databases, institutional repositories.

As program-specific resources and provisions, the following additional elements of the informational and material-technical infrastructure, including specialized software and literature, *can be considered*:

• Minitab 16, designed for statistical data analysis and processing.

• Service Model, used for modeling logistics systems.

• QFD Capture Professional, used as a quality management tool.

• SolidWorks, intended for 3D modeling.

• Bluman A.G., Elementary Statistics: A Step by Step Approach, 10th edition, McGraw-Hill, 2018.

• Scientific writing and dissemination of research results. In the scientific editorship of K. Mārtinsones and A. Piperes. Riga: RSU, 2018, - 301 pp.

• Yvonne N. Bui. How to Write a Master's Thesis. 2nd Edition, University of San Francisco, SAGE, 2014, 315 p., and others.

Program-specific resources and provisions also include:

• Mandatory and supplementary literature indicated in the course descriptions, including electronic resources.

• Other information sources specified in the course descriptions, primarily electronic resources, such as www.likumi.lv; https://www.arhivi.gov.lv, The Academic Collocation List, https://lloydslist.maritimeintelligence.informa.com/; International Transport Journal, http://transportjournal.com;http://pearsonpte.com/RESEARCH/Pages/CollocationList.aspx; www.emsa.eu; Lloyd's Register - Assurance, Certification, Inspection, Training (lr.org); NASA. Ozone Facts: History of the Ozone hole. http://www.earthobservatory.nasa.gov/; www.wartsila.com; http://www.dnv.com.au/industry/maritime/publicationsanddownloads/; https://www.real-statistics.com; Harvard Business Review: https://hbr.org; Latvian National Project Management Association: www.lnpva.lv; Project Management Institute: www.pmi.org, etc.

• Study materials in electronic and sometimes paper form (presentations, independent and laboratory work, including programming tasks, study papers, and independent assignments requiring factual information, including information from company financial reports, methodological guidelines/descriptions, industry presentations, various auxiliary materials, relevant articles), which are placed on the RTU LMA platform "OMARS" (omars.latja.lv), the internal network (L-disk), as well as the shared GoogleDrive folder. Additionally, materials are distributed to students during contact hours or sent via email, WhatsApp, etc.

During the review period, the necessary methodological materials for the study program have been developed and regularly updated. These materials include guidelines for master's thesis preparation, including the creation of a bibliography, instructions for internships, guidelines for the formatting of study papers, action plans for the implementation of master's theses, guidelines for preparing master's thesis reports, and others.

In the implementation of the program, external resources and facilities are occasionally used, particularly in cases where specialized courses are offered by other higher education institutions. For example, the supplementary course "Civil Protection" is conducted at the RTU Institute of Labor and Civil Protection, and the experimental part of the master's thesis "Analysis of Carbon Fiber Composite Shaft Damage in Ship Propulsion Systems" was carried out at the RTU Material Experimental Mechanics Scientific Laboratory. Additionally, research related to master's theses is often carried out in collaboration with interested industry companies/organizations, including ports, terminals, shipping companies, and various environmental institutions.

The most crucial condition for the successful implementation of the master's study program "Maritime Transport" is to ensure that it provides the knowledge, skills, and competencies specified in the European Qualifications Framework level 7 of the Latvian Education Classification, including industry-specific study outcomes. This can only be achieved if each course in the program produces specific study outcomes that, when integrated across all courses, align with the expected program outcomes. The resources and facilities used significantly influence the achievement of these outcomes. For example, a student project using MS Excel and Minitab 16 contributes to the attainment of the study outcome "Capable of independently organizing and performing research data processing and result presentation," which, in turn, supports the program outcome "Capable of independently using theories, methods, and problem-solving skills for research and/or highly qualified professional work..." Using databases like EBSCO, INSPEC, and IMOdoc facilitates the achievement of the program outcome "Demonstrate in-depth and/or broadened knowledge and understanding of the latest developments in theory and practice in the maritime transport industry." Practical research conducted at the LMA Chemistry Laboratory within the course "Impact of Maritime Transport on the Environment" or as part of the practical investigation in a master's thesis contributes to the achievement of several program outcomes, such as "Demonstrate an understanding of the potential impact of professional activities on the environment and society" and others.

Throughout the evaluation period, resources and facilities, as well as their accessibility to students and faculty members, have generally been in line with the conditions required for program implementation. Over time and within the available possibilities, resources and facilities at RTU LMA have been progressively modernized and improved, particularly over the last three years, due to the rapid development of projects and research activities at the academy. Since the reorganization of LMA starting from November 1, 2022, the academy has the opportunity to use additional resources and facilities provided by RTU, and already by the end of 2022, training sessions on the utilization of RTU databases were conducted for RTU LMA faculty members and researchers by the RTU Scientific Library. After the reorganization, RTU LMA students, faculty members, and researchers also have access to all other opportunities offered by the RTU Scientific Library.

3.3.2. Assessment of the study provision and scientific base support, including the resources provided within the framework of cooperation with other science institutes and higher education institutions (applicable to doctoral study programmes) (if applicable).

3.3.3. Indicate data on the available funding for the corresponding study programme, its funding sources and their use for the development of the study programme. Provide information on the costs per one student within this study programme, indicating the items included in the cost calculation and the percentage distribution of funding between the specified items. The minimum number of students in the study programme in order to ensure the profitability of the study programme (indicating separately the information on each language, type and form of the study programme implementation).

The funding for RTU LMA from the state basic budget includes a study base funding corresponding to the list of study programs and the number of students, which consists of funds for utility payments, taxes, infrastructure maintenance, acquisition of inventory and equipment, as well as funding for scientific activities. The number of study places is allocated through consultations with the Ministry of Education and Science. The amount of study base funding is determined based on the state-determined number of study places at RTU LMA, as well as the state-determined base costs of study places and the coefficients of study costs for educational thematic areas.

The funding for the Master's study program in "Maritime Transport" primarily consists of funding from the state budget, which corresponds to the number of students and serves as the base funding. RTU LMA has a sufficient number of study places funded by the state budget, so the main source of study funding is the state budget funding. The calculation of state budget funding is done annually.

In addition, the funding for the study program in "Maritime Transport" includes:

• Tuition fees (for both full-time on-site and part-time off-site fee-paying students, as well as fees for retaking examinations). The number of fee-paying students is consistently small because the program has a relatively large number of budget-funded places.

• Performance-based funding (support funding for research activities).

• Funding for the research base.

Analyzing the overall funding of the study program in "Maritime Transport," it is evident that in the case of the basic budget and local fee-paying students, the funding has been and continues to be determined in the long term based on the principles set by the state. The determination of the funding volume takes into account both the coefficients of study costs for thematic areas and the values of study cost coefficients according to the level of the study program, as well as the number of students in the study program and the corresponding study courses . As mentioned earlier, the use of coefficients for educational thematic areas allows determining the necessary funding volume for the specific study program and the implementation of study courses.

The funding allocated from the state budget for the implementation of the study program per student in the Master's study program in "Maritime Transport" is EUR 4156.79. Since 2015, the number of budget-funded places in the program remains unchanged at 18 places.

In addition to funding from the state basic budget, the study program in "Maritime Transport" is also financed by revenue from tuition fees paid by individuals or legal entities. This funding is relatively small. The funding from fee-paying students is used for the renewal of material and technical resources, attracting higher-level specialists for ensuring the study process, etc.

The tuition fee for full-time studies in the study program "Maritime Transport" for one

student, for example, in the 2022/2023 academic year, is EUR 4157.00 per year. In the case of part-time studies, the fee for one student from Latvia and other EU countries for the acquisition of one credit point in the study program "Maritime Transport" in this academic year is EUR 62.
The tuition fee calculation includes the following items:

- Remuneration - 80.48%;
- Training, work, and official trips, work-related travel - 0.27%;
- Service fees - 12.44%;
- Purchase of inventory, materials, energy resources, goods, office supplies, and equipment - 3.28%;
- Real estate tax - 0.15%;
- Capital formation - 2.39%;
- Deductions for ensuring scientific activities - 0.99%.

The minimum number of students to ensure the profitability of the study program is 12 students.
RTU LMA units are motivated to attract additional external funding, for example, through projects. This provides additional opportunities for the unit to cover its expenses, ensure necessary development, and receive additional funding.

The financial resources for the study program are sufficient for the implementation of the study program.

3.4. Teaching Staff

3.4.1. Assessment of the compliance of the qualification of the teaching staff members (academic staff members, visiting professors, visiting associate professors, visiting docents, visiting lecturers, and visiting assistants) involved in the implementation of the study programme with the conditions for the implementation of the study programme and the provisions set out in the respective regulatory enactments. Provide information on how the qualification of the teaching staff members contributes to the achievement of the learning outcomes.

The necessary composition of faculty for the implementation of the Master's study program was established during the review period, taking into consideration the need to provide a diverse faculty environment that meets the requirements of the program. This includes a balance of professionals and academics who possess significant academic and/or professional experience, as well as younger faculty members who are well-versed in modern technologies.

During the evaluation period, the core faculty responsible for teaching the program's subjects, including practical training and the final state examination (Master's thesis), accounted for an average of 36/54 KP/ECTS credits (60%) out of the total 60/90 KP/ECTS credits of the study program . The remaining 24/36 KP/ECTS credits (40%) were covered by highly qualified professionals from the maritime transport industry, visiting faculty from foreign universities, and faculty members from other universities in Latvia. On average, 24 faculty members were involved in the implementation of the program during an academic year.

The distribution of faculty members within the program varied according to their academic positions during the evaluation period. Professors accounted for 46% at the beginning of the period, decreasing to 30% by the end; associate professors, on the other hand, increased from 25% to 41%. Docents or assistant professors accounted for an average of 17% without a clear trend, while lecturers accounted for an average of 12% without a clear trend. The distribution of faculty members based on their academic degrees also changed accordingly. The proportion of habilitated doctors decreased from 21% at the beginning of the period to 4% at the end, while the proportion of doctors increased from 50% to 67%. The proportion of faculty members with a Master's degree (lecturers and some assistant professors) remained approximately 29% throughout the review period. When considering the composition of thesis supervisors based on their academic and professional degrees, the situation during the evaluation period was as

follows: the proportion of thesis supervisors with habilitated doctorate or doctoral degrees ranged from 72% to 100% depending on the academic year, while all other Master's theses were supervised by faculty members with a Master's degree, most of whom were professionals from the maritime transport industry.

During the evaluation period, the selection of faculty members for the program was based on the compliance of their qualifications to regulatory requirements and the conditions for the program implementation.

Until the merger of LMA and RTU teachers elected to the relevant academic position in LMA or in other higher education institution, as well as other candidates for academic positions whose qualification complies with the requirements laid down in the Law on Higher Education Iinstitutions, LMA Constitution, the Cabinet Regulation No. 129 of February 25, 2021 on "Procedures for the Evaluation of Scientific and Pedagogical Qualifications and Artistic Creation Performance Results of Candidates for and Holders of the Position of Professor or Associate Professor," and the Cabinet Regulation No. 569 of September 11, 2018 on "Regulations Regarding the Education and Professional Qualifications Required for Teachers and the Procedures for the Professional Competence Development of Teachers" were accepted to work in the Master's study program. Following the incorporation of LMA into RTU, the qualification compliance of faculty members at RTU LMA is ensured through the implementation of principles of academic staff management, actions and responsibilities laid down in the relevant RTU internal normative documents (see Section 3.2.5).

As previously mentioned, one of the essential tasks of the Master's study program in Maritime Transport is to ensure that its outcomes correspond to the LQF/EQF Level 7 knowledge, skills, and competencies. This is only possible if each faculty member, in implementing his/her study course, can deliver study outcomes that, as an integrated set across all program courses, align with the expected study outcomes and are supported by the appropriate qualifications of the faculty. For example, the program's study results “are capable of demonstrating in-depth and/or expanded knowledge and understanding that provide the basis for creative thinking or research, …”, “are capable of using theory, methods and problem-solving skills independently for the pursuit of research and/or highly qualified professional activities …” and “are capable of independently formulating and critically analysing complex professional problems in the maritime transport sector …” (see Annex P27) the qualifications and cooperation of relevant study course teachers play an important role in achieving the results. This is why, for example, the implementation of study course LJA058 “Maritime Transport Research Methodology” involves the teaching staff who are knowledgeable about the achievements and challenges of the maritime transport sector and who manage research and innovation processes and methods at a high level (e.g., RTU Professor Dr.sc.ing., RTU LMA Professor Dr.sc.ing., Assoc. Professor, Dr.oec.of the University of Latvia, etc.). Further, the use of the results of this course for the skilled and competent resolution of the selected problem in Master's theses shall be facilitated by their supervisors – experts in an appropriate field, highly academically or professionally qualified specialists with practical experience in the implementation of research projects (e.g., project manager at SIA "Jūras projekts" Dr.sc.ing.; CEO of SIA "LSC," Capt., Mg .ing.; Chief Engineer at the shipping company "Balearia" in Spain, Mg.oec, etc.). Additionally, consultants, who are highly qualified specialists in specific areas or issues, may be involved in the development of Master's theses, if needed, (e.g., Technical Director of SIA "V-Osta," etc.).

Overall, the qualification compliance of faculty members in the study program is ensured. However, the experience during the evaluation period highlights the need to improve the monitoring and continuous professional development measures for faculty qualifications. To this end, starting from the academic year 2020/2021, the maintenance and improvement of qualifications and professional competencies of each faculty member are planned and evaluated based on the job description of the faculty member and the individual work plan-review of the academic year. After LMA incorporation into RTU, starting from 2023 RTU, including LMA, introduces a performance management system (see RTU ORTUS Document System/Performance Management).

3.4.2. Analysis and assessment of the changes to the composition of the teaching staff over the reporting period and their impact on the study quality.

The analysis and evaluation of changes in the faculty composition were conducted separately for the group of faculty members responsible for teaching the program's mandatory, restricted elective, and free-choice courses, as well as for the supervisors of master's theses and internships.

The changes in the composition of faculty members involved in the implementation of the program's courses during the review period were mainly influenced by the following factors:

- *The need to replace several faculty members* who, due to various objective and subjective circumstances in their professional and/or personal lives, have completely or temporarily discontinued their work in the program. Examples include a professor from Klaipeda University who retired, professors from Klaipeda University and Latvia University who faced restrictions on additional academic work, and visiting lecturers who took maternity leave, among others.
- *The introduction of new/different/additional requirements for faculty members in terms of their professional and academic activities*, resulting from the changes made to the study program during the evaluation period.

The changes in the "Maritime Transport" program were driven by the need to ensure its alignment with the study field and the changing needs of the industry, such as the implementation of recommendations developed as part of the RTU LMA SAM 8.2.3 project and the requirements of several newly adopted national regulations (Cabinet Regulations No. 512, Cabinet Regulations No. 322, etc.). Additionally, changes and additions to the program were made based on feedback from students and graduates, as well as to diversify/enhance the educational offerings and refine/supplement specific parameters of the program, such as the introduction of program implementation in English.

Analyzing the changes in the faculty composition within the program, it is possible to identify several groups of faculty members or course categories:

- Faculty members who have taught their courses throughout the review period, consistently meeting the requirements and making significant updates and adjustments over time. Examples include faculty members responsible for courses such as "Current Aspects of Maritime Law," "Information and Communication Technologies in Maritime Transport," "Management of Port Terminal Operations," "Methods for Processing and Analyzing Maritime Transport Research Data," and others.
- Faculty members who have taught their courses for the majority of the review period, consistently meeting the requirements and making significant updates and adjustments over time. Examples include faculty members responsible for courses such as "Maritime Transport Logistics," "Management of Port Terminal Operations," and "Academic English Writing," with courses being taught for seven to eight academic years, among others.
- Faculty members who have taught their courses episodically, for one or several academic years, due to various reasons. Examples include faculty members responsible for courses such as "Innovative Shipbuilding and Repair Technologies" and "Ship Restoration: Environmental, Technical, and Design Aspects."

The analysis shows that the changes in the first two groups of faculty members have been relatively insignificant over the review period, and they have formed a stable core of faculty members within the program. These faculty members have taught practically all the mandatory and restricted elective foundational courses, and the quality of their teaching has remained consistent while continuously improving.

Significant changes have occurred in the faculty composition of the program's elective courses. This is primarily due to the wide and objectively changing range of elective courses offered and demanded. The proportion of these faculty members from the total number of faculty members involved in the program has been significant, ranging from 15% to 33% over the academic years. This means that the impact of these faculty members on the overall quality of the program is significant. Consequently, during the review period, special attention was given to working with these faculty members, both in the selection process (considering the opinions of potential colleagues and previous collaborations) and in providing enhanced supervision of their

teaching activities.

Analyzing the changes in the faculty composition of the program based on their professional affiliation and/or primary workplace during the review period, the following situation emerges: The proportion of faculty members from RTU LMA has ranged from 36% to 55% over the academic years , while faculty members from other Latvian universities accounted for 15% to 36%, faculty members from foreign universities accounted for 10% to 18%, and professionals from the maritime transport industry accounted for 10% to 20%.

Examining the composition of supervisors for master's theses and internships within the program based on their professional affiliation and/or primary workplace during the review period, the following situation emerges: The proportion of faculty members from RTU LMA has ranged from 50% to 80%, while faculty members from other Latvian universities accounted for 0% to 11%, faculty members from foreign universities accounted for 0% to 11%, and professionals from the maritime transport industry accounted for 20% to 33%.

These fluctuations in the composition of program faculty members, including thesis and internship supervisors, have been largely determined by objective factors, as mentioned above. However, an important aspect has always been a flexible approach to create the most appropriate environment – assembling faculty members and thesis/internship supervisors/consultants who best fit the specific situation and ensure the highest quality of education.

The analysis overall indicates that during the review period, changes in the faculty composition of the program have occurred as a result of both objectively determined factors and program management-driven changes, while maintaining the necessary quality of education and often enhancing it. The analysis of these changes and their causes also highlights the areas for improvement in faculty composition, such as refining faculty selection and management methods/actions.

3.4.3. Information on the number of the scientific publications of the academic staff members, involved in the implementation of doctoral study programme, as published during the reporting period by listing the most significant publications published in Scopus or WoS CC indexed journals. As for the social sciences, humanitarian sciences, and the science of art, the scientific publications published in ERIH+ indexed journals or peer-reviewed monographs may be additionally specified. Information on the teaching staff included in the database of experts of the Latvian Council of Science in the relevant field of science (total number, name of the lecturer, field of science in which the teaching staff has the status of an expert and expiration date of the Latvian Council of Science expert) (if applicable).

3.4.4. Information on the participation of the academic staff, involved in the implementation of the doctoral study programme, in scientific projects as project managers or prime contractors/ subproject managers/ leading researchers by specifying the name of the relevant project, as well as the source and the amount of the funding. Provide information on the reporting period (if applicable).

3.4.5. Assessment of the cooperation between the teaching staff members by specifying the mechanisms used to promote the cooperation and ensure the interrelation between the study programme and study courses/ modules. Specify also the proportion of the number of the students and the teaching staff within the study programme (at the moment of the submission of the Self-Assessment Report).

The promotion of mutual collaboration among faculty members in the implementation of the Master's study program "Maritime Transport" and ensuring the interconnection of study courses/modules during the review period has been facilitated through the following key mechanisms:

- Involvement of faculty members in the development of the curriculum for the study courses.

Benefits include establishing a mutual connection between the content, achievable outcomes, objectives, etc. of the study courses and the goals and outcomes of the study program. It also enables the evaluation of the relevance, balance, and redundancy of the included study courses/topics, as well as the need for developing new courses/topics.

- Engagement of multiple faculty members with different but relevant specializations/profiles in the implementation of complex/composite study courses within the program. Examples include the mandatory study courses "Organization and Management of Maritime Transport Companies" and "Economics and Finance of Maritime Transport," each taught by two faculty members, and the mandatory study course "Research Methodology in Maritime Transport," led by two or three faculty members. Additionally, the restricted elective study course "Management of Port Terminal Operation Technologies" is taught by two faculty members.

Benefits: By collaborating on the development of interdisciplinary study courses, curriculum descriptions, theoretical components, and implementation of study work, as well as the evaluation of the final assessments or exams, these mechanisms ensure a high-quality content, implementation, and achievement of study outcomes for these courses.

- Involvement of multiple faculty members with different but relevant specializations/profiles in the selection, development, and defense of Master's thesis topics and related study activities.
- This includes the consideration and acceptance of each Master's thesis topic proposal, the approval of the potential supervisor and, if necessary, the consultant, the acceptance of the student's internship placement, as well as the evaluation and preliminary defense (pre-viva) of the Master's thesis progress during the program's scientific seminars according to the approved schedule. These seminars involve the participation of at least three faculty members, including the program director and appointed experts.
    - Furthermore, if required, 20 out of 115 defended theses during the review period have been assigned consultants for addressing specific academic or professional questions. For example, in the case of the Master's thesis (2014, supervised by Prof. Dr.sc.ing. J.Brūnavs) on "Technical and Economic Research on Natural Gas as Ship Fuel," an associate professor Ph.D. (Eng.Sc.) from Gdynia Maritime University was involved as a consultant. Similarly, for the thesis (2016, supervised by the Technical Director of SIA "Baltic Fleet Management") on "Technical Condition Monitoring of Ship Intermediate Shafts," a professor Dr.sc.ing. from RTU LJA was involved. Another example is the thesis (2021, supervised by Associate Professor Dr.sc.ing. K.Carjova) on "Analysis of Oil Pollution Cleanup Equipment for the Naval Forces of the Republic of Latvia," for which a specialist in environmental management Mg. sc.env. from the

Environmental Management Division of the National Armed Forces Border Guard Service was involved.
    - Internal reviewers from the RTU LMA academic staff are assigned to evaluate the theses submitted for preliminary defense.
    - Additionally, the State Examination Commission includes two RTU LMA faculty members, along with representatives from professional organizations or employers. The program director and the secretary of the commission (the head of the Study Office) also participate in the meetings.

Benefits: These mechanisms facilitate collaboration among faculty members with different specializations/profiles in selecting, developing, and defending Master's theses. They ensure the alignment of research work with good research practices and the quality of defended theses. They also lead to recommendations for further improvement of the study program.

Without collaboration with the faculty members, the study program is also implemented and promoted at both the national and international levels. This is achieved through joint research conducted within RTU LMA projects and the development of collaborative publications. Some of the faculty members involved in these collaborations include Prof. Dr. J. Brūnavs, Prof. Dr. A. Gasparjans, Assoc. Prof. Dr. K. Carjova, Doc. P. I. Dr. R. Kalniņa, Prof. Dr. V. Priednieks, and others. Additionally, the program cooperates with foreign faculty members involved in the program, including during ERASMUS mobility periods when visiting their partner universities, such as Klaipeda University's Faculty of Maritime Engineering in Lithuania, among others. The benefits of these collaborations include offering master's thesis topics and supervisors/consultants related to specific projects, generating ideas for further enhancing the study program, and more

In evaluating the overall mutual cooperation among faculty members within the "Maritime Transport" study program, it is evident that the diversity of the program's faculty contributes significantly to its professional and academic balance. At the time of submitting the self-evaluation report, the faculty composition consisted of approximately 50% RTU LMA academic staff (including several individuals with industry expertise), about 17% industry professionals, approximately 17% faculty members from foreign universities (including two with industry experience in their respective countries), and around 17% faculty members from other Latvian universities. Several untapped or underutilized opportunities for collaboration are also apparent, such as closer cooperation with faculty members from foreign and other Latvian universities involved in the program, knowledge transfer from their expertise, and the involvement of external faculty members representing professional industry organizations or employers in the academy projects, scientific seminars, etc.

The program has a total of 51 students (20 full-time and 31 part-time, including five international students), and the number of faculty members involved in the program's implementation is 24. The absolute student-to-faculty ratio at the time of submitting the self-evaluation report is approximately 2.13.

Annexes

III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		
Sample of the diploma and its supplement to be issued for completing the study programme	MAG diploms un pielikums_ENGv3.zip	MAG diploms un pielikums_LVv3.zip
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)		
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)		
Statistics on the students in the reporting period	MAG_Statistika_ENG.xlsx	MAG_Statistika_LV.xlsx
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard	MAG_Atb-v-izgl-standartam_ENGv2.docx	MAG_Atb-valsts-izgl-standartam_LVv2.docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)	MAG_Atbilst Prof Stand_ENG.docx	MAG_Atbilst Prof Stand_LV.docx
Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)		
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme	MAG_Kartējums_ENGv2.docx	MAG_Kartējums_LVv2.docx
The curriculum of the study programme (for each type and form of the implementation of the study programme)	MAG_JT401_plāns_ENGv2.zip	MAG_JT401_plāns_LVv2.zip
Descriptions of the study courses/ modules	LJA-SKA_EN.zip	LJA-SKA_LV.zip
Description of the organisation of the internship of the students (if applicable)	MAG_prakses_pielikumi_ENG.zip	MAG_prakses_pielikumi_LV.zip
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)		
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)		

Maritime Transport - Marine Engineering (42525)

Study field	*Seafaring*
ProcedureStudyProgram.Name	*Maritime Transport - Marine Engineering*
Education classification code	*42525*
Type of the study programme	*First cycle (professional bachelor's) study programme*
Name of the study programme director	*Igors*
Surname of the study programme director	*Kurjanovičs*
E-mail of the study programme director	*Igors.kurjanovics@rtu.lv*
Title of the study programme director	*M.Sc.Ing.*
Phone of the study programme director	*+37129223227*
Goal of the study programme	*Prepare high-quality, internationally recognized management-level specialists in the maritime industry, capable of operating and managing mechanical, engineering systems, electrical, electronic, and control systems on vessels without restrictions, with a focus on the main power equipment, as well as performing technical maintenance and repairs, ensuring ship and crew safety and environmental protection. This includes developing skills related to the design, installation, improvement, and innovation of ship's energy, mechanical, electrical, and electronic equipment, devices, and machinery.*
Tasks of the study programme	*- Develop students' abilities to understand and analyze the fundamentals of marine engineering, as well as the construction of ship's engineering equipment and systems, and the development trends in this field.* *- Provide students with opportunities to learn various engineering technologies and software to analyze and model ship equipment and systems.* *- Develop skills for researching and evaluating engineering technologies used in shipbuilding and their impact on the environment and people.* *- Ensure that students acquire and learn to use various tools and technologies to perform engineering analysis and assessments for repairs.* *- Foster entrepreneurship and management skills necessary for working as engineers in the field of marine mechanics or leading companies in the maritime engineering industry.* *- Develop skills, including project planning, organization, and management, as well as effective communication with other specialists and managers.*

Results of the study programme	*Graduates of the study program will:* *- Be competent in selecting and using information technology for work duties, research, lifelong learning, as well as acquiring, creating, and sharing digital content.* *- Be capable of operating ship machinery and engineering systems.* *- Be capable of operating ship's electrical, electronic, and control systems.* *- Be able to perform technical maintenance and repairs of ship machinery and engineering systems.* *- Be capable of planning, organizing, and managing the operation of machinery and engineering systems.* *- Be capable of planning, organizing, and managing the operation of ship's electrical, electronic, and control systems.* *- Be capable of planning, organizing, and managing the technical maintenance and repairs of ship machinery and engineering systems.* *- Be responsible for ship and crew safety and environmental protection.* *- Be qualified to oversee ship and crew safety and environmental protection.*
Final examination upon the completion of the study programme	*The state examination includes the preparation and defense of a diploma project, including the assessment of proficiency in maritime English according to STCW and the methodology of the Maritime Administration of the Republic of Latvia.*

Study programme forms

Full time studies - 4 years, 3 months - latvian

Study type and form	*Full time studies*
Duration in full years	*4*
Duration in month	*3*
Language	*latvian*
Amount (CP)	*185*
Admission requirements (in English)	*Secondary education*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	*Professional bachelor degree in maritime transport*
Qualification to be obtained (in english)	*Marine engineer (management level)*

Places of implementation

Place name	City	Address
Latvian Maritime Academy	RĪGA	FLOTES IELA 12 K-1, KURZEMES RAJONS, RĪGA, LV-1016

Full time studies - 4 years, 3 months - english

Study type and form	*Full time studies*
Duration in full years	*4*
Duration in month	*3*
Language	*english*
Amount (CP)	*185*

Admission requirements (in English)	*Secondary education and knowledge of the English language at least at B2 level*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	*Professional bachelor degree in maritime transport*
Qualification to be obtained (in english)	*Marine engineer (management level)*

Places of implementation

Place name	City	Address
Latvian Maritime Academy	RĪGA	FLOTES IELA 12 K-1, KURZEMES RAJONS, RĪGA, LV-1016

Part time extramural studies - 5 years - latvian

Study type and form	*Part time extramural studies*
Duration in full years	*5*
Duration in month	*0*
Language	*latvian*
Amount (CP)	*185*
Admission requirements (in English)	*Secondary education*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	*Professional bachelor degree in maritime transport*
Qualification to be obtained (in english)	*Marine engineer (management level)*

Places of implementation

Place name	City	Address
Latvian Maritime Academy	RĪGA	FLOTES IELA 12 K-1, KURZEMES RAJONS, RĪGA, LV-1016

Part time extramural studies - 5 years - english

Study type and form	*Part time extramural studies*
Duration in full years	*5*
Duration in month	*0*
Language	*english*
Amount (CP)	*185*
Admission requirements (in English)	*Secondary education and knowledge of the English language at least at B2 level*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	*Professional bachelor degree in maritime transport*
Qualification to be obtained (in english)	*Marine engineer (management level)*

Places of implementation

Place name	City	Address
Latvian Maritime Academy	RĪGA	FLOTES IELA 12 K-1, KURZEMES RAJONS, RĪGA, LV-1016

3.1. Indicators Describing the Study Programme

3.1.1. Description and analysis of changes in the parameters of the study programme made since the issuance of the previous accreditation form of the study field or issuance of the study programme license, if the study programme is not included on the accreditation form of the study field, including changes planned within the evaluation procedure of the study field evaluation procedure.

Since the accreditation in 2012 and implementation in 2013, the program has fully transitioned to the content in accordance with the amendments adopted at the 2010 Manila Conference to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) of 1978.

On November 1, 2022, in accordance with the Cabinet of Ministers Order No. 492[1] of 6 July 2022, regarding the reorganization of the Latvian Maritime Academy, the program is being implemented as a structural unit of Riga Technical University. The university has assumed the rights and obligations of the academy.

According to the Higher Education Law[2], Riga Technical University is responsible for the distribution and inclusion of the study programs transferred from the Latvian Maritime Academy into the study field "Seafaring" at Riga Technical University by 30 July 2023, and submitting the application for evaluation and accreditation of this study field to ensure the training of specialists in the maritime subsector of the transport industry.

For sake to start studies secondary education is required. Successful completion of the study programme leads to the award of a Professional Bachelor's Degree in Maritime Transport, qualification as a ship mechanic. The modes of delivery are: 4,3 years full-time full-time or 5 years part-time part-time. The study programme integrates the latest teaching methods and is updated with the most relevant topics in the implementation of individual study courses. For example, the IGF code requirements, which include extended knowledge in the field of dual-fuel marine engine operation with liquefied natural gas. The recruitment of teaching staff from the industry was carried out. The courses of study have been developed in accordance with the requirements of the STCW Code A-III/2 standard and the occupational standard, taking into account the recommendations of IMO Model Course 7.04 and other relevant regulatory documents.In accordance with the STCW 1995 Manila Revision and its Section B (Guidelines) , III refers to ship engineers, while 2 refers to management level-2nd engineer officer / chief engineer officer.

In order to improve the quality of the study programme after hearing the opinions of students, graduates and stakeholders (Latvian Maritime Administration, Seafarers' Register, employers, LV regulatory enactments), the study programme has been editorially changed five times since 2012. The main changes are:

1) LJA Senate, Minutes No 150, 28.06.2013, the following changes were adopted: the study course (hereinafter - SC) "Engineering Graphics and Geometry of Images" was renamed to "Engineering Graphics" and the amount of CP was reduced from 3KP to 1KP; from the professional specialised courses of the field the SC "Law of the Sea" was transferred to the theoretical courses of the field reducing the amount of CP from 2KP to 1KP; a new SC "Ship Integrated Computer Control Systems" of 3 CP was added in the professional specialised courses of the field.

2) The following changes were adopted by the LJA Senate, Minutes No 166, 29.06.2015: the SK "Quality Management in Maritime Transport" was reduced from 2KP to 1KP; a new SK "Civil Protection" was created in the amount of 1KP.

3) The following changes were adopted at the LJA Senate, Minutes No 183, 26.06.2017: SK "Transport Economics" 2KP were divided, where 1KP for SK "Transport Economics" implementation and 1KP for SK "Transport Economics" study work

4) At the LASE Senate, Minutes No.15, 05.09.2019, changes in the programme are related to the transfer of some study courses to other semesters, which can be assessed as minor changes.

5) As part of the LASE Riga Technical University family in 2022, several SK names have been changed in the programme:

- SK "Psychology of Human Relations" was renamed to "Psychology of Human Relations in Maritime Environment";
- SK "English Language" changed its name to "Maritime English";
- SK "Transport Economics" changed title to "Maritime Economics";
- SK "Philosophy" changed to "Philosophy of Science";
- SK "Engineering Mechanics" changed its name to "Engineering Mechanics for the Marine Engineer";
- SK "Computer Training and Programming" changed its name to "Shipboard Computer Networks, Programming and Cybersecurity";
- SK Electrical Engineering changed its name to Ship Electrical Engineering and electronics;
- SK "Occupational Safety and Health" changed its name to "Occupational Safety and Health on Ships";
- SK "Maritime English" changed to "Maritime English for Marine Engineers".

1 https://likumi.lv/ta/id/333786-par-latvijas-juras-akademijas-reorganizaciju

2 Section 48.³. https://likumi.lv/ta/id/37967#p48_3 (in Latvian)

3.1.2. Analysis and assessment of the study programme compliance with the study field. Analysis of the interrelation between the code of the study programme, the degree, professional qualification/professional qualification requirements or the degree and professional qualification to be acquired, the aims, objectives, learning outcomes, and the admission requirements. Description of the duration and scope of the implementation of the study programme (including different options of the study programme implementation) and evaluation of its usefulness.

The study field[1] - Seafaring - encompasses similar programs that have specific requirements for professions in the maritime industry and the various maritime professions' connections. All programs that grant regulated maritime qualifications are included in one accreditation field. The program names reflect both the field and qualification requirements. Upon completion of the program, a professional bachelor's degree in naval engineering is awarded, which, in accordance with Cabinet Regulation No. 322[2] of June 13, 2017, "Regulations on the Classification of Education in Latvia" and code 42525, corresponds to the second level of professional higher education (fifth level of professional qualification and professional bachelor's degree) and can be pursued after

obtaining general or vocational secondary education. The duration of full-time studies is four years and three months.

The study program provides for obtaining the professional qualification of a marine engineer (management level) - (senior/second engineer[3] on ships with a main engine power of 3000 kW and above) after acquiring the relevant work experience as a watchkeeping engineer on ships with a main engine power of 750 kW and above, in accordance with Cabinet Regulation No. 895 of November 22, 2005, "Regulations on the Certification of Mariners,"updated August 8 2017, Directive 2022/993 of the European Parliament and of the Council of June 8, 2022, on the minimum level of training of seafarers and the Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW) of 1978, as well as the standards on the award of a professional bachelor's degree and level 6 of the Latvian Qualifications Framework, according to the requirements for the national standard of professional higher education.

The aim of the program is to prepare high-quality management-level specialists in the maritime sector at the international level, capable of performing the management and operation of mechanisms, engineering systems, electrical, electronic, and control systems on ships without limitations, particularly regarding the main power plant, as well as being able to perform and organize technical maintenance and repair while ensuring the safety of the ship and its crew and environmental protection. This includes developing skills related to the operation, design, installation, improvement, and innovative solutions of the ship's mechanical, engineering, electrical, and electronic equipment.

Objectives of the study program:

- Develop students' ability to understand and analyze the fundamentals of naval engineering, as well as fundamental knowledge of the construction of the ship, its engineering equipment, and systems, as well as development trends in this field.
- Provide students with the opportunity to master various engineering technologies and software to analyze and model ship equipment and systems.
- Develop the ability to research and evaluate engineering technologies used in shipbuilding and their impact on the environment and people.
- Ensure that students acquire and learn to use various tools, instruments, and technologies to perform engineering analysis and evaluations for repairs.
- Develop entrepreneurial and management skills required to work as engineers in the field of marine mechanics or lead companies in the field of marine engineering.
- Develop skills that include the ability to plan, organize, and manage projects, as well as effectively communicate with other specialists and managers.

Graduates of the study program will be able to:

- Choose and use information technologies for job performance, research, lifelong learning, as well as obtaining, creating, and sharing digital content.
- Operate ship mechanisms and engineering systems.
- Operate ship electrical, electronic, and control systems.
- Perform technical maintenance and repair of mechanisms and engineering systems on ships.
- Plan, organize, and manage the operation of mechanisms and engineering systems.
- Plan, organize, and manage the operation of ship electrical, electronic, and control systems.
- Plan, organize, and manage the technical maintenance and repair of mechanisms and engineering systems on ships.
- Ensure the safety of the ship and its crew and environmental protection.
- Manage the safety of the ship and its crew and environmental protection.

The program accepts applicants with general or vocational secondary education and also requires health conditions in accordance with Cabinet Regulation No. 273 of June 3, 2014, "Regulations on the Health of Mariners for Shipboard Work." The study program has a scope of 185 credit points/277.5, which corresponds to 4 years and 3 months of full-time studies and 5 years for not full time. The duration of implementation is in line with the Requirements for the National Standard of Professional Higher Education and meets or exceeds the requirement that the scope of a bachelor's study program should be at least 240 credit points[4]. English language proficiency is assessed according to the requirements specified in regulatory enactments.

The program includes compulsory courses in the humanities and social sciences, including courses that develop social, communication, and organizational skills - 30 credit points; theoretical courses in the field (professional field of activity) and information technology courses - 69 credit points; specialization courses in the field (professional field of activity) - 91.5 credit points; elective courses totaling at least nine credit points; internship - 57 credit points; state examination - 18 credit points.Those creditpoints are in ECTS system.

1Ministru kabineta 2018. gada 11. decembra noteikumi Nr. 793 "Studiju virzienu atvēršanas un akreditācijas noteikumi". https://likumi.lv/ta/id/303956

2Ministru kabineta 2017. gada 13. jūnija noteikumi Nr. 322 "Noteikumi par Latvijas izglītības klasifikāciju" https://likumi.lv/ta/id/291524

3Ministru kabineta 2005. gada 22. novembra noteikumi Nr. 895 "Jūrnieku sertificēšanas noteikumi", 55. punkts. https://likumi.lv/ta/id/123870#p55

4Augstskolu likums, 1. pants. https://likumi.lv/ta/id/37967#p1

3.1.3. Economic and/ or social substantiation of the study programme, analysis of graduates' employment.

Currently, there are approximately 1.89 million seafarers worldwide serving the merchant fleet with over 74,000 ships. According to the Baltic and International Maritime Council (BIMCO) and the International Chamber of Shipping (ICS) in their 2021 "Seafarer Workforce Report," there is a current shortage of 26,240 STCW-certified officers, and an additional 89,510 officers will be needed by 2026 to meet the demand for the world's merchant fleet.

As of January 1, 2023, there were 10,830 active registered sailors in the Maritime Register of Latvia, of which 935 were certified for work on fishing and inland waterway vessels, while 9,895 sailors were certified for work on merchant vessels.
"https://www.lja.lv/news/latvija-registreti-10-830-aktivo-jurnieku" latvian.
Approximately 55% of sailors hold positions as ship officers.[1] According to the Economic Ministry's labor market forecasts, maritime industry employees are among the highest-paid jobs in Latvia.[2]

Among employed Latvian sailors, 98% work on foreign-flagged vessels, with 39% on European Union-flagged vessels and 59% on vessels of third countries. Latvian-flagged vessel sailors primarily work on Intra-EU cargo ships, port auxiliary fleets, or fishing vessels.

A majority of seafarers (65-70%) employed in international shipping in 2022 found work through one of the 54 Latvian-registered and licensed crewing companies.

An assessment conducted by the Maritime Register in the 3rd quarter of 2022 surveyed Latvian

sailors employed by crewing companies[3] to obtain additional information about their employment and the demand for Latvian sailors' services. Responses were received from 32 companies, collectively employing 85% of Latvian sailors. In total, there were over 1000 vacant positions in 2022, as the supply of sailors in Latvia is insufficient. The shortage of ship engineer officers (second/senior engineer) ranged from 125 to 175, operational-level ship engineer vacancies were between 110-150, and electro-mechanical engineer vacancies were between 110-140, while other vacancies in the engineering team ranged from 190 to 250.

The Economic Ministry predicts that the unemployment rate in Latvia will reach 5-6% by 2030, compared to the current rate of 7%. One of the reasons is the emigration of working-age population. The highest risks of unemployment are expected among people with low levels of education and without professional skills/professional qualifications. Highly qualified workers with higher education will be given preference. The qualification of ship mechanics is relatively broad, and graduates are provided with well-paid jobs onshore.[4][5] According to statistics from 2019, the unemployment rate for graduates of maritime programs from the Maritime Administration of Latvia is 1.98%, and the employment rate is 94.06%.[6]

According to data from the Maritime Register of Latvia, in 2022, a total of 58 individuals graduated from higher maritime education programs in ship engineering (first-level professional higher education, second-level professional higher education, or bachelor's programs). Among them, 12 graduated from bachelor's degree programs, which has been a stable figure in recent years, despite low demographic indicators.

The study program "Maritime Transport - Marine Engineering" is the only bachelor's program in Latvia that awards a professional bachelor's degree in maritime transport and the professional qualification of a ship engineer, corresponding to the 5th level of professional qualification / 6th level of the European Qualifications Framework (EQF). Other Latvian educational institutions offering maritime engineering education only provide short-cycle programs.

1Nerevidētais pārskats 2022.pdf (lja.lv)

2Darba tirgus prognozes - NVA

3https://www.lja.lv/sites/default/files/page_attachments/Jurnieks_2023-02.pdf

4https://www.em.gov.lv/lv/jaunums/em-arvien-radisies-jaunas-darbavietas-augstakas-kvalifikacijas-profesijas-bet-truks-specialistu-ar-profesionalo-izglitibu

5https://www.bimco.org/about-us-and-our-members/publications/seafarer-workforce-report

6https://sap-pub.viis.gov.lv:8443/BOE/OpenDocument/2210131529/OpenDocument/opendoc/openDocument.faces?logonSuccessful=true&shareId=1

7https://www.lja.lv/news/jurniecibas-izglitibas-programmu-absolventu-skaits-2022-gada

3.1.4. Statistical data on the students of the respective study programme, the dynamics of the number of the students, and the factors affecting the changes to the number of the students. The analysis shall be broken down into different study forms, types, and languages.

Statistics on students during the reporting period are available in the appendix[1].
Detailed statistics on students during the reporting period are available in the spreadsheets below.

During the reporting period, the program was implemented in the Latvian language.

Admission results by study types and forms:

	2012./2013.	2013./2014.	2014./2015.	2015./2016.	2016./2017.	2017./2018.	2018./2019.	2019./2020.	2020./2021.	2021./2022.
Full-time on-site study program	44	49	32	25	32	27	29	29	29	24
Part-time distance learning	12	13	14	7	18	9	6	2	7	9
TOTAL	56	62	46	32	50	36	35	31	36	33

Since the 2013/2014 academic year, the number of enrolled students has gradually decreased and remained stable, which is related to the demographic situation in Latvia.

According to official statistics from 2012 to 2021, the population of Latvia aged 20 to 24, which is the approximate age for entering higher education institutions, has continuously declined. In 2012, there were 149,364 individuals in this age group, whereas in 2021, there were only 83,094. Consequently, the number of students who could potentially enroll in higher education institutions like LJA was not very high. However, it is predicted that the potential student population will start increasing from 2025.

A small number of enrollments at LJA may also be attributed to other factors. Namely, the location of RTU LJA in Daugavgrīva, far from the city center, is less appealing to potential students. The journey from the city outskirts to the academy takes at least an hour, regardless of the mode of transportation. Graduates of RTU LJA and LJK Maritime Schools do not receive exemptions when enrolling in RTU LJA bachelor's programs. Instead, they choose the college (short-cycle) programs offered by LJK and NJK, where they can obtain the first officer's diploma (without restrictions) in a shorter period (within two years).

Admission results by study types and forms:

	2012./2013.	2013./2014.	2014./2015.	2015./2016.	2016./2017.	2017./2018.	2018./2019.	2019./2020.	2020./2021.	2021./2022.
Full-time on-site study program	10	22	21	24	20	21	17	10	12	9
Part-time distance learning	-	2	2	4	1	1	6	3	-	3
TOTAL	10	24	23	28	21	22	23	13	12	12

According to statistical data, the number of program graduates, across study modes and forms, has been gradually decreasing since the 2018/2019 academic year. During the 2021/2022 academic year, the number of part-time and online program graduates decreased by 50%, and the number of full-time on-campus program graduates decreased by 52%.

The decrease in the number of graduates can be attributed to the reduced intake of students since the 2019/2020 academic year and significant drop-out rates. The reasons for drop-outs were analyzed in section 3.2.3 of this document.

Total students:

	2012./2013.	2013./2014.	2014./2015.	2015./2016.	2016./2017.	2017./2018.	2018./2019.	2019./2020.	2020./2021.	2021./2022.
Full-time on-site study program	149	146	128	110	95	82	78	79	78	70
Part-time distance learning	40	40	46	47	41	45	43	35	38	35
TOTAL	189	186	174	157	136	127	121	114	116	105

The total number of students is also gradually decreasing, mainly due to the decline in full-time on-campus students. The number of online students remains relatively stable.

1https://rtucloud1.sharepoint.com/:x:/s/2023Akreditcija_O365G/EaI6NRATyTVOiuFXDP_HPSoBkVxGAU85ZI0yX4WhrcEi8g?e=XwRZhe

2https://data.stat.gov.lv/pxweb/lv/OSP_PUB/START__POP__IR__IRE/IRE040/

3.1.5. Substantiation of the development of the joint study programme and description and evaluation of the choice of partner universities, including information on the development and implementation of the joint study programme (if applicable).

3.2. The Content of Studies and Implementation Thereof

3.2.1. Analysis of the content of the study programme. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators with the aims of the study course/ module and the aims and intended outcomes of the study programme. Assessment of the relevance of the content of the study courses/ modules and compliance with the needs of the relevant industry, labour market and with the trends in science on how and whether the content of the study courses/ modules is updated in line with the development trends of the relevant industry, labour market, and science.

The content of the study program is designed to meet the requirements of a professional bachelor's degree and Level 6 of the European Qualifications Framework (EQF), as well as the Maritime Certification Regulations, European Parliament and Council Directive 2022/993, STCW, and the standards for the profession of Chief Engineer Officer And Second Engineer Officer and Officer In Charge Of An Engineering Watch, based on the IMO[1] Model Course recommendations.
The professional courses in the field ensure the implementation of four core functions of a ship's engineer:

- Operation and management of mechanisms and engineering systems on board ships.
- Operation of electrical, electronic, and control systems.
- Technical maintenance and repair of mechanisms and engineering systems.

- Ensuring safety of the ship and crew and environmental protection on board.

To strengthen theoretical knowledge, the program includes practical training with a total of 57 credit points[2], which consists of workshop practice, training on the engine room simulator, ship repair practice, and sea practice. The sea practice should last at least 12 months, including practice in approved mechanical and electrical workshops, and at least six months in the engine team on board a ship.
The mandatory courses in humanities and social sciences, developing social, communicative, and organizational skills, account for 30 credit points. Basic courses in the field and information technology courses make up 69 credit points, while specialization courses in the field make up 91.5 credit points. Elective courses should be taken for a minimum of nine credit points. The state examination includes the preparation and defense of a diploma project, a maritime English language examination, and a qualification examination in the specialty, totaling 18 credit points.
Due to the increasing use of information technology and cyber security risks in the maritime sector, the course "Information Technology" has been transformed and renamed "Ship Computer Networks and Cybersecurity."
The study works are organized in such a way as to help students develop their diploma project work, such as "Marine Engineering for Ship Engineers - study work," "Ship Diesel Engines, Turbines - study work," and "Ship Auxiliary Mechanisms and Systems - study work."
The program's structure and all formal conditions comply with national regulations, RTU LMA's quality management system, and the requirements set by RTU Senate. To bring the program content closer to the demands of the labor market, representatives from the maritime industry, mainly senior ship engineers and/or top executives from maritime sector companies, participate in the defense commissions of final works. Students choose their diploma project topics, considering the knowledge gained in practice and suggestions from industry specialists or RTU LMA faculty on relevant research topics in the sector. To develop study projects and final works, students collaborate with employers. By summarizing the feedback, the commission positively evaluates students' performance in the research and defense of the final work. Taking into account the possibilities of digitalization, the methodology for work development, defense, and evaluation is being improved.

1IMO-International Maritime Organisation – Starptautiska jūrniecības oganizācija

2Higher education law, section 1. https://likumi.lv/ta/id/37967#p1

3.2.2. In the case of master’s and doctoral study programmes, specify and provide the justification as to whether the degrees are awarded in view of the developments and findings in the field of science or artistic creation. In the case of a doctoral study programme, provide a description of the main research roadmaps and the impact of the study programme on research and other education levels (if applicable).

3.2.3. Assessment of the study programme including the study course/ module implementation methods by indicating what the methods are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study programme. In the case of a joint study programme, or in case the study programme is implemented in a foreign language or in the form of distance learning, describe in detail the methods used to deliver such a study programme. Provide an explanation of how the student-centred principles are taken into account in the implementation of the study process.

The recommended methods, equipment, and expected outcomes are detailed in the IMO Model Course recommendations (*IMO Model Course 7.02. Chief Engineer Officer and Second Engineer Officer and IMO Model Course 7.04. Officer in Charge of an Engineering Watch*). To strengthen professional skills, a 12-month internship is carried out during the study program, which is documented in a practice book with specified criteria for each task.

Simulators, specialized computer programs, laboratories, workshops, stands, equipment, and the Moodle platform for course e-learning environment (starting from 2023, RTU ORTUS, previously OMARS) are used in the study processes

Various teaching methods and forms are employed, chosen based on the specificities of each course, including lectures, seminars, group work, discussions, etc. General topics and theory are delivered through lectures, and the materials are available to students electronically on the ORTUS e-learning platform. Practical work is organized in the form of laboratory work using specialized equipment or as practical assignments where students are required to apply the knowledge and skills acquired from multiple courses. The available resources for students are regularly updated and methodically improved, and several books and teaching aids have been prepared for publication. Additionally, the teaching laboratory equipment is regularly modernized and improved. The latest technologies, such as modeling software, microcontroller kits, unified digital and analog control boards, and other technological tools, are used in the teaching process (lectures, practical classes, and laboratory work). Some of the technological equipment and software are self-developed, while others are procured.

The projects and assignments in the study program are carried out as project work, involving project tasks, evaluation, and defense.
The course descriptions are available on the RTU website and in the register of study programs. The descriptions are structured in a format that includes Bloom's taxonomy principles, providing not only an annotation and a brief description but also information about the course's objectives and tasks expressed in competencies and skills, the achievable learning outcomes, their assessment, and the prerequisites. The assessment of student achievements utilizes a summative assessment system, where the final grade is composed of multiple components. The evaluation of study results at RTU is carried out in accordance with the Study Results Assessment Regulations (https://www.rtu.lv/writable/public_files/RTU_1_studiju_rezultatu_vertesanas_nolikums.pdf) and the Regulations on Final Examinations at Riga Technical University (https://www.rtu.lv/writable/public_files/RTU_par_nolikuma_par_studiju_nosleguma_parbaudijumiem_rtu_apstiprinasanu_jauna_redakcija.pdf) The main advantage of the summative assessment system is that the final grade is based on multiple components, allowing students to influence their final grade during the semester. The assessment criteria for study courses and individual/home assignments are published in advance on the ORTUS portal. The evaluation of homework, quizzes, essays, presentations, and other assignments during the semester contributes to a specific proportion of the final evaluation. Attendance in classes may also be considered and evaluated. The assessment structure for each study course is determined by the teaching staff, adhering to the decision of the RTU Senate that the grade for the examination must not exceed 50% of the final evaluation. When selecting the criteria and methods for assessing study achievements, the specificity of each study program and the attainable results are taken into consideration. RTU has established and operates the Center for Academic Excellence, which organizes professional development events for academic staff at the university level.
The study program concludes with a State Examination evaluated by the State Examination Commission[1], which includes representatives from maritime industry professional organizations or employers.
Students can receive consultations and assistance from lecturers and program directors in person,

as well as through online platforms and by phone.
When evaluating student performance and achievements, some issues have been identified regarding the compulsory courses in humanities and social sciences, as well as the overall volume of general and theoretical knowledge in the first year of study. These issues are related to the low level of preparedness in secondary schools and students' desire to see the connection between the curriculum and the maritime field.
In the pursuit of institutional accreditation, the process of program transformation continues to create a sense among students that they have enrolled in the Riga Technical University's Latvian Maritime Academy to obtain a professional bachelor's degree in Marine Engineering and to prepare them for a significant volume of theoretical knowledge required for their specialization.
In the first year, fundamental courses related to maritime and transportation as well as language and humanities courses are taught.
The study program also includes a curriculum for the second- and third-year courses, which are focused on professional specialization in the industry. During the final semester of the study program, students are required to complete an internship, develop, and defend a diploma project (bachelor's thesis). All study courses are interconnected, providing a gradual learning process, and allowing students to acquire theoretical and practical knowledge
After the completion of the first and second year, students are ready to consolidate previously acquired knowledge, facts, examples, and tasks.
The third year of study is oriented towards mastering mandatory professional specialization courses in the field and maritime practice, where theoretical knowledge is reinforced. Upon returning from the practice, students continue to take professional focus courses.
In the final year, students develop and defend their diploma projects, as well as take qualification and maritime English language examinations.
All study courses are interconnected. Thus, the study program ensures a gradual learning process and allows acquiring theoretical and practical knowledge, developing the necessary competencies and skills applicable to the contemporary job market.
The academic staff regularly attend courses and seminars on the latest teaching and pedagogical methods. They are encouraged to participate in qualification improvement courses both at the university and internationally. RTU Academic Excellence Center organizes faculty development events at the university level.
Assessment of achieved results in study courses is done through exams or passing assignments. The knowledge is evaluated on a 10-point scale. Positive knowledge is graded from 4 to 10. If a student receives grades from 1 to 3, a re-examination is organized. If the re-examination does not yield a positive result, the student's knowledge is assessed by a commission formed by the department. Passing assignments are graded without marks. Typically, humanitarian and social cycle study courses, as well as elective courses, are assessed by passing.The exam questions are prepared by the faculty members who have taught the respective study course based on an approved program.
Information about all passed assignments, study works, and exams is recorded in individual study plans (grade transcripts).
The development of study projects involves close cooperation with faculty members, supervisors, and professionals in the maritime field. They not only consult students during the course and bachelor's/diploma project development but also participate in organizing and implementing internships, carrying out study projects, and engaging in scientific projects.
Diploma project defense takes place orally, including presentation of the work's content, answering questions from the commission members, feedback from the supervisor, and the reviewer's evaluation. The commission evaluating diploma projects/bachelor's works includes a chairman, secretary, and at least three members. The chairman of the qualification commission is selected from leading specialists in the relevant field of maritime transport, and half of the commission

members are highly qualified ship engineers and electromechanics. The commission members are informed and proficient in assessment methods, and they receive support to improve their evaluation skills. RTU requires that assessment criteria and methods, as well as grading criteria, are published in advance in the ORTUS e-study environment.
The study program is also designed for implementation in English. In accordance with RTU guidelines, course content, requirements, and assessment methods are identical to the Latvian-language version of the program. Since English-speaking students also require literature in English, preferably in digital form, faculty members include mandatory literature in English in the course description. Each program's study course involves a faculty member with at least a B2 level of English language proficiency, certified by the appropriate certificate.
The study process adheres to many principles of student-centered learning (SCL). The diversity of the student body and their needs is taken into account and respected. Considering that many students choose the study program with insufficient secondary school level knowledge, an additional study course "Elementary Mathematics" is provided, which students study based on test results. As the teaching methods used in each study course are selected by responsible lecturers and are not centrally prescribed, a sufficient variety of pedagogical approaches is possible.
Student's independence and initiative are encouraged while ensuring faculty guidance and support. A mutual respect between students and faculty is promoted, even when it may seem exaggerated to older generation lecturers.
There are appropriate procedures for handling student complaints.
A procedure for student appeals is in place, although appeals have not occurred due to the small number of employer interests in students' study evaluations. In many cases, students are not interested in receiving higher grades, but those who seek better grades are informed about the assessment system at the beginning of the semester.

1Cabinet of Ministers Regulation No. 305 of June 13, 2023, "Regulations on State Standards for Professional Higher Education". https://www.vestnesis.lv/op/2023/118.16

3.2.4. If the study programme envisages an internship, describe the internship opportunities offered to students, provision and work organization, including whether the higher education institution/ college helps students to find an internship place. If the study programme is implemented in a foreign language, provide information on how internship opportunities are provided in a foreign language, including for foreign students. To provide analysis and evaluation of the connection of the tasks set for students during the internship included in the study programme with the learning outcomes of the study programme (if applicable).

Students are provided with a 57-credit practical training, which includes workshop practice, training on the engine room simulator, ship repair practice, and sea practice. In accordance with Cabinet of Ministers Regulation No. 895 of November 22, 2005, "Seafarer Certification Regulations,"[1] June 8, 2022, European Parliament and Council Directive 2022/993 on the minimum level of seafarer training and 1978 International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) with amendments, candidates for the qualification "Watchkeeping Engineer on Ships with Main Engine Power of 750 kW and Above"[2] must have at least 12 months of comprehensive practice in approved mechanical and electrical workshops or equivalent practice or work at a place that provides practical skills relevant to the assigned qualification according to the practice program specified in the education program (hereinafter

referred to as workshops), and on ships at sea that are part of an accredited and Ministry of Transport-certified professional education program. The execution of practical assignments is documented in the practice book and includes at least six months of service in the engine room of ships with main engine power of 750 kW and above, performing watchkeeping duties under the supervision of a watchkeeping engineer or senior engineer. Upon returning from the practice, the student's performance of practical assignments in the practice book is evaluated and approved by RTU LMA, which is then submitted to the VSIA "Latvian Maritime Administration" for obtaining the competence certificate. The practical content of the program[3] fully complies with the requirements of the program and professional standards since it is based on IMO-approved model courses.

Before going to sea, students acquire technical skills by performing tasks in RTU LMA workshops. Before going to sea, students complete the "Basic Safety Course" and obtain the Seafarer's Record Book. Considering the specifics, students go to sea in the spring semester with a reserve for returning in September. The selection of student practice places begins already at the end of the autumn semester because going on a ship is unpredictable - boarding a ship may take place a month after signing the tripartite practice agreement due to unsuitable ports or other circumstances (COVID-19 in recent years). Students are given the opportunity to achieve the minimum service requirement of six months at the expense of the summer. The practice regulations provide for the option that the student may fulfill 75% of the requirements for the sea service for program completion.

Demand for ship mechanics specialists is high and taking into account the good reputation of Latvian seafarers, students are provided with practice places on the best ships and in the best conditions, and there is regularly more demand from companies for interns than can be fulfilled. The largest providers of internship places in Latvia are SIA "LSC" (https://lscgroup.lv/), SIA “LAPA”, SIA “Well”. At the initiative of students and in coordination with RTU LMA management, students have the opportunity to find their own internship place through LinkedIn or through contacts of shipping companies on their websites. Before the internship, a representative of the vocational education institution, a representative of the internship place, and the intern conclude a tripartite agreement on internship in accordance with Cabinet of Ministers Regulation No. 785 of November 20, 2012, "Organization of Study Internship and Insurance of Students"[4].

The internship place is assisted by the internship planner or the management of the Maritime Engineering Center. If additional assistance is needed, students can turn to the Career Support and Services Department, where a career consultant helps students in finding and contacting internship places and also promotes the development of career management skills through various events, which can ensure successful results in the internship process. Once a year, the Career Support and Services Department organizes the RTU Career Day, where students have the opportunity to meet company representatives in person or remotely and discuss future opportunities. More about the event and previous participants:
https://www.rtu.lv/lv/studentuserviss/karjeras-centrs-ssc/karjeras-diena. In 2021, due to the pandemic, the event took place in a virtual environment.

An additional resource offered since 2015 is a website where companies are invited to post vacancies that are relevant to RTU students (https://ekarjera.rtu.lv/). Students have the opportunity to log in with their university username and follow the current internship and later job opportunities in their field.

Additional support in promoting practical skills is provided by the RTU Development Fund (https://www.rtu.lv/lv/attistibasfonds). Over the course of a year, hundreds of practical skill enhancement competitions are offered, which are organized in cooperation with companies, and where students have the opportunity to acquire practical skills.

Every year, the university signs cooperation agreements with companies and organizations (the contract template can be viewed in the annex to the list of internal normative acts), where they agree to provide internship places for students.

The regulations/guidelines for organizing internships are attached in the annex.

1https://likumi.lv/ta/id/123870

2Cabinet of Ministers Regulation No. 895 of November 22, 2005, "Regulations on Certification of Seafarers" https://likumi.lv/ta/id/123870#p55

3Kuga_mehaanika_juuras_prakses_graamata.pdf (lja.lv)

4Cabinet of Ministers Regulations No. 785 of November 20, 2012, "Procedures for Organizing Internships and Insurance of Learners ". https://likumi.lv/ta/id/252862

https://likumi.lv/ta/id/344976-prakses-organizesanaskartiba-profesionalas-izglitibas-programmas
Cabinet of Ministers Regulations No. 481 of 29 August 2023 are in force.

3.2.5. Evaluation and description of the promotion opportunities and the promotion process provided to the students of the doctoral study programme (if applicable).

3.2.6. Analysis and assessment of the topics of the final theses of the students, their relevance in the respective field, including the labour market, and the marks of the final theses.

The topics for the final thesis are selected based on the industry's current trends and the latest and most significant developments in the field of ship/maritime engineering. These may include aspects such as peculiarities and utilization of dual-fuel power plants, the use of alternative energy sources in maritime transport, the latest methods of technical maintenance, diagnostics, and repair. Often, the topics are chosen in collaboration with industry partners, and the work is developed under their guidance. Many of the best bachelor's theses of the program are produced in cooperation with technical management companies, industry firms, and organizations where the student has completed an internship or worked. The evaluations of these theses are of a high standard.

Among the topics of student work that reflect innovation in maritime transport are the following:

"Maritime transport – Marine engineering" 5M336.01 group

No	Student	Identification No.	Diploma project thesis	Thesis supervisor	Thesis supervisor p.c.
1	Didurs Andrejs	19MB006	Calculation of a Liquefied Natural Gas (LNG) Tanker's Power Plant and Comparison of Maintenance Effectiveness of High-Pressure and Low-Pressure Gas Admission Systems of Dual-Fuel Two Stroke Engine	Rauls Klaucāns	

2	Dušs Kristaps	19MB007	Calculation of a Double Hull Tanker’s Power Plant and Technical Solutions for the Diagnosis of Coating Nano-Damages	Jānis Brūnavs	
3	Frišenfelds Kristers	19MB008	Calculation of a Double Hull Tanker’s Power Plant and Methanol as an Alternative Fuel for Ships - Integral Ecological Impact Analysis Comparasion.	Jānis Brūnavs	
4	Kulakovs Staņislavs	19MB012	Calculation of a Double Hull Tanker’s Power Plant and Ammonia, as an Alternative Fuel for Ships, Diesel Oil and Heavy Fuel Oil Economic Factor Comparison	Rauls Klaucāns	
5	Ķuneļs Aleksandrs	19MB013	Calculation of a Double Hull Tanker’s Power Plant and Comparison of IG and PSA Nitrogen Generators	Jānis Brūnavs	
6	Malkovs Artjoms	19MB016	Calculation of a Liquefied Natural Gas (LNG) Tanker's Power Plant and Nitrogen Use in Natural Gas Liquefaction - a Study of the Process and Emissions Produced	Aleksandrs Skrebecs	
7	Melgailis Ēriks	19MB017	Calculation of a Liquefied Natural Gas (LNG) Tanker's Power Plant and Integral Impact on Global Warming Caused by Use of LNG on Ships	Aleksandrs Skrebecs	
8	Revuckis Aleksandrs	19MB022	Calculation of a Double Hull Tanker’s Power Plant and Study and Comparison of Hydrogen Types, as an Alternative Fuel. Use of Hydrogen in the Maritime Industry	Jānis Brūnavs	
9	Ruža Oļegs	18MB015	Calculation of a Bulker's Power Plant and Batteries as a Source of Alternative Energy for the Ship - Analysis of the Possibility	Jānis Brūnavs	
10	Savko Arnis	19MB024	Calculation of a Double Hull Tanker’s Power Plant and UV Applications for Curing Polymer Coatings on Ship Cargo Tanks and Hulls	Rauls Klaucāns	
11	Vasiļjevs Marks	19MB027	Calculation of a Double Hull Tanker’s Power Plant and Comparison of Chlorine and UV BWTS	Rauls Klaucāns	

3.3. Resources and Provision of the Study Programme

3.3.1. Assessment of the compliance of the resources and provision (study provision, scientific support (if applicable), informative provision (including libraries), material and technical provision, and financial provision) with the conditions for the implementation of the study programme and the learning outcomes to be achieved by providing the respective examples.

To ensure the Ship Engineer BS programm study process and meet the requirements of professional standards, the technical infrastructure of the materials is based on the IMO Model Course 7.02 "Chief Engineer Officer and Second Engineer Officer" and IMO Model Course 7.04 "Officer In Charge Of An Engineering Watch," as well as recommendations and guidelines from the Latvian Maritime Administration.

For the achievement of practical competence results according to the STCW Code standards A-III/1 and A-III/2 in the function "Operation and Management of Machinery and Engineering Systems," UNITEST Engine Room Simulator Package (Poland))[1] is mainly used. RTU LMA has been using these training tools for over 20 years and regularly updates them. Currently, more than 80 licenses are available, including engine room simulators ((*Medium speed Engine Room Simulator MED3D, Medium speed Engine Room Simulator MER3D/MEC3D, Low Speed Engine Room Simulator LER3D, Gas Turbine Simulator, Low Speed Engine Room Simulator W-Xpert (FPP/CPP ver.) - Electronic Control ME, Medium Speed Engine Room Simulator PSV3D, High Voltage Diesel Electric Engine Room Simulator HV-DE3D; LNG Diesel Electric Engine Room Simulator LNG-DE3D, Low Speed Engine Room Simulator RT-flex50DF, Medium Speed Engine Room Simulator Reefer Version Reefer3D, Low Speed Engine Room Simulator X92)*, as well as computer-based training software available to students and academy staff 24/7. Two computer classrooms are also used for training purposes. Students also have access to the Ship Dual-Fuel Engine and Liquefied Cargo Simulator Laboratory, established in 2022.

For the achievement of practical competence results according to the STCW Code standards A-III/1 and A-III/2 in the function "Operation and Management of Electrical, Electronic, and Control Systems," several specialized laboratories have been established in the premises of the Maritime Engineering Center at Flotes Street 12.

The Electromechanical Workshop allows for the repair and diagnostics of distribution cabinets, electric motors, generators, and power electronics using soldering and assembly equipment, as well as electrical measurement instruments, including multimeters, meggars, and oscilloscopes.

The Ship Control Systems Laboratory is equipped with modern pneumatic and hydraulic stands, programmable logic controllers, analog control system training stands, and ship propeller simulation equipment. These facilities allow students to acquire theoretical knowledge and practically verify it.

The Electronics and Electrical Engineering Laboratory is fully equipped with all the necessary measurement and diagnostic instruments, as well as soldering equipment and magnifying glasses. This laboratory provides students with the opportunity to learn the basics of electrical engineering and electronics using training kits from Lukas Nulle and K&H, as well as ARDUINO, ESP32, and PIC training platforms.

The Electric Machines Laboratory is equipped for students to gain practical experience in electromechanical converters and their operating principles.

The High Voltage Equipment Laboratory is fully equipped with high voltage switching devices and all necessary safety equipment. This laboratory provides students with the opportunity to learn safety measures while working with high voltage switching devices, offering them the necessary theoretical and practical training.

For the achievement of practical competence results according to the STCW Code standards A-III/1 and A-III/2 in the function "Technical Maintenance, Repair, and Management of Mechanisms and Engineering Systems," the workshops of RTU LMA Maritime Engineering Center at Flotes Street 12,

occupying an area of 585 square meters, are used. These workshops also serve for student research work and scientific research.

The workshops provide an environment and conditions for dismantling, defect identification, repair, and assembly of mechanisms. They are equipped with a 3-ton gantry crane, 3-phase and 1-phase power connections for connecting powerful electrical equipment, milling machines, various hand tools, a hydraulic press, and a welding workshop.

The workshops also have plasma cutting and arc welding equipment (MMA, MIG/MAG, and TIG), which helps students develop welding skills.

In addition to the workshops, there is a 600-square-meter warehouse where equipment and dismantled mechanisms are stored, spare parts are manufactured, and equipment for part restoration, including sandblasting and cleaning devices, is available.

Non-destructive testing equipment is also accessible.

The RTU LMA lifeboat and diesel engine stand (high speed 4 stroke-740 engine) serve as objects for developing students' repair skills.

For the achievement of practical competence results according to the STCW Code standards A-III/1 and A-III/2 in the function "Safety of the Ship and Personnel and Environmental Protection on Ships and their Management," the infrastructure and equipment of the RTU LMA Training Center are used, in accordance with the requirements of the Latvian Maritime Administration and the Maritime Register of Latvia.

According to the Cabinet of Ministers' Order No. 492 "On the Reorganization of the Latvian Maritime Academy" dated July 6, 2022, as of November 1, 2022, the Latvian Maritime Academy became a structural unit of Riga Technical University (RTU).

The infrastructure and laboratory resource of RTU detailed description is highlighted in homepage file “Scientific equipment and laboratory data base”

For effective management of space resources and curriculum planning, the digitization of lesson rooms and schedules has been implemented (https://telpas.rtu.lv; https://nodarbibas.rtu.lv/). Every RTU student and instructor can view their lesson schedule, which includes the location, time, instructor, room, lesson name, and type of lesson for each class. In addition to user convenience, the system significantly facilitates lesson planning and schedule creation, as well as optimizes room occupancy and usage efficiency.

The implementation of the program also had access to RTU's equipment and resources, which are mainly concentrated in the RTU "Ķīpsala Campus," currently housing 54 lecture rooms, 187 laboratories, 19 specialized training rooms, 10 computer labs, 12 workshops, and several nationally recognized research centers. The student campus also includes a student service hotel with 950 beds and a special block for individuals with specific needs to ensure favorable and comfortable living conditions.

RTU EVIF IEEI offers the following laboratories:

- Power Electronics Teaching Laboratory;
- Electric Drives Teaching and Research Laboratory;
- Manufacturing Process Automation Teaching and Research Laboratory;
- Computer Control Teaching and Research Laboratory;
- Microelectronics and Sensors Teaching and Research Laboratory;

- Energy Efficiency Teaching and Research Laboratory;
- Electronic Equipment Teaching Laboratory;
- Electrical Engineering Fundamentals Teaching Laboratory;
- Electrical Engineering and Electronics Teaching Laboratory;
- Power Semiconductor Converters Teaching and Research Laboratory;
- Industrial DC Power Supply Systems Laboratory (AREUS Demo Lab);
- Student Creative Laboratory.

These laboratories have completely new infrastructure, including furniture, network power distribution, tables, projectors, and other necessary equipment. In addition, the following teaching materials and technical equipment have been procured: oscilloscopes (Rigol DS1052D, 10 units), oscilloscopes (Rigol DS4012, 2 units), current measurement probes (Rigol RP1001C, 7 units), differential probes (Rigol RP1025D, 2 units), multimeters (U1233A, 16 units), solar energy meter (SOLAR-100), power analyzers (CIR-E3, 14 units), power supplies (EX752M - PSU, 8 units), power supplies (QL355TP - PSU, PROG, TRIPLE, 35V, 5A, 5V, 1A, 2 units), power supplies (TTI-CPX400S - PSU, 2 units), power supplies (EA-PS 2042-20B - PSU), autotransformer (Velleman SR-1000), cordless drill/driver (Festool), portable optical parameter meter (Konica Minolta LS-110). New stands have also been created for student practical work, including a microelectronics stand and a "lift drive" stand for learning about drive systems.

Within the framework of the FP7 project AREUS, a unique laboratory has been established - a 600 V DC power supply system. It includes an industrial 21 kW KUKA Quantec Prime robot, a 55 kW active rectifier, two drive stands capable of emulating any robot's power consumption, supercapacitor and lithium-ion energy storage systems, and other equipment. IEEI also has a compact solar energy storage system with lithium-ion batteries and a charge level management system. There are also local interconnected autonomous power supply systems with a 3.6 kW wind generator and 6.6 kW solar panels, as well as inverters for grid connection or energy storage using lithium-ion batteries. Additionally, specially programmed DC power supplies that can simulate solar panels or hydrogen systems with powers of 2 · 15 kW, 2 · 5 kW, 2 · 3 kW, a Ballard Nexa 2 • 1.2 kW fuel cell research kit, and an 8 kW fuel cell system have been procured.

For industrial process research, there is the FESTO mini factory MPS and FMS complex, compact water level control workstation FESTO Compact-Workstation, and the EMCO Concept Turn 105 / EMCO Concept Mill 105 equipment set.

Signal measurements can be performed using the YOKOGAWA DLM6054-F-HE-L16/P4 digital oscilloscope, oscilloscopes (Rigol DS1052D - 10 units; Rigol DS4012 - 2 units), digital oscilloscopes from TEXTRONIX, Fluke, Rigol, etc. In 2017, a fine BNC-type oscilloscope current probe, Ultra Mini CWT015, was purchased, which can measure the current flowing through transistor legs.

For lighting parameter measurements, there is an Avantes spectrometer, a solar energy meter (SOLAR-100), a portable optical parameter meter (Konica Minolta LS-110), and a Raynger ST60 ProPlus infrared temperature meter.

Industrial KUKA Agilus with KRC4 controller, virtual programming software KUKA SIM, Mitsubishi robot, and Festo Robotino mobile platforms are used for robotic system training.

Electrical power analyzers (CIR-E3 - 14 units), N4L PPA5530-3 Phase power analyzer set (5 units), AR5 and AR5L network analyzers, Fluke network analyzers, and other devices are used for determining energy efficiency parameters.

Various converters are developed using adjustable AC and DC power sources, as well as other sources such as a diesel generator SDMO DX 6000TE, solar panels, wind generators, hydrogen fuel cells, power supplies (EX752M - PSU, 8 units), a laboratory power supply unit (EA-PSI 9360-120 3U),

electronic load (EA-ELR 9150-30 3U) and electronic load for DC (Electro Automatic EA-EL3400-2), a laboratory power supply unit (EA-PS 8032-10 T).

Electrical engineering control system development platform dSPACE, modeling software Matlab/Simulink R14, simulation software PSIM Professional 8.0, Synopsys Analog Simulation and Modeling Synopsys Advanced TCAD individual license, OrCAD PCB Design University Edition license, software PSIM-JMAG, etc.

RTU EVIF IEEI utilizes the following equipment for extensive PCB prototyping: LPKF ProtoMat S64 PCB prototyping machine, LPKF ContacRS PCB metallization equipment, HAWK 3D axis microscope, automatic multilayer PCB press (for 4-8 layer prototypes) LPKF Multi Press, and the Jovil Manufacturing SMC-2 electric coil (inductor) tinning stand with additional equipment.

In 2017, with the financial support of AS Latvenergo, equipment was added to the Latvenergo Student Creative Laboratory. This included the acquisition of a programmable 6 kW three-phase AC power supply unit, Elektro-Automatik EA In 2017, a scientific research equipment for smart grids, industrial robotics, human and environmental interaction was purchased. It consists of a physical motion simulator system (based on an industrial robot manipulator with a lifting capacity starting from 500 kg), a robot manipulator suspension cabin (with integrated projection equipment and control devices that connect to the system simulation computer using data exchange protocols such as CAN, Ethercat, etc.), and a physical power grid emulator with an integrated HIL (Hardware-in-the-Loop) system and electrical measurement equipment (system power of 200 kW, at least 6 freely programmable channels for power flow control in both source and load modes, with integrated software support for simulating power grids, energy storage systems, drives, and solar panels).

AERTI of the Faculty of Mechanical Engineering, Transport and Aeronautics offers two computer labs with a total of 60 workstations.

The following laboratories are available:

- Experimental Materials Laboratory,
- Module Manufacturing Laboratory/Workshop,
- Electronics and Electrical Engineering Fundamentals Teaching Laboratory,
- Digital Technology and Electronic Instruments Laboratory, Non-Destructive Testing Laboratory,
- Gas Turbine Engine Teaching Laboratory,
- Composite Materials Manufacturing Workshop.

MTAF MMI Heat Energy Systems Department offers laboratories with the following equipment:

Thermal Measurement and Automation Laboratory with multifunctional teaching laboratory stands for various study courses, professional skills development, and scientific research in the fields of technical thermodynamics, hydro and gas dynamics, heat exchange, thermal measurements, etc. It allows for the execution of more than 40 different laboratory works:

- Pump station with built-in control,
- Heat exchanger research stand GUNT WL110,
- Refrigeration equipment and component training stand GUNT ET 900,
- Temperature measurement stand GUNT WL202,
- Air conditioning, refrigeration, heat pump, and computerized control laboratory stand Edibon

THIBAR22C,

- Heat transfer laboratory stand P.A.Hilton HC655A,

Heating system laboratory with heating system components, regulators, and measuring instruments, and thermal engineering and system workshop, as well as specialized software KAN-therm.

1 https://files.unitest.pl/download/STCW_Certificate_2021-2023_.pdf

3.3.2. Assessment of the study provision and scientific base support, including the resources provided within the framework of cooperation with other science institutes and higher education institutions (applicable to doctoral study programmes) (if applicable).

3.3.3. Indicate data on the available funding for the corresponding study programme, its funding sources and their use for the development of the study programme. Provide information on the costs per one student within this study programme, indicating the items included in the cost calculation and the percentage distribution of funding between the specified items. The minimum number of students in the study programme in order to ensure the profitability of the study programme (indicating separately the information on each language, type and form of the study programme implementation).

RTU LMA's funding from the state budget is allocated for the list of study programs and corresponds to the number of students, providing funding for the study base, including funds for utilities, taxes, infrastructure maintenance, procurement of inventory and equipment, and personnel salaries, as well as funding for scientific activities. The number of study places is allocated through negotiations with the Ministry of Education and Science. The amount of funding for the study base is determined based on the state-determined number of study places at RTU, as well as the state-determined costs of the study place base and coefficients for the study costs in the education thematic areas.

The funding for the study program Maritime Transport-Marine engineering consists of:

- Grant or core budget funding (state budget funding for student training)
- Fee-paying student funding (both full-time on-site and part-time off-site fee-paying student training, as well as fees for retaking exams);
- Performance funding (funding for scientific support)
- Funding for research infrastructure.

Analyzing the overall funding of the study program, in the case of core budget and local fee-paying students, long-term funding has been and is determined based on the principles set by the state. The determination of the funding amount considers both the coefficients of study costs in thematic areas and the values of study cost coefficients corresponding to the level of the study program, as well as the number of students in the study program and the study courses implemented therein. As mentioned earlier, using the study cost coefficients in education thematic areas, it is possible to determine the necessary funding amount for the implementation of a specific study program and

study course.

The funding allocated from the state budget for the implementation of the study program per student is in 2022 - 2771.19 EUR, in 2023 - 3596.47 EUR. RTU LMA agreed with the MoES to increase the budget funding per student by reducing the number of budget places. Compared to 2015, the number of budget places decreased from 77 to 50 in 2023.

In addition to the state budget-funded study places, the study program's funding also includes tuition fees from individuals or legal entities. The funding from fee-paying students is used for the renewal of material and technical resources, attracting higher-level specialists to ensure the study process, etc.

The tuition fee per student for the study program "Maritime Transport-Marine engineering" is 3,520 EUR per year.

The tuition fee calculation includes the following items:

- Remuneration – 80.48%;
- Training, work, and business trips, service trips – 0.27%;
- Service fees – 12.44%;
- Acquisition of inventories, materials, energy resources, goods, office supplies, and inventory – 3.18%;
- Real estate tax – 0.15%;
- Capital formation – 2.23%;
- Deductions for sports and culture – 0.26%;
- Deductions for research activities – 0.99%.

The minimum number of students to ensure the profitability of the study program is 15 (fifteen) students.

RTU LMA units are motivated to attract additional external funding, for example, through projects. This provides additional opportunities for the unit to cover its expenses, ensure necessary development, and receive additional funding.

3.4. Teaching Staff

3.4.1. Assessment of the compliance of the qualification of the teaching staff members (academic staff members, visiting professors, visiting associate professors, visiting docents, visiting lecturers, and visiting assistants) involved in the implementation of the study programme with the conditions for the implementation of the study programme and the provisions set out in the respective regulatory enactments. Provide information on how the qualification of the teaching staff members contributes to the achievement of the learning outcomes.

Check at recruitment that the staff member meets the qualification requirements. In accordance with the LMA SOP P2-2 procedure, guest lecturers should be given the form P2-2-2 "Eligibility criteria for RTU Latvian Maritime Academy guest lecturers and guest lecturers" to fill in. When the employment relationship is formalized, the Head of Administrative Functions and Personnel shall

assess the eligibility for the position

The implementation of the study program will be ensured by the academic staff of RTU LMA - professors and lecturers with a doctoral degree and master's degree, each of whom is an expert in their field.

If necessary, the study program plans to attract lecturers from the Lithuanian Maritime Academy, as well as invite industry professionals to deliver on-site and distance lectures and practical/laboratory classes.

Specialists and working seafarers from the Latvian maritime industry are also involved. This approach applies to all subjects, allowing students to familiarize themselves with the specifics of maritime work and choose their internships in a timely manner. Guest lecturers have a scientific degree in engineering and work experience on ships or in the maritime industry. Tutor employment procedure reflets to LMA ISO 9000-2017 procedure P 2-2-2“Valuation criteria for academic personal and quest lecturers. During the employment contract preparation process head of personnel department check that procedure had been run.

In accordance with the objectives of the study program, the primary criteria for selecting teaching staff are: (a) knowledge of the latest technologies and participation in scientific and research projects in their respective fields, (b) pedagogical skills relevant to contemporary trends in the respective field, and (c) experience in delivering courses to international students in English.

To ensure the quality of the study content, the teaching staff involved in the program regularly enhance their professional and academic knowledge through methodological seminars, conferences (national and international), as well as scientific and research work. They participate in various scientific and methodological projects, as well as qualification enhancement seminars and courses.

The teaching staff actively utilizes the opportunities of international mobility programs within ERASMUS+.

Mobility of teaching staff, international scientific collaboration within projects, and publications ensure changes in the program content and the use of teaching methods in line with the latest global trends, thereby helping to achieve the defined study outcomes and goals.

The teaching staff involved in the implementation of the study program are provided with regular opportunities for the improvement of their methodological and didactic skills. LMA staff actively participate in training courses organized by RTU LMA Study Center, as well as within the European Union's Operational Program "Growth and Employment" 8.2.2 Specific Support Objective "Strengthening the Academic Staff of Higher Education Institutions in Strategic Specialization Areas" within the SAM project. Thanks to the interest and responsiveness of the employees, many staff members - a total of 53 LMA employees - have undergone qualification training. Various competence-building activities have been implemented:

Internship at the company SIA "LSCM", courses in "Project Management," "Internship in English Language Teaching," Basic Safety Course, Expanded Firefighting Training, Operation of Life-Saving Appliances (excluding fast rescue boats), ISO 9001:2015 Internal Auditor Training for Quality Management Systems, Leadership and Team Building Skills in Maritime, Ship Bridge Resource Management, Cybersecurity, Online Course Development and Digitalization of Course Content, Training on Eco-innovation, Green Jobs, and Green Public Procurement in Institutional Management Processes, Quality Management of Studies in the European Higher Education Area, Financial Management. Financial Sustainability of Higher Education Institutions, Communication and Collaboration in Digital Communication Management, Organization of Teamwork in Remote and On-Site Settings, Digital Tools for Remote Work Teams, Training on CAD Technology Tools for

Shipbuilding – SolidWorks.

3.4.2. Analysis and assessment of the changes to the composition of the teaching staff over the reporting period and their impact on the study quality.

The implementation of the program involves both academic teaching staff and teaching staff with work experience at sea and in related engineering fields. The results of student surveys show a high rating for the teaching staff. The table below provides information on changes in the teaching staff involved in the implementation of the study program based on their current positions. The quantitative number of desired teaching staff remains unchanged.

Selection of teachers of conventional subjects shall be in accordance with the LJA KVS P2-2 procedure. The work involves engineer assessors certified by the Register of Seafarers, who are concurrently studying in RTU doctoral programs and working on board ships in well-known shipping companies. This ensures that the teaching material for conventional subjects is continuously improved by keeping up to date with the latest technical developments in the marine industry. RTU Latvian Maritime Academy is interested in attracting teaching staff with existing experience in the maritime industry in the mechanical and technical parts of the ship, which has a positive impact on the acquisition of knowledge in the practical aspects of the subjects (modules), the development and improvement of the level of knowledge.

The teaching staff involved in the program participate in academic and scientific conferences and prepare scientific publications.

	Total	Academic Position Count					Academic staff without elected position (visiting professors, visiting lecturers)	Total	Full-time[1] student count in Marine engineering study program
		Professor	Associate Professor	Docent	Lecturer	Assistant			
2014/2015.	16	4	-	5	5	2	7	23	174
2015/2016.	12	3	-	5	4	-	12	24	157
2016/2017.	12	3	-	5	4	-	14	26	136
2017/2018.	12	3	-	5	4	-	14	26	127
2018/2019.	12	3	1	4	4	-	14	26	121
2019/2020.	31	5	5	12	9	0	48	79	114
2020/2021.	33	5	8	11	9	0	11	44	116
2021/2022.	26	5	7	6	8	0	14	40	110
2022/2023.	27	5	6	6	10	0	12	39	105

3.4.3. Information on the number of the scientific publications of the academic staff members, involved in the implementation of doctoral study programme, as published during the reporting period by listing the most significant publications published in Scopus or WoS CC indexed journals. As for the social sciences, humanitarian sciences, and the science of art, the scientific publications published in ERIH+ indexed journals or peer-reviewed monographs may be additionally specified. Information on the teaching staff included in the database of experts of the Latvian Council of Science in the relevant field of science (total number, name of the lecturer, field of science in which the teaching staff has the status of an expert and expiration date of the Latvian Council of Science expert) (if applicable).

3.4.4. Information on the participation of the academic staff, involved in the implementation of the doctoral study programme, in scientific projects as project managers or prime contractors/ subproject managers/ leading researchers by specifying the name of the relevant project, as well as the source and the amount of the funding. Provide information on the reporting period (if applicable).

3.4.5. Assessment of the cooperation between the teaching staff members by specifying the mechanisms used to promote the cooperation and ensure the interrelation between the study programme and study courses/ modules. Specify also the proportion of the number of the students and the teaching staff within the study programme (at the moment of the submission of the Self-Assessment Report).

To ensure the coherence of the study course content, an annual review of the program's study courses is conducted, along with seminars where the faculty involved in the program familiarize colleagues with the course topics, teaching methods, and discuss improvements to ensure higher content quality and relevance to the industry's current trends. During the COVID-19 pandemic, the usual practice of meetings was reduced, and faculty communication was facilitated through WhatsApp and Microsoft Teams / Zoom.
Informal faculty meetings were organized by staff themselves, during which they informally discuss relevant topics. If a formal decision is needed to address a specific issue (e.g., amending internal regulations, setting certain restrictions, etc.), unit managers are informed, and the matter is included in the unit's meeting.
The improvement of study courses is based on suggestions from both students and faculty members, as well as members of the national examination commission.
To incorporate new faculty members and industry professionals into the teaching process and regularly enhance the content of study courses, RTU LMA plans to launch a teacher-mentor movement, where colleagues can share their experiences and guide prospective faculty members who wish to join the RTU LMA family.
Analyzing the student-to-faculty ratio within the study program at the time of submitting the self-assessment report, there is one preferred faculty member for every 7 students and one industry specialist for every 21 students in the program.

Annexes

III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		
Sample of the diploma and its supplement to be issued for completing the study programme	KM-BAK-diploms&pielikumsENG.zip	KM-BAK-diploms&pielikumsLV.zip
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)		
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)		
Statistics on the students in the reporting period	5.pielikums JT-KM.xlsx	5.pielikums JT-KM.xlsx
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard	P06_3.2.1_JT-KM_BAK_Atbilst-Valsts-Stand_ENG.docx	P06_3.2.1_JT-KM_BAK_Atbilst-Valsts-Stand_LV.docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)	P07_3.2.1._JT-KM_BAK_Atb-Prof-Stand_ENG.docx	P07_3.2.1._JT-KM_BAK_Atb-Prof_Stand_LV.docx
Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)	3.2.1._JT-KM_BAK_Atb-Noz-Spec_Regul_ENG.docx	3.2.1._JT-KM_BAK_Atb-Noz-Spec-Regul_LV.docx
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme	3.2.1._JT-KM_BAK_Kartējums_ENG.xlsx	3.2.1_JT-KM_BAK_Kartējums_LV.xlsx
The curriculum of the study programme (for each type and form of the implementation of the study programme)	JT-KM-BAK-Stud-Plāns Pamat_Nekl_ENG.zip	JT-KM-BAK-Stud-Plāns Pamat_Nekl_LV.zip
Descriptions of the study courses/ modules	JT-KM_BAK_SKA_ENG.zip	JT-KM_BAK_SKA_LV.zip
Description of the organisation of the internship of the students (if applicable)	PRAKSES_NOLIKUMS ENG.docx	PRAKSES_NOLIKUMS.docx
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)		
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)		

Maritime Transport - Navigation (42525)

Study field	*Seafaring*
ProcedureStudyProgram.Name	*Maritime Transport - Navigation*
Education classification code	*42525*
Type of the study programme	*First cycle (professional bachelor's) study programme*
Name of the study programme director	*Imants*
Surname of the study programme director	*Aleksandrovs*
E-mail of the study programme director	*Imants.Aleksandrovs@rtu.lv*
Title of the study programme director	*Profesionālais bakalaura grāds jūras transportā un kuģu vadītāja kvalifikācija*
Phone of the study programme director	*+37126599476*
Goal of the study programme	*The aim of the study program is to prepare high-quality, internationally recognized management-level specialists in the maritime industry who are capable of ensuring ship navigation, cargo handling and stowage, radio communication organization, ship and crew safety, as well as implementing environmental protection measures on board, in accordance with the requirements of the International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW), Code A-II/1 and A-II/2 standards.*
Tasks of the study programme	*The program aims to educate students and provide them with the attainment of the sixth-level professional qualification "Ship Navigator (Management Level)," as well as to enhance the competitiveness of program graduates in the changing socio-economic conditions and the international job market.*

Results of the study programme	*Graduates of the professional bachelor's degree program in Maritime Transport - Navigation:* *- Demonstrate an understanding of the most important concepts and principles in the maritime transport industry, development trends, and actively participate in the development of the maritime sector.* *- Independently acquire, select, and analyze information, make decisions, and solve problems within the maritime transport industry.* *- Possess knowledge and understanding of environmental issues and environmental protection in the fields of civil defense and disaster management, as well as assess the impact of their professional activities on the environment and society.* *- Independently structure their own learning, direct their own and their subordinates' further education and professional development, demonstrate a scientific approach to problem-solving, take responsibility and initiative, work individually, as part of a team, or lead others, make decisions, and find creative solutions in changing or ambiguous circumstances.* *- Apply acquired theoretical foundations and skills to perform professional, innovative, or research work, formulate and analytically describe information, problems, and solutions in the field of maritime transport or the ship navigation profession.* *- Ensure compliance with the requirements of professional qualifications.*
Final examination upon the completion of the study programme	*1. State exam in Maritime English.* *2. Complex examination in the specialty.* *3. Public Defense of the Reviewed Thesis.*

Study programme forms

Full time studies - 4 years, 3 months - latvian

Study type and form	*Full time studies*
Duration in full years	*4*
Duration in month	*3*
Language	*latvian*
Amount (CP)	*188*
Admission requirements (in English)	*Secondary education*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	*Professional bachelor degree in maritime transport*
Qualification to be obtained (in english)	*Navigator (management level)*

Places of implementation

Place name	City	Address
Latvian Maritime Academy	RĪGA	FLOTES IELA 12 K-1, KURZEMES RAJONS, RĪGA, LV-1016

Full time studies - 4 years, 3 months - english

Study type and form	*Full time studies*
Duration in full years	*4*
Duration in month	*3*
Language	*english*

Amount (CP)	*188*
Admission requirements (in English)	*Secondary education and knowledge of the English language at least at B2 level*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	*Professional bachelor degree in maritime transport*
Qualification to be obtained (in english)	*Navigator (management level)*

Places of implementation

Place name	City	Address
Latvian Maritime Academy	RĪGA	FLOTES IELA 12 K-1, KURZEMES RAJONS, RĪGA, LV-1016

Part time extramural studies - 5 years - latvian

Study type and form	*Part time extramural studies*
Duration in full years	*5*
Duration in month	*0*
Language	*latvian*
Amount (CP)	*188*
Admission requirements (in English)	*Secondary education*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	*Professional bachelor degree in maritime transport*
Qualification to be obtained (in english)	*Navigator (management level)*

Places of implementation

Place name	City	Address
Latvian Maritime Academy	RĪGA	FLOTES IELA 12 K-1, KURZEMES RAJONS, RĪGA, LV-1016

Part time extramural studies - 5 years - english

Study type and form	*Part time extramural studies*
Duration in full years	*5*
Duration in month	*0*
Language	*english*
Amount (CP)	*188*
Admission requirements (in English)	*Secondary education and knowledge of the English language at least at B2 level*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	*Professional bachelor degree in maritime transport*
Qualification to be obtained (in english)	*Navigator (management level)*

Places of implementation

Place name	City	Address
Latvian Maritime Academy	RĪGA	FLOTES IELA 12 K-1, KURZEMES RAJONS, RĪGA, LV-1016

3.1. Indicators Describing the Study Programme

3.1.1. Description and analysis of changes in the parameters of the study programme made since the issuance of the previous accreditation form of the study field or issuance of the study programme license, if the study programme is not included on the accreditation form of the study field, including changes planned within the evaluation procedure of the study field evaluation procedure.

Since the previous accreditation review period, the address of the study program implementation location has not changed, but the legal name of the university has changed. According to Cabinet of Ministers Order No. 492 of July 6, 2022, regarding the reorganization of the Latvian Maritime Academy, it has been included in the structure of Riga Technical University as of November 1, 2022. In addition to CM Order No. 492, the specific regulations for the establishment and operation of RTU LMA are determined by the tripartite agreement "Cooperation Agreement No.2-2e/22/392 on the Integration of the Latvian Maritime Academy into the Structure of Riga Technical University," which was concluded on October 27, 2022, in accordance with point 4.2 of CM Order No. 492, between the Ministry of Education and Science, RTU, and the Latvian Maritime Academy as a university. It stipulates that the status of RTU LMA corresponds to the status of an independent institute of RTU.

During the review period, within the study program "Maritime Transport - Navigation," full-time on-site studies are implemented not only in Latvian but also in English, thereby increasing the number of students in the study program and opening up opportunities for foreign students who wish to obtain higher maritime education in Latvia. Since the receipt of the previous accreditation page, the director of the study program has also changed.

The changes in the first-cycle professional higher education study program "Maritime transport-Navigation" since the previous accreditation period are summarized in the following table:

	Parameters of the program submitted in the previous accreditation:	**Parameters of the program submitted in the current accreditation:**
Implementation location:	Latvian Maritime Academy, Flotes iela 12, k-1, Riga, LV-1016, Latvia	Latvian Maritime Academy, Riga Technical University, Flotes iela 12, k-1, Riga, LV-1016, Latvia
Program Director:	**Svetlana Izmailova**	**Imants Aleksandrovs**

Considering that the Cabinet of Ministers Regulation No. 793 introduced a new study field in higher education, a decision was made to change the study field from "Mechanical Engineering and Metalworking, Heat Engineering, Heat Technology, and Mechanical Engineering" to "Maritime Transport," which fully corresponds to the

implemented first-cycle professional higher education study program at RTU LMA. Compared to the 2013 study curriculum, as of the submission of accreditation documents in 2023, the study program has been improved with the aim of providing RTU LMA students with comprehensive theoretical knowledge and practical skills necessary for obtaining a bachelor's degree and professional qualification, in line with the latest developments in the maritime industry. The content, descriptions, and titles of a significant portion of the study courses have been modified to more comprehensively cover the maritime theme. The changes made in the study curriculum are summarized below:

Part A: Compulsory Courses

A-1 General Education Courses (20 CP credits remain unchanged):

1. The course "English Language" has been renamed to "Maritime English Language."
2. The course "Psychology of Human Relations" has been renamed to "Psychology of Human Relations in the Maritime Environment."
3. The course "Philosophy" has been renamed to "Philosophy of Science."
4. The course "Transport Economics" has been renamed to "Maritime Economics."
5. The course "Sports" has been renamed to "Sports (Swimming)."

A-2 Theoretical Basic Courses of the Industry (37 CP credits remain unchanged):

1. The course "Civil Defense" has been added (1 CP credit).
2. The course "Occupational Health and Safety and Legislation" has been renamed to "Occupational Health and Safety and Legislation on Ships."
3. The course "Information Technology" has been renamed to "Ship Computer Networks and Cybersecurity."
4. The course "Maritime English Language" has been renamed to "Maritime English Language for Ship Captains."
5. The course "Electrical Engineering and Electronics" has been renamed to "Electrical Engineering and Electronics on Ships."
6. The course "Quality Management in Maritime Transport" has been reduced by 1 CP credit.
7. The course "Chemistry" has been renamed to "Applied Chemistry."
8. The course "Technical Mechanics" has been renamed to "Technical Mechanics for Ship Captains."

A-3 Specialization Courses in the Industry (61 CP credits remain unchanged):

1. The course "Maritime Safety" has been reduced by 2 CP credits.
2. The course "Radar and ECDIS Utilization in Ship Navigation" has been expanded by 1 CP credit.
3. The course "Communication Organization and GMDSS" has been expanded by 1 CP credit.
4. The course "Prevention of Marine Pollution" has been renamed to "Prevention of Marine Pollution at Sea."

Part B Elective Courses (6 CP credits remain unchanged, no changes have been made).

Part C Internship and Practical Training (52 CP credits remain unchanged, no changes have been made).

Part D State Examinations (12 CP credits remain unchanged, no changes have been made).

3.1.2. Analysis and assessment of the study programme compliance with the study field. Analysis of the interrelation between the code of the study programme, the degree, professional qualification/professional qualification requirements or the degree and professional qualification to be acquired, the aims, objectives, learning outcomes, and the admission requirements. Description of the duration and scope of the implementation of the study programme (including different options of the study programme implementation) and evaluation of its usefulness.

In accordance with Cabinet Regulation No. 793 on the establishment of a new study field, accreditation documents are submitted for the study field "Seafaring," which aligns most closely with the implemented study programs at RTU LMA, including the professional bachelor's study program "Maritime Transport - Navigation." According to the requirements of the study field "Seafaring", the study program provides high-quality maritime education that closely corresponds to the demands of the labor market and industry needs, thus ensuring a competitive maritime engineering workforce.

The study program "Maritime Transport - Navigation" corresponds to Level 6 of the European Qualifications Framework, which enables students to acquire in-depth theoretical knowledge in the field of maritime transport and navigation, as well as competence-based practical skills for work at sea, in accordance with the requirements of the International Maritime Organization (IMO) International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW) with amendments. Practical skills of students are developed within the study process using simulators and during mandatory sea practice, which is a prerequisite for completing the study program and obtaining a bachelor's degree and professional qualification. The name of the study program, the degree awarded, the professional qualification, goals, and objectives, as well as the admission requirements, comply with the implementation and management level of the IMO International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW-78 with amendments). The admission requirements and content of the study program are interrelated, aligned with industry requirements, and coordinated with the Seafarer Register of the Latvian Maritime Administration.

To achieve the set goals of the study program, standardized admission requirements have been defined from the very beginning of the program's implementation. In addition to the basic documents (application, copy of secondary education certificate

with original presentation, copies of the certificates of the centralized exams as required for the respective year of graduation with original presentation), according to Paragraph (1) of Section 29 of the Maritime Administration and Maritime Safety Law: "A seafarer who intends to obtain a document certifying professional qualification or who is employed or wishes to start work at sea shall have a valid medical certificate issued by a doctor certifying their fitness for work at sea." The LMA applicant must submit a valid seafarer's medical certificate issued by a maritime doctor confirming the person's fitness for work at sea in the chosen specialty to the Admissions Committee.

The professional bachelor's degree in maritime transport and the qualification of a ship's officer are awarded if the student has fulfilled all the requirements specified in the study process. If the assessment obtained in the comprehensive examination in the specialty or the state examination in maritime English is lower than 7 points, the professional qualification can be obtained from the Seafarer Register by retaking the state examination and engaging in discussions with inspectors from the Latvian Maritime Administration.

The duration of the study program implementation corresponds to the regulations in the Republic of Latvia. Students have the opportunity to study full-time on-site (4 years and 3 months), part-time off-site (5-9 years), or, in accordance with the amendments offered in the LMA Regulation No. 10 regarding the repeated assessment of session results, change the study mode and form from full-time on-site to part-time off-site during the study process, in order to settle academic debts according to an individual schedule over a longer period. Both modes and forms of study program implementation are maintained to ensure student-centered education.

3.1.3. Economic and/ or social substantiation of the study programme, analysis of graduates' employment.

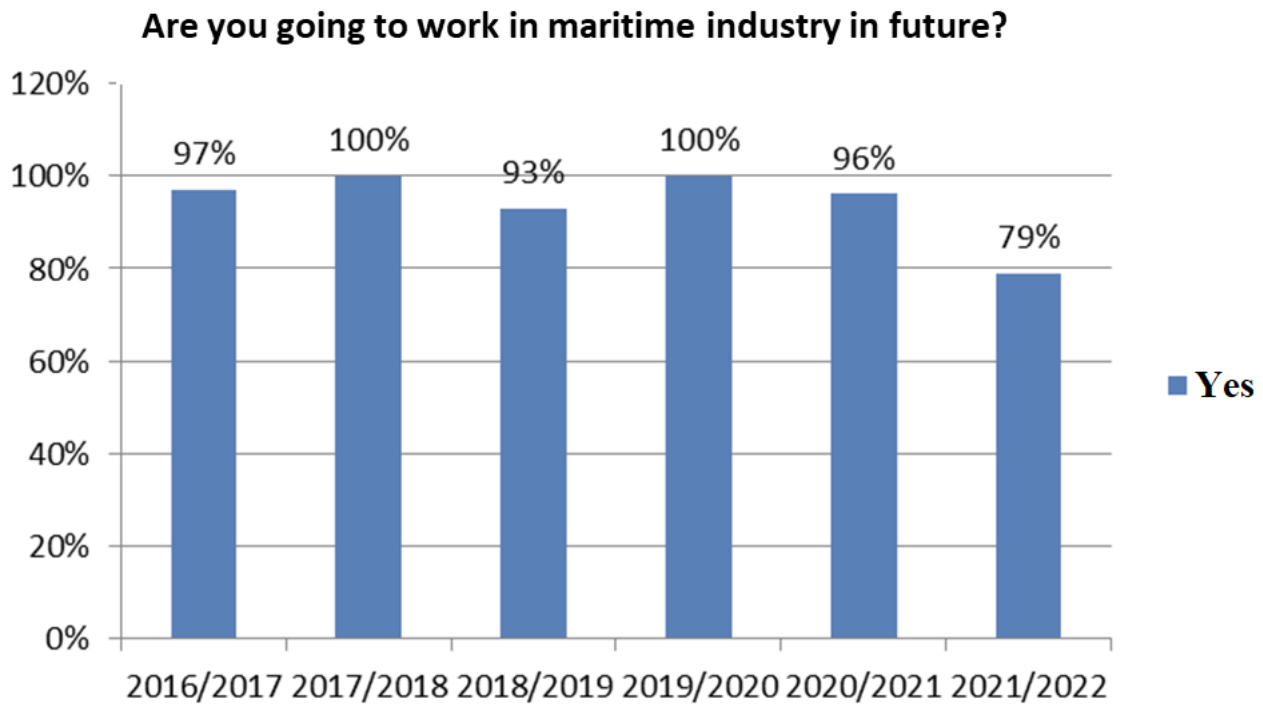
Just like in other industries, the implementation of new technologies and digital solutions in maritime transport has led to an increasing demand for highly qualified workforce. The professional bachelor's study program "Maritime Transport - Navigation" at LMA is the only program in Latvia that can prepare students to become high-level ship officers with strong leadership abilities, high motivation, and professional competence in line with the requirements of professional qualifications. This is highly valued by shipping companies in terms of employment opportunities, which often leads to LMA students and graduates being sought after for current vacancies. Since autumn 2022, LMA students have been organizing monthly meetings with representatives from various crewing companies to inform them about current internship and job opportunities. Both students and crewing companies highly appreciate these meetings as they provide an opportunity to obtain necessary

information in person and establish cooperation. All representatives from crewing companies who have participated in these campaigns at LMA acknowledge that they prefer LMA students because they are confident in the quality of their knowledge, skills, and competencies.

According to a survey conducted by the Seafarer Register in the third quarter of 2022, the demand for Latvian seafarers significantly exceeds the actual supply. Based on the responses provided by the companies regarding available vacancies, the comparison with the number of graduates who completed maritime education programs in 2022 indicates that the demand for Latvian seafarers continues to exceed the supply. Currently, the industry is facing a shortage of both ordinary seafarers and deck crew (ratings) as well as management-level ship officers (third officer, second officer, chief officer, captain). Considering the consistent demand in the industry for highly qualified ship officers, it is predicted that all graduates of the study program will be employed according to their acquired education and professional qualifications once they obtain the necessary maritime certification.

Statistics from the national education information system regarding the employment of university graduates show that 93.5% of graduates from LMA's professional bachelor's study programs are employed, which is 11.58% higher than the average employment rate of graduates in the country.

Furthermore, the results of annual surveys conducted with LMA graduates clearly indicate that graduates of the "Maritime Transport - Navigation" study program are interested in developing their skills and professional competence by continuing to work in the maritime industry.



3.1.4. Statistical data on the students of the respective study programme, the dynamics of the number of the students, and the factors affecting the changes to the number of the students. The analysis shall be broken down into different study forms, types, and languages.

The first-cycle professional higher education study program 'Maritime Transport - Navigation'

Full-time attendance

Studies in Latvian

Analyzing the data of the reporting period (see Appendix 5), it can be concluded that the number of students in the study program has been decreasing since the 2015/2016 academic year. Based on the information provided on the official statistics portal (see population by age groups), this decline is clearly linked to demographic changes and overall population fluctuations, as well as the low level of knowledge in exact sciences among prospective students upon completing secondary education, and their reluctance to choose engineering studies. Marketing also plays a significant role, as it has not been given sufficient attention and resources over time.

Until 2015, Latvia had a relatively high unemployment rate, and potential applicants evaluated study opportunities in those specialties that were in demand in the job market and well-paid at that time. Consequently, the number of students in the study program was significantly higher than it is now. Despite the decreasing number of students in the study program due to unfavorable demographic conditions, 'Maritime Transport - Navigation' remains the most popular study program at LMA, as evidenced by a consistently higher number of students compared to other study programs offered by LMA.

Since the 2018/2019 academic year, there has been a trend of balancing the number of students studying in state-funded budget places and those studying on a self-financing basis. This can be explained by additional state funding, which alleviates the financial burden on students who meet the requirements of the study program.

Until the 2016/2017 academic year, a higher number of credit points were obtained within the framework of other courses studied at other universities. This means that despite starting their studies at another university, several students have chosen to switch to studying in the 'Maritime Transport - Navigation' study program.

Reviewing the changes in the number of students, it can be observed that the fluctuation of student attrition is significant from year to year, but on average during an academic year, it amounts to 52 students. Analyzing the regulations and session results, it can be concluded that on average, 63% of the total student attrition is due to academic failures, with a large portion of students being excluded after accumulating four or more academic debts. However, some students are voluntarily withdrawn (15%). This can be explained by the inability of students to meet the

requirements of the study program, including successfully passing final examinations within the specified timeframe. During the reporting period, some students have taken advantage of the amendments offered in accordance with LMA Regulation No. 10 regarding the possibility to retake session results, change their study mode and form to part-time non-attendance, allowing them to complete academic debts according to an individual schedule."

Full-time attendance studies

Studies in English

During the reporting period, eight international students enrolled in the study program, one of whom graduated from the program in the 2013/2014 academic year. One student from Turkey, who was enrolled in the 2021/2022 academic year, continues their studies, while six international students have chosen not to continue their studies at RTU LMA for personal reasons.

Part-time absence

Studies in Latvian

Reviewing the data from the reporting period, it can be concluded that the total number of part-time non-attendance students remains stable. On average, there are 30 part-time non-attendance students during the reporting period. The data from the reporting period shows that a minimal number of new applicants registering for the first year of study choose part-time non-attendance studies. This can be explained by the fact that part-time non-attendance studies are not particularly popular from the first year of study, and it is preferable to have a maritime qualification upon entering LMA. Mostly, the number of part-time non-attendance students consists of those students who were unable to pass all academic requirements in full-time on-site studies in the previous academic year and chose to change their study mode and form to part-time non-attendance.

There is a growing trend in the number of graduates from the part-time non-attendance study program in the last five years. While the number of graduates from part-time non-attendance studies was minimal at the beginning of the reporting period, since the 2020/2021 academic year, 8-10 part-time non-attendance students graduate from this study program each year, indicating a positive trend. The significant gap between the number of part-time non-attendance students and the number of program graduates can be explained by the fact that most part-time non-attendance students complete their academic requirements and final projects over a longer period according to an individual schedule.

Analyzing the decisions regarding student attrition during the reporting period, it can be concluded that the majority of students (59%) were excluded due to academic failures, 24% were voluntarily withdrawn, and 17% chose to change their study mode and form to full-time on-site studies.

3.1.5. Substantiation of the development of the joint study programme and description and evaluation of the choice of partner universities, including information on the development and implementation of the joint study programme (if applicable).

3.2. The Content of Studies and Implementation Thereof

3.2.1. Analysis of the content of the study programme. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators with the aims of the study course/ module and the aims and intended outcomes of the study programme. Assessment of the relevance of the content of the study courses/ modules and compliance with the needs of the relevant industry, labour market and with the trends in science on how and whether the content of the study courses/ modules is updated in line with the development trends of the relevant industry, labour market, and science.

The planning, organization, and implementation of the study process (including the volume, duration, type, and form of the study program) are carried out in accordance with the Constitution of the Republic of Latvia, the Law on Education, the Law on Higher Education Institutions, the Law on Vocational Education, the Law on Scientific Activity, and the Constitution of LMA.

The training of maritime officers is conducted in accordance with the International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW Convention) with amendments, European Union directives, Cabinet of Ministers regulations No. 710 of December 15, 2015, "Regulations for Certification, Implementation, and Monitoring of Professional Training Programs for Seafarers," and other relevant legislative acts in the field, as well as internal regulations of LMA.

Maritime education is based on the modules of the STCW Convention of the International Maritime Organization (IMO). These modules include requirements for different levels of professional competence, which must be taken into account in the implementation of study programs. This process is regulated and monitored by the Maritime Register of the Latvian Maritime Administration. Therefore, maritime education is supervised and evaluated by both the Ministry of Education and Science of the Republic of Latvia and the Maritime Register of the Latvian Maritime Administration.

The goals, objectives, and expected outcomes of the study program fundamentally

reflect the set of knowledge, skills, and competencies acquired within the study courses and internships of the program. Detailed information, including goals, outcomes, topics, etc., of the study courses, is presented in the course descriptions, which are updated as necessary, with any changes to the content of the courses being coordinated with all the lecturers involved in the courses, the unit's manager, and the Maritime Register of the Latvian Maritime Administration.

In order for a graduate to obtain competency certificates from the Maritime Register of the Latvian Maritime Administration, the necessary seafarer training courses are integrated into the study program at LMA:

FIRST-CYCLE PROFESSIONAL HIGHER EDUCATION STUDY PROGRAMME "MARITIME TRANSPORT - NAVIGATION"		
STUDY COURSE	**TRAINING COURSE TITLE**	**REFERENCE**
A-1 General educational study courses		
Management of personnel, bridge crews and resources	*Bridge resource management (including: Leadership un managerial skill)*	IMO Model Course No 1.39 and STCW Code A-II/1, A-II/2
A-3 Industry professional specialization study courses		
Use of RLS and ECDIS in ship management	*Radar Navigation, Radar Plotting and Use of ARPA at Operational Level*	IMO Model Course 1.07 and STCW Code A-II/1
	Operational use of Electronic Chart Display and Information Systems (ECDIS)	IMO Model Course 1.27 STCW Code A-II/1, A-II/2
Maritime english		IMO Model Course 3.17
Maritime safety	*Security training for seafarers with designated security duties*	IMO Model Course No 3.19 and STCW Code A-VI/6-1, A-VI/6-2
	Basic Safety Training – refresher course	IMO Model Course No 1.13, 1.19, 1.20, 1.21, and STCW Code A-VI/1-1, A-VI/1-2, A-VI/1-3 un A-VI/1-4
	Advanced Fire Fighting	IMO Model Course 2.03 and STCW Code A-VI/3
	Proficiency in Survival Craft and Rescue Boats other than Fast Rescue Boats	IMO Model Course 1.23, and STCW Code A-VI/2-1
	Medical First Aid	IMO Model Course 1.14 and STCW Code A-VI/4-1

Communication organization and GMDSS	*GMDSS General Operator*	IMO Model Course 1.25 and STCW Code A-IV/2

The assessment of the relevance and compliance of the content of study courses with the needs of the industry, job market, and scientific trends is carried out in accordance with the LMA Handbook Procedure No. P4-3 "Development and Maintenance of Basic Course Documents" and Procedure No. P4-4 "Maintenance of Basic Course Documents." The study course descriptions are regularly updated, taking into account the principles of student-centered education, industry trends, and recommendations from members of the State Examination Commission. The study course descriptions for the study program "Maritime Transport - Navigation" were last updated in May 2023.

The study program ensures active integration of information included in the study courses with the set goals and achievable outcomes. The results of each individual study course align with the outcomes of the study program, as the study course is an integral part of the study program. Analysis of the study course content indicates that the selection of topics corresponds to the defined outcomes of the study courses - knowledge, skills, and professional competencies, in accordance with the requirements of STCW and higher education. Mapping results demonstrate that the majority of study courses provide competencies such as conducting safe navigation watchkeeping, performing watch handovers, and managing a ship. Reacting to emergency situations and maneuvering a vessel are frequently mentioned competencies in the study courses related to the competencies of the study program. The mapping results confirm that the achievement of study program outcomes occurs logically and sequentially, and the included study courses ensure the attainment of all study program outcomes.

To ensure continuous improvement of the content and quality of study programs, and to update the content of study courses in accordance with industry, job market, and scientific development trends, the results of external and internal quality evaluations of study programs are taken into account. These evaluations include surveys of students, graduates, internships, and employers, providing a comprehensive assessment of the quality of the study process.

Feedback from employers and professional organizations is based on the opinions formed during students' internships and state examinations, and their feedback indicates that the resources of the study program successfully enable the achievement of program goals. The obtained results are analyzed annually and used for the enhancement of the study program - additional material and technical resources are acquired, the study information base is updated, and study courses are improved in collaboration with the course instructors. Overall, the survey data from students, graduates, employers, and industry specialists consistently demonstrate positive evaluations of the study program, and the competencies acquired are relevant in the job market.

To ensure continuous analysis of the study courses, the program director and administration regularly plan classroom observations throughout the academic year, both on-site and through remote platforms. Observations are conducted by connecting the observer to a "Zoom" or "Teams" online lecture.

Additionally, a content audit of the study courses is conducted every year to monitor and update the course content, teaching methods, and ensure the relevance of the intended outcomes.

3.2.2. In the case of master's and doctoral study programmes, specify and provide the justification as to whether the degrees are awarded in view of the developments and findings in the field of science or artistic creation. In the case of a doctoral study programme, provide a description of the main research roadmaps and the impact of the study programme on research and other education levels (if applicable).

3.2.3. Assessment of the study programme including the study course/ module implementation methods by indicating what the methods are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study programme. In the case of a joint study programme, or in case the study programme is implemented in a foreign language or in the form of distance learning, describe in detail the methods used to deliver such a study programme. Provide an explanation of how the student-centred principles are taken into account in the implementation of the study process.

The implementation of the study process takes into account the following student-centered teaching and learning principles: each student is treated as an individual, and work with students is conducted both in groups and (to the extent possible) through individual consultations to help them understand the topics of the study course. When starting their studies, students are introduced to the requirements, assessment criteria, and achievable outcomes of the respective study course. The assessment criteria are selected to provide students with an insight into the extent to which they have achieved the expected study results. Students receive feedback that indicates the directions for their learning process and competency development. During the learning process, students are encouraged to develop their ability to learn independently, search for and select information, and promote academic and professional growth. Mutual respect between faculty and students is fostered. LMA has developed procedures that allow students to provide feedback on the quality of the study process, enabling them to influence their own study process. Students are involved in the assessment of the quality of study programs every semester.

The implementation of the study program utilizes creative and collaborative teaching methods to promote understanding, critical thinking, and communication. These methods include working in pairs/groups, seminars and discussions, case studies, and problem analysis. PowerPoint presentations with visual materials, instructional videos, and audio materials are used for lecture explanations. Within the study course, students receive feedback from instructors on their performance and growth potential. The organization of the study content ensures a sequential and in-depth acquisition of the intended knowledge in the study program and is focused on practical examples and problem-solving in the maritime industry.

Ship navigation and engineering systems are now more technologically advanced than ever before, so students familiarize themselves with these technologies within the study program. In accordance with the requirements of the STCW Convention, the professional study courses in the industry actively utilize GMDSS, ARPA/RADAR, ship bridge simulators, the ship navigation and technical equipment laboratory, as well as the navigation laboratory, where students become acquainted with ship navigation technical means and equipment during lectures. The use of simulators in the study process has several significant advantages:

- The use of simulators allows students to experiment with multiple approaches to problem-solving in a safe environment and offers the opportunity to "review and repeat" more complex scenarios and receive feedback from the instructor during the study course.
- Simulators can be utilized for both regular and emergency training, reducing the risk to individuals and the environment.
- The use of simulators enables students to acquire and demonstrate the skills and competencies defined in the study program, as well as explore different decision-making options during the study process to determine which yield the desired results. It also facilitates the development of critical thinking and situational understanding at multiple levels.
- Simulators allow targeted exercises to be performed within a few minutes, compared to the time it would take to experience the same situation on a ship. They also provide actions that can be repeated multiple times to accelerate student learning and skill development.

Since the COVID-19 pandemic in 2020, Riga Technical University (RTU) has been utilizing the interactive e-learning environment platform omars.latja.lv for distance learning. This platform is based on the Moodle software. In this platform, instructors upload study materials and coordinate and assess task completion. The study process is facilitated through the use of conference platforms such as Zoom or Microsoft Teams, which involve the use of video cameras and microphones to ensure a quality learning experience and facilitate communication between instructors and students. The interactive e-learning environment and conference platforms are employed when it is necessary to organize the study process remotely.

All academic units at RTU continuously enhance the e-learning environment to ensure full accessibility of study materials in the e-learning environment. Ongoing work is carried out to improve the interactive e-learning platform OMARS, including the development of new study materials and activities and the adaptation of existing ones for remote work with students. Pedagogical methods and solutions are carefully chosen to achieve the objectives of the study course and to facilitate the acquisition of knowledge, skills, and competencies during the remote study process. Systematic and high-quality feedback is provided to students regarding their learning process and performance, as well as the necessary improvements.

English Language Studies

On July 3, 2020, the Admission Regulations of Riga Technical University (RTU) were edited regarding the requirements, criteria, and procedures for admission to study programs. In subsection 71, it is stated that an international applicant must attach a document issued by an international testing institution within the last five years, certifying that the applicant has at least a B2 level proficiency in the language of instruction for the respective study program. This document is not required if the applicant has obtained secondary or higher education in the language of instruction for the respective study program or if the student has acquired secondary education in European Union (EU) and European Economic Area (EEA) countries, which includes a foreign language assessment equivalent to at least B2 level.

Since November 1, 2022, the admission of foreign students to study programs is carried out in accordance with the decision of the RTU Senate on October 25, 2021 (Protocol No. 655), "Approval of the Admission Regulations for Foreign Students in RTU International Cooperation and Affiliated Study Programs and Program Parts in 2022" by the RTU International Cooperation and Foreign Students Department.

Foreign students are required to complete the course "Latvian Language" in a volume of 2 CP.

The teaching methods used in the implementation of study programs in English are identical to those used in the implementation of study programs in Latvian. Students are provided with information about additional resources where they can find the necessary information, and study course materials are uploaded and updated in the electronic environment of the OMARS study platform.

3.2.4. If the study programme envisages an internship, describe the internship opportunities offered to students, provision and work organization, including whether the higher education institution/ college helps students to find an internship place. If the study programme is implemented in a foreign language, provide information on how internship opportunities are provided in a foreign language, including for foreign students. To provide analysis and evaluation of the connection of the tasks set for students during the internship included in the study programme with the learning outcomes of the study programme (if applicable).

The internship consists of 52 CP. The implementation of internships is regulated by the Guidelines No. 2 "On the Sea/Repair (Coastal) Internship for Students of RTU LMA Full-time and Part-time Professional Bachelor Study Programs in Maritime Transport - Navigation, Maritime Transport - Marine Engineering, and Maritime Transport - Marine Electrical Automation" approved by the RTU Rector's Order No. 01000-1.1-e/152 on May 22, 2023. For each candidate applying for certification to perform duties as a navigation officer on ships with a gross tonnage of 500 GT or more, sea practice is part of the training program. The aim of the internship is to consolidate and complement the theoretical knowledge and practical skills acquired.

The internship planner at RTU LMA ensures the provision of sea internships, prepares trilateral agreements, and keeps records of internships. The internship planner provides advice, information, and education to RTU LMA students on career development matters, supports career planning and development, and assists in developing career management skills, including job search skills. The internship planner monitors the progress of internships, the implementation of the internship program, and offers internship opportunities only in companies and crewing companies that care about the intern's living conditions and the implementation of the internship program.

According to the study program's curriculum, full-time students participate in a sea internship on ships for a total of 52 credits during the 4th and 7th semesters. On the other hand, part-time distance learning students receive an internship assignment at the beginning of their studies and undergo internships on ships concurrently with their studies. The internship report is defended before the State Examination and serves as evidence of the internship on ships, accompanied by a certificate of competence as a ship's officer or a statement of completion of the required training (Watchkeeping Certificate) issued by the Latvian Maritime Administration.

The internship is carried out in accordance with a trilateral Internship Agreement concluded between the Latvian Maritime Academy, shipping companies, and interns. The Internship Agreement includes internship objectives, tasks, as well as the parties' responsibilities and obligations. The tasks and requirements for the internship report are aligned with the Internship Handbook approved by the Maritime Register of Latvia. The internship report includes a section where students and the ship's captain or the designated ship's officer - internship supervisor can provide suggestions for improving the internship program and studies. These suggestions are discussed with the students and may serve as a basis for adjusting the internship assignment.

To ensure internship placements on ships, RTU LMA has cooperation agreements with several companies such as LSC, LAPA Ltd, BaltCrew Agency OU, WELL Co. Ltd, Anglo-Eastern, BSM CSC Latvia (Bernhard Schulte Shipmanagement), etc., to which LMA students go for sea internships. LSC is one of the largest and most popular providers of internship placements for LMA students. It offers students the opportunity to practice on ships operated by internationally recognized companies

and later, as graduates, continue their professional careers in these companies.

Collaboration with companies and crewing companies is conducted as follows:

- The internship department of the LMA prepares tripartite agreements.
- LMA establishes and maintains relationships with crewing companies where graduates of study programs work.
- Potential employers, observing students' work during the internship, may choose the specialists they need and offer employment contracts.
- Feedback for the improvement of the learning process. To facilitate collaboration, regular surveys are conducted with employers to assess satisfaction and the preparedness level of LMA students.
- Employers are included in the composition of the qualification defense committee and participate in the defense process.

The students' internship is linked to the study program's learning outcomes by using the Ship Captain Trainee's Internship Book and preparing the internship report in accordance with LMA Guidelines No. 18 "On LMA Full-time Professional Bachelor's Study Program "Maritime Transport - Navigation," "Maritime Transport - Marine Engineering," and "Maritime Transport - Marine Electrical Automation" Student Maritime/Repair (Coastal) Internship" and No. 19 "On LMA Part-time Student Maritime/Repair (Coastal) Internship." During the internship, students acquire the following knowledge and skills in the following competencies:

- Plan and conduct passages and determine the vessel's position.
- Determine the vessel's position and verify the accuracy of the specified locations using all available means.
- Perform safe navigation watchkeeping.
- Determine watchkeeping measures and procedures.
- Maintain safe navigation using information obtained from navigation equipment and systems, assisting in decision-making.
- Use radar and Automatic Radar Plotting Aid (ARPA) for safe navigation.
- Use Electronic Chart Display and Information System (ECDIS) to maintain navigational safety.
- Respond to distress signals at sea.
- Forecast meteorological and oceanographic conditions.
- React in ship handling emergency situations.
- Main propulsion machinery and control of technical equipment and systems at a distance.
- Use IMO Standard Marine Communication Phrases and communicate in written and oral English.
- Transmit and receive information using visual signaling.
- Maneuver the vessel.
- Monitor cargo loading, stowage, securing, and unloading, ensuring necessary conditions during the voyage.
- Plan and ensure safe cargo loading, stowage, securing, and unloading, and provide necessary conditions for the cargo during the voyage.

- Transport dangerous goods.
- Inspect cargo spaces, hatch covers, and ballast tanks, and report defects and damages.
- Evaluate defects and damages in cargo spaces, hatch covers, and ballast tanks as reported and take appropriate actions.
- Control draft, trim, and stress.
- Ensure compliance with pollution prevention requirements.
- Maintain the vessel's seaworthiness.
- Prevent, control, and fight fires on board.
- Develop emergency response plans and damage control plans and act in emergency situations.
- Use life-saving appliances.
- Provide first aid on board.
- Utilize leadership and organizational skills.
- Monitor compliance with legal requirements.
- Apply managerial and teamwork skills.
- Promote personnel and vessel safety.

During the internship, the student, as an intern, stands watch with each of the watchkeeping officers and carries out all assigned duties. They participate in vessel operations and cargo handling, practically learn about ship operations, maritime safety, and environmental protection regulations, and acquire skills in the preparation of ship-related documents. The intern must fulfill the assigned internship task on the vessel while simultaneously completing the specific elements of the internship in the "Ship Captain Trainee's Internship Book" for that particular ship. At the end of the internship, the student must submit the internship book to the captain or other responsible officer for the final assessment of the intern's competencies, which is confirmed by the responsible officer's signature. If any of the main tasks during the internship were not completed, it should be indicated that this task was not evaluated. The internship report is prepared by the student throughout the internship, in accordance with the main tasks and subtasks outlined in the internship book, which were completed during the internship. Each completed task should reference precise information sources to exclude the possibility of plagiarism. The student should avoid copying textual information and infringing on the rights of other authors, focusing more on personal notes, diagrams, and calculations. Upon returning from the internship, the student completes a post-internship survey within two working days and registers in the academy's system by entering the start and end dates of the internship (as indicated in the "Certificate of Work on a Vessel") and attaching scanned copies of the "Certificate of Work on a Vessel" and "Description of the Maritime Internship" for the respective internship. The internship results, report content, and achieved outcomes are discussed in department meetings, as well as in collaboration with the internship coordinator.

Since the 2017/2018 academic year, a student survey on the maritime internship has been introduced during the review period. Students are required to evaluate the following aspects on a scale of 1 (poor) to 4 (excellent): progress made during the internship, communication, responsiveness, living conditions, employment opportunities, and the desire to continue a career in the specified shipping company.

Criteria	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	Vidējais
Your professional readiness for the internship	3.25	3.30	3.25	3.05	2.96	3.16
Personal progress in mastering the specialization	3.68	3.78	3.39	3.30	3.30	3.49
Interaction (communication) with team members	3.37	3.62	3.64	3.54	3.52	3.54
Responsiveness of the ship's crew in carrying out the internship task	3.33	3.41	3.42	3.35	3.27	3.36
Do you agree to return to this shipping company?	3.30	3.33	3.44	3.36	3.04	3.29

As shown in the summarized average survey data in the table, students have rated all criteria above 3 points on a 4-point scale, which is considered a very good rating. The highest rating is given to the understanding with team members, which is an essential component of training, as well as the evaluation of personal progress in mastering the specialization, which is the second-best rating. These survey results indicate that the overall situation in providing internships and the preparedness of students is very good.

3.2.5. Evaluation and description of the promotion opportunities and the promotion process provided to the students of the doctoral study programme (if applicable).

3.2.6. Analysis and assessment of the topics of the final theses of the students, their relevance in the respective field, including the labour market, and the marks of the final theses.

At the end of the study process, a state examination (national exam) in maritime

English, a comprehensive examination in the specialization, and the defense of the reviewed thesis are scheduled.

Below is a table summarizing the average arithmetic grades of students in the final assessments during the review period of the study program.

	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022
Complex examination in the specialty	7.8	8.1	8.09	8.15	8.25	8.53
State exam in Maritime English	7.8	7.7	8.10	7.02	7.58	7.94
Thesis defense	6.6	6.7	6.92	7.05	6.72	7.03

As seen in the compiled data, the overall evaluations in the comprehensive specialization exam have been increasing each year, which demonstrates the high level of knowledge and professional competence acquired by the students during their studies. The state examination commission also consistently recognizes the students' knowledge and skills.

The evaluations in the English language state examination show some fluctuations but with a positive trend. The highest average grade in the English language state examination was observed in the academic year 2018/2019, followed by a slight decline in the average grades.

Similarly, the evaluations of the diploma theses have been increasing year by year. The relevance of the chosen thesis topics is based on contemporary requirements and industry development trends, as perceived by the thesis authors and their supervisors. The diploma theses are developed according to the guidelines provided by the institution. In accordance with these guidelines, the aim of the thesis is to systematize, expand, and reinforce the student's theoretical knowledge and practical skills. The thesis must include both a theoretical and practical research component.

The diploma thesis must meet the following requirements:

- The diploma thesis should involve an independent study of a specific problem in the maritime industry or a company within the industry.
- The latest scientific research and publications used in the thesis should be evaluated and referenced in the work.
- The thesis should address a specific and relevant problem that requires independent research.
- The thesis should demonstrate a thorough understanding of relevant specialized literature, economic information, and other sources, as well as the ability to analyze them using modern research and data processing methods.
- The thesis should provide a precise, clear, and logical presentation of the research process and results, including the author's conclusions and recommendations derived from the research.
- The thesis should showcase the ability to draw on foreign positive or negative

experiences in addressing specific technical and economic issues.

In the 2021/2022 academic year, the following diploma theses were defended with the following titles:

1. The Use of AIS Systems for Collision Avoidance of Ships.
2. Comparison of Different Hydrogen Transportation Methods in Maritime Transport.
3. Integration Possibilities of GMDSS Elements into the Ship's Integrated Bridge System.
4. Research and Analysis of Personal Location Indicator.
5. The Use of Virtual Reality in Maritime Education and Training.
6. Analysis of Collisions in Restricted Visibility Conditions to Improve the Practical Application of COLREG-72 Rule 19.
7. Forecasting the Development of Latvian Ports after the Approved Port Management Reform in 2021.
8. Organization of Bridge Watchkeeping on Cargo Ships in Different Navigational Conditions.
9. Implementation of Innovative Solutions for Electronic Documentation and Communication on Ships.
10. Analysis of the E-Navigation Concept, Evaluation of Effectiveness, and Required Solutions for Implementation on Ships.
11. Automatic Interaction between Ship and Shore Using E-Navigation.
12. Analysis of Factors Influencing Ship Chartering Rates.
13. Electric Power as the Ship's Main Energy Source and its Comparison with Other Energy Sources Used in Maritime Industry.
14. Increasing the Competitiveness of Latvian Maritime Professionals by Integrating Remote and Autonomous Ship Handling Skills into the Existing Bachelor's Degree Program "Maritime Transport - Navigation".
15. Underwater Hull Cleaning of Ships Using Remote-Controlled Cleaning Robots.
16. Evaluation of Ship Masters' Competence for Navigation in Narrow Waterways.
17. Evaluation of the Effectiveness of Tanker Safety Measures and Assessment of New Measures.
18. Monitoring the Health Condition of Cargo Ship Crews in Post-Pandemic Conditions.
19. Application of Sailing Technologies for Improving Energy Efficiency.
20. Analysis of Mutual Responsibilities of Ships in Encounters Using Traffic Separation Systems.
21. Improvement of Drinking Water Quality on Merchant Fleet Vessels.
22. Transformation of the Latvian Transportation Fleet after 1990.
23. Application of the Latest Technological Solutions for Reducing Ship Fuel Consumption.
24. Determination of Ship Position by Celestial Navigation without a Sextant.

25. Human Factors in Navigation Accidents of Large Container Ships.
26. Impact of Ship Process Automation on Ship Safety.
27. Possibility of EGNOS Utilization in Latvian Ports and Territorial Waters.
28. Analysis of Riga Freeport's Cooperation with the State Fire and Rescue Service in Emergency Situations.
29. Tax Policy and Social Protection of Employees in the Maritime Industry.
30. Practical Implementation of the ISM Code on Conventional Ships.
31. Aspects of Training Alarms Organization on Cargo and Passenger Ships.
32. Impact of ISPS Code and Standards Implementation on International Ship Safety: Analysis of Sailor Awareness.

Based on the list of thesis topics for the 2021/2022 academic year, it can be concluded that the topics cover a wide range of issues in both ship and shore operations, including safety concerns. The chosen topics reflect current issues in the maritime industry and offer perspectives and interesting themes from a scientific research standpoint.

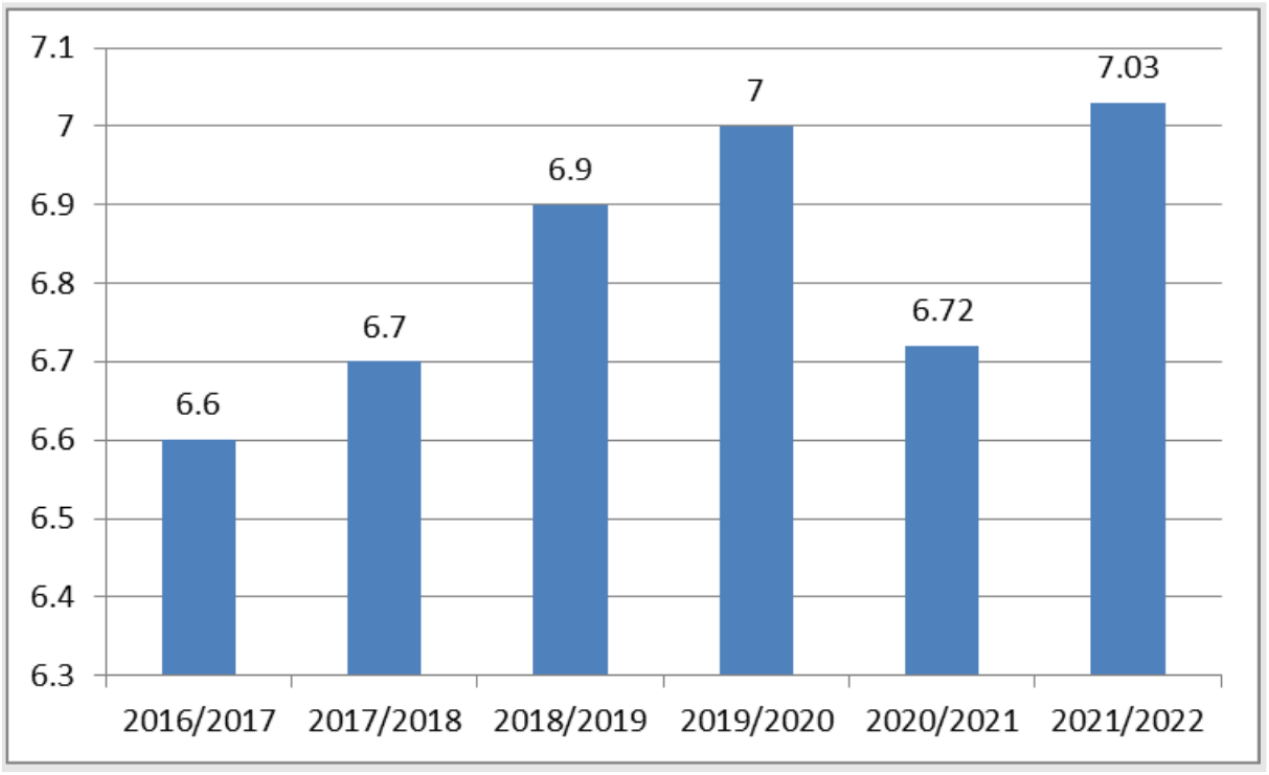
The relevance of the thesis topics in the industry is evidenced by the feedback from the State Examination Commission (Form P7-8):

- Several relevant topics of great importance in modern maritime industry were discussed.
- The study program fully covers all areas to prepare qualified navigators.
- Suggestions were made for more theses on current topics with practical applications.
- According to the commission, bachelor's theses should have a scientific orientation, at least at the level of ideas and topic development, and more industry specialists should be involved in supervising the theses.

The defense of the theses takes place in an open manner. The defense of the diploma thesis in the presence of the State Examination Commission begins with a presentation, which should not exceed 10 minutes. The presentation should include the most important introductory information about the thesis topic, key information about the theoretical foundation of the problem discussed in the main sections, the practical course of the study with results, conclusions, and recommendations derived from the conducted research, as well as answers to the reviewer's questions. After the defense, the commission members ask questions to clarify any insufficiently explained aspects in the candidate's report and to assess their overall preparedness. The diploma thesis is evaluated by the commission according to a 10-point scale, calculating the arithmetic mean of the individual assessments given by each commission member. The final evaluation of the thesis is determined in a closed session by the State Examination Commission through an open vote with a majority decision. The results are recorded in the defense protocol, which is signed by all commission members.

In the State Examination "Diploma Thesis" during the review period, fluctuations in the average rating from 6.6 to 7.1 are observed, as shown in the diagram below. In

the 2021/2022 academic year, the highest average rating was achieved, indicating the quality of the students' diploma theses and their improved research and information analysis skills.



Since the 2020/2021 academic year, students have had the opportunity to participate in innovation competitions organized by the Latvian Maritime Education and Research Development Fund to promote the achievement of project goals and address challenges in the maritime industry. During the innovation competition, students work on their innovation projects in collaboration with maritime industry companies, conducting research and facilitating the prototyping process. This approach ensures the integration of research and practical experience into higher education by closely collaborating with the industry.

3.3. Resources and Provision of the Study Programme

3.3.1. Assessment of the compliance of the resources and provision (study provision, scientific support (if applicable), informative provision (including libraries), material and technical provision, and financial provision) with the conditions for the implementation of the study programme and the learning outcomes to be achieved by providing the respective examples.

RTU LJA faculty members are provided with suitable workspaces equipped with the necessary computer equipment (desktop and laptop computers in each classroom, wireless internet network, required software and licenses, projectors), as well as a

library and reading room where faculty members and students have access to computerized workstations, as well as the ability to print and copy study materials. To meet the requirements of the STCW Convention and IMO modular courses, simulators, training equipment, navigation aids, and ship control models with visualization and appropriate software are maintained for the implementation of industry-specific professional specialization courses. In case of need, responsible faculty members are provided with instruction and IT technical support for working with the equipment. The mentioned equipment is available to students and faculty during the implementation of specialization courses, as well as outside of it, if the necessary equipment is not being used for student training at a specific time. The Navigational Safety study course is conducted at the RTU LJA Training Center and on the "Kadets" pontoon, where training takes place and ship operations are carried out.

Information on the fixed assets and intangible assets available in the first-cycle professional higher education study program "Maritime Transport - Navigation" is summarized in the attached appendix:

Training simulators and laboratories used in the study program:

- Are suitable for training purposes and tasks.
- Can simulate the operational capabilities of the relevant ship equipment as realistically as necessary for training purposes, including the equipment's functionalities, limitations, and possible malfunctions.
- Provide realistic conditions for human action, enabling students to acquire the skills corresponding to the training objectives.
- Ensure a controlled operating environment that allows the simulation of various conditions, including emergency, hazardous, or unusual situations in line with the training objectives.
- Provide an interface through which students can interact with the equipment, simulated environments, and, if applicable, with the instructor.
- Enable the instructor to guide, monitor, and record the training sessions for effective analysis of the results.

LMA's radar simulators can simulate the operational capabilities of navigation radar equipment in compliance with all applicable performance standards:

- Operate in stabilized relative motion mode and stabilized true motion mode relative to the sea and seabed.
- Simulate meteorological conditions, tidal movements, currents, shadow sectors, false echo signals, and other factors affecting the propagation of radio waves, as well as display coastlines, navigation buoys, and search and rescue radar responders.
- Create a real-time operational environment that includes at least two ship stations capable of changing their course and speed, and involve parameters for at least 20 target vessels and corresponding communication means.

LMA's Automatic Radar Plotting Aid (ARPA) simulator is capable of simulating the operational capabilities of ARPA equipment that complies with all applicable International Maritime Organization (IMO) performance standards. It is equipped with the following devices:

- Manual and automatic target acquisition capabilities.
- Provision of information about previous routes.
- Utilization of restricted areas.
- Display of vector/graphic time scales and data on the screen, as well as conducting trial maneuvers.

In general education courses and theoretical basic courses in the field, such as "Bridge Team and Resource Management," the Transas NaviTrainer Professional 5000 navigation simulator with seven visualization channels is used, providing a full mission navigation bridge experience [ARPA/RADAR with ECDIS and BRM].

Simulators and specialized software are utilized in professional specialization courses in the field. The NaviTrainer Professional 5000 navigation simulator - ARPA/RADAR with ECDIS (12 workstations) and NTPRO 5000 ver.5.40 navigation simulator are used in courses such as "Ship Handling, Maneuvering, and SAR" and "Use of Radar and ECDIS in Ship Handling.

GMDSS simulators, specifically the Transas TGS-5000 (with 10 workstations), are utilized in the course "Communication Organization and GMDSS."

The "NAPA Loading Computer" is employed to solve various practical tasks in study courses such as "Ship Cargo Transportation Technology," "Ship Theory," and "Ship Construction and Operation."

The study course "Ship Navigation Equipment" is equipped with a training room containing traditional ship navigation instruments and the PK-2306 Satellite Compass.

The study courses "Navigation," "Maritime Astronomy," and "Navigation Meteorology" are facilitated by training rooms furnished with chart tables, instruments, paper charts, and collections of navigation publications.

The study course "Maritime Safety" is conducted both in the premises of the Training Center and on the pontoon "Kadets," which is equipped with specialized technical equipment corresponding to the specific course program approved by the Maritime Register (e.g., lifeboats, life rafts, firefighting equipment, towing and mooring devices, first aid kits).

All the aforementioned simulators and technical equipment enable "learning through practice." With their assistance, students:

- Gain the ability to independently acquire knowledge and relate their studies to real situations.
- Develop their capacity to utilize their experience and acquire new skills.
- Learn to work collectively and take responsibility for their work results.
- Demonstrate proficiency in handling non-standard situations.
- Develop analytical skills to assess situations.

LMA's e-learning platform:

For remote studies, LMA utilizes the interactive e-learning platform omars.latja.lv,

which is based on the Moodle software framework.

In case of emergency situations, all necessary study materials, including course descriptions, are uploaded to the platform https://omars.latja.lv. The platform is regularly updated to ensure convenient access to study materials for both instructors and students.

LMA Library:

The Study Center Library provides access to previous years' students' theses/projects, methodological materials prepared by LMA faculty, and other types of technical support. The results of the 2021/2022 academic year Student Survey indicate that a portion of students (approximately 57%) believe they could obtain the necessary study books from the library, but students remain dissatisfied with the insufficient quantity of newer literature resources in their professional field. Students expressed their desire for a larger number of professional books to be available not only for reading within the library but also for loaning. Additionally, students would like to have more e-books. It should be noted that in the maritime industry, books are mostly available in foreign languages, with limited resources in Latvian.

Due to the measures implemented in response to COVID-19, aimed at reducing possible risks and declaring a state of emergency, the LMA Library continued its operations with significant restrictions. Users had the opportunity to remotely order the necessary study materials, which were prepared and provided to users in a safe manner following epidemiological guidelines.

Students and faculty have access to subscribed databases for studying and research purposes, including:

- EBSCO: Access to full-text and review databases in the humanities, social sciences, and exact sciences. Collection: National package AcademicSearchComplete.
- EBSCO: INSPEC: Access to full-text database in the exact sciences.
- KR - CON:2: Access to a subscription code for a specialized maritime regulatory document database.
- International Maritime Organization (IMO): Database of current IMO documents.

The review of the study program's methodological and informational support, as well as the determination of procurement and improvement measures, takes place at least once during the academic year, through the preparation of annual reports and quality objectives by the relevant structural units of LMA for the upcoming accreditation review period.

3.3.2. Assessment of the study provision and scientific base support, including the resources provided within the framework of cooperation with other science institutes and

higher education institutions (applicable to doctoral study programmes) (if applicable).

3.3.3. Indicate data on the available funding for the corresponding study programme, its funding sources and their use for the development of the study programme. Provide information on the costs per one student within this study programme, indicating the items included in the cost calculation and the percentage distribution of funding between the specified items. The minimum number of students in the study programme in order to ensure the profitability of the study programme (indicating separately the information on each language, type and form of the study programme implementation).

The funding for RTU LMA is provided from the state basic budget and consists of the base funding for the list of study programs and the number of students, which includes funds for utilities, taxes, infrastructure maintenance, acquisition of inventory and equipment, personnel salaries, as well as funding for scientific activities. The number of study places is allocated after discussions with the Ministry of Education and Science. The amount of base funding is determined based on the state-set number of study places at RTU, as well as the state-set base costs of study places and coefficients for the thematic areas of education.

The funding for the study program "Maritime Transport - Navigation" includes:

- Grant or basic budget funding (state budget-funded student training).
- Fee-based student funding (both full-time on-site and part-time distance learning fee-based student training, as well as fees for re-examinations).
- Performance-based funding (support for scientific activities).
- Funding for the research base.

Analyzing the overall funding of the study program, it can be seen that in the case of basic budget and local fee-paying students, long-term funding has been and is determined based on the state-defined principles. The determination of the funding amount takes into account both the coefficients of thematic area study costs and the values of the study cost coefficients according to the level of the study program, as well as the number of students in the study program and the study courses implemented therein. By using the coefficients of study costs for thematic areas of education, it is possible to determine the required funding amount for the implementation of a specific study program and study course.

The funding allocated from the state budget for the implementation of the study program per student is as follows: EUR 2771.19 in 2022 and EUR 3596.47 in 2023. RTU LMA has agreed with the Ministry of Education and Science to increase the budget funding per student by reducing the number of budget places. Comparing with 2015, the number of budget places decreased from 154 to 113 in 2023.

In addition to the state budget-funded study places, the study program is also financed by the income from fee-paying students, whether they are individuals or legal entities. There is a tendency for an increase in the number of fee-paying students. The share of fee-paying students in the total funding is more significant during the period when NDA cadets are being trained. The funding from fee-paying students is used for the renewal of material and technical support, attracting higher-level specialists to ensure the study process, and other purposes.

The tuition fee for the study program "Maritime Transport - Navigation" is EUR 3520 per year per student.

The tuition fee calculation includes the following positions:

Remuneration: 80.48%

Education, work, and official travel, business trips: 0.27%

Service fees: 12.44%

Acquisition of inventories, materials, energy resources, goods, office supplies, and equipment: 3.18%

Real estate tax: 0.15%

Capital formation: 2.23%

Deductions for sports and culture: 0.26%

Deductions for supporting scientific activities: 0.99%

The minimum number of students to ensure the profitability of the study program is 15 students.

RTU LMA units are motivated to attract additional external funding, such as through projects. This provides additional opportunities for the units to cover their expenses, ensure necessary development, and receive additional funding.

The financial resources for the study program are sufficient for its implementation.

3.4. Teaching Staff

3.4.1. Assessment of the compliance of the qualification of the teaching staff members (academic staff members, visiting professors, visiting associate professors, visiting docents, visiting lecturers, and visiting assistants) involved in the implementation of the study programme with the conditions for the implementation of the study programme and the provisions set out in the respective regulatory enactments. Provide information on how the qualification of the teaching staff members contributes to the achievement of the

learning outcomes.

In the implementation of the study programs, both the university's selected academic staff and guest lecturers and industry specialists are involved to enhance the quality of education and ensure the relevance to the field. The faculty members engaged in the implementation of the study programs are highly qualified with completed higher education degrees. They possess the necessary research skills, theoretical knowledge, and expertise to provide students with the required learning outcomes within the scope of the conducted courses, in accordance with STCW and higher education requirements. The qualification requirements for lecturers at maritime education institutions and training centers are determined by the Cabinet of Ministers Regulation No. 710 of December 15, 2015, "Regulations on Certification, Implementation, and Monitoring of Professional Preparation Programs for Seafarers." To deliver maritime professional education study programs or courses and assess the knowledge and skills acquired by the trainees, instructors-evaluators must be trained according to the requirements of STCW Convention Regulation I/6 and qualified in the field of instruction and evaluation. Compliance with STCW Convention requirements for instructor-evaluator is evidenced by a certificate issued by the Maritime Register of Latvia. This requirement does not apply to the faculty members of educational study programs who teach courses unrelated to the competencies defined in the STCW Convention (general courses specified in Section A-1 of the curriculum). To obtain an instructor-evaluator certificate, a person must receive training in teaching and assessment methodologies as well as maritime legislation. An instructor-evaluator providing training with a simulator must be trained to work with the specific type of simulator. After receiving the certificate, an instructor-evaluator renews their knowledge of the STCW Convention and other international regulatory requirements in the field of professional seafarer training every five years. All faculty members teaching specialized courses within the study program have obtained the appropriate instructor-evaluator certificates and regularly update their competencies and knowledge.

At the time of submitting the accreditation documents in the academic year 2022/2023, a total of 37 faculty members from the LMA staff are involved in the implementation of the first-cycle professional higher education study program "Maritime transport - Navigation." The faculty provision for the first-cycle study program is as follows:

Position	Number
Researchers	2
Assistants	1
Lecturers (including guest lecturers and acting lecturers)	9
Docents (including guest docents and acting docents)	17
Asoc. Professors	3

Professors	5
Total	***37***

The compliance of visiting professors, associate visiting professors, visiting docents, visiting lecturers, and visiting assistants is evaluated based on Section 4 of the Regulations No. 4 "On the Management of Academic Staff at the Latvian Maritime Academy" of the Latvian Maritime Academy dated February 24, 2003, specifically under the provision "Conclusion of Individual Employment Contracts." The evaluation criteria for the academic staff of LMA, who are eligible for additional or adjunct status, are specified in the Annex 2 of the mentioned regulations and include the following sections with respective subsections: pedagogical qualification, scientific qualification, organizational competence, as well as qualification for the faculty of specialized study courses in the respective field.

According to the aforementioned regulations, the minimum number of criteria for assessing the compliance of the job applicant's performance is summarized in the table.

Academic position	**Scientific qualification**	**Pedagogical qualification**	**organizational competence**	**Professional qualification**
Professor	5	6	3	-
Asoc. professor	4	5	2	-
Docent	3	4	1	1
Lecturer	2	3	-	1
Assistant	-	-	-	-

As stated in Annex 2 of the Regulations No. 4 "On the Management of Academic Staff at the Latvian Maritime Academy" of the Latvian Maritime Academy dated February 24, 2003, considering the practical considerations to ensure the educational process with professional faculty members who possess relevant professional work experience, relaxed criteria may be applied, with the basic criterion being the highest professional education and professional work experience corresponding to the course being taught.

The academic staff involved in the implementation of study programs are provided with regular opportunities for the improvement of methodological and didactic skills. The personnel of LMA actively participate in training courses organized by the LMA Training Center, professional English language courses, instructor-evaluator courses, as well as within the framework of the European Union's operational program "Growth and Employment," specific support objective 8.2.2 "Strengthening the strategic specialization of academic personnel in higher education institutions." Within the framework of the project implemented by the Ministry of Education and Science, the teaching staff had the opportunity to enhance their professional qualifications through courses facilitated by external service providers. Thanks to the interest and responsiveness of the employees, a large number of staff members—53 in total—have undergone qualification training in the 2021/2022 academic year, primarily due to the implementation of various projects. Detailed information on the

qualification enhancement measures for LMA personnel is summarized in the table.

Qualification Enhancement for LMA Staff in the 2021/2022 Academic Year

No.	Time Period	Name of Qualification Enhancement Course	Number of Hours	Number of Employees
1.	From 2021.august	Internship with a Commercial Entity in 2021	200 h	11
2.	15.09.-17.11.2021.	Project Management	60 h	14
3.	08.11.-12.11.2021.	English Language Internship with Foreign Language Department Lecturers	40 h	6
4.	08.11.-03.12.2021.	SOLAS basic safety course	56 h	7
5.	11.11.2021.-30.04.2022.	Advanced training in fire fighting	30 h	7
6.	13.11.2021.-21.05.2022.	Operation of Life-Saving Equipment (excluding Fast Rescue Boats)	31 h	6
7.	15.12.-17.12.2021	ISO 9001:2015 Internal Auditor Course	24 h	2
8.	30.12.2021.	Leadership and Team Building Skills in Maritime Industry	9 h	10
9.	16.03.-13.06.2022.	Bridge resource management	45 h	5
10.	01.04.2022.	Cybersecurity	2 h	16
11.	19.04.-18.05.2022.	Course on Online Course Development and Digitization of Study Content	19 h	15
12.	09.05.-10.05.2022.	Training on Eco-Innovation, Green Workplace, and Application of Green Public Procurement in Institutional Management Processes	4 h	13
13.	10.05.-27.05.2022.	Bridge resource management	40 h	8
14.	21.05.2022.	Quality Management of Studies in the European Higher Education Area	3 h	11
15.	09.06.2022.	Financial Management. Financial Sustainability of Higher Education Institutions	3 h	16
16.	27.06.-01.07.2022.	Communication and Collaboration in Digital Communication Management	8 h	15
17.	29.06.-30.06.2022.	Organization of Teamwork Remotely and In-Person	8 h	15
18.	04.07.-08.07.2022.	Digital Tools for Remote Work Teams	8 h	15
19.	15.08.-18.08.2022.	Training on CAD Technology in Shipbuilding - SolidWorks	28 h	5
20.	22.08.-26.08.2022.	Training on CAD Technology in Shipbuilding - SolidWorks	40 h	5

Qualification enhancement is promoted both locally and internationally by encouraging staff mobility to partner universities, participating with presentations, or attending international scientific conferences.

With the aim of improving competencies and enriching the study content, including addressing current industry problems through student research projects and familiarizing oneself with the latest technologies used in the field, academic staff members can undergo internships in industry companies. The companies where

academic staff internships will take place include SIA LSC, SIA KlipMarineShipmanagement, SIA Selandia Marine Shipmanagement, SIA Novikontas Jūras Koledža, HydroBalt, RĪGAS BRĪVOSTAS FLOTE, WT-terminal, SIA LAT-B.G.I., SIA Cryogenic and Vacuum Systems, STREK, and others.

The administration of LMA continuously monitors the quality assurance of the academic staff involved in the implementation of study programs. In the assessment conducted by internal and external auditors, the academic staff involved in the implementation of the study program meets the conditions for the implementation of the study program, the achievement of study results, and the requirements of regulatory acts. Analyzing the mechanisms implemented at LMA, auditors conclude that the qualifications and opportunities for qualification enhancement offered to academic staff contribute to the achievement of study program outcomes. Support for professional development and scientific activities facilitates the transfer of newly acquired knowledge and experience to the content of study courses, which significantly impacts the quality of education.

Additionally, LMA plans regular observations (hospitations) every semester, both on-site and through remote access to e-lectures, during which program directors monitor the study process and its quality.

3.4.2. Analysis and assessment of the changes to the composition of the teaching staff over the reporting period and their impact on the study quality.

The implementation of the study program involves teaching staff of various levels and professional qualifications. The teaching staff includes both practicing mariners (mostly LMA graduates) and professionals from maritime industry companies who can provide students with insights into industry trends and the latest developments that align with the current job market. Although the low level of remuneration in higher education complicates the recruitment of new teaching staff for independent work at LMA, auditors have repeatedly noted that the provision of teaching staff for ensuring the quality and sustainability of the study program is at a very high level.

The analysis of changes in the composition of teaching staff is summarized in the table (*the table does not differentiate between elected and non-elected academic personnel).

	2013/ 2014	2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022
Researcher*	0	0	0	0	0	0	0	0	1
Assistant *	2	3	3	2	2	2	0	0	1

Lecturer *	27	30	27	24	18	24	15	17	15
Docent *	14	21	19	21	16	20	21	19	17
Asoc. Prof.*	2	6	4	4	4	6	2	4	3
Prof. *	5	4	4	6	6	4	4	4	5
KOPĀ	***51***	***64***	***57***	***57***	***46***	***56***	***42***	***44***	***42***

As shown in the table, the total number of faculty members involved in the study program has been decreasing since the 2019/2020 academic year. Ensuring the long-term development of faculty succession is challenging due to financial considerations. The remuneration in the higher education sector as a whole is not competitive with the salaries received by industry experts in the private sector. As a result, graduates of the study program and industry representatives are not particularly interested in replacing or combining onboard work with shore-based work. Some practicing mariners are motivated to teach individual courses during their free time, but this creates difficulties in the course planning process since it is not always known in advance when a particular faculty member will be available for teaching after being relieved from onboard duty. In some cases, this results in classes being held during breaks (e.g., during the Easter break) or even extending the academic year, which is not positively received by students. Although it does not directly impact the quality of education, as all courses are fully implemented using the latest industry literature and engaging teaching methods, frequent changes in the course schedule can lead to dissatisfaction among students.

3.4.3. Information on the number of the scientific publications of the academic staff members, involved in the implementation of doctoral study programme, as published during the reporting period by listing the most significant publications published in Scopus or WoS CC indexed journals. As for the social sciences, humanitarian sciences, and the science of art, the scientific publications published in ERIH+ indexed journals or peer-reviewed monographs may be additionally specified. Information on the teaching staff included in the database of experts of the Latvian Council of Science in the relevant field of science (total number, name of the lecturer, field of science in which the teaching staff has the status of an expert and expiration date of the Latvian Council of Science expert) (if applicable).

3.4.4. Information on the participation of the academic staff, involved in the implementation of the doctoral study programme, in scientific projects as project managers or prime contractors/ subproject managers/ leading researchers by specifying the name of the relevant project, as well as the source and the amount of the funding. Provide information on the reporting period (if applicable).

3.4.5. Assessment of the cooperation between the teaching staff members by specifying the mechanisms used to promote the cooperation and ensure the interrelation between the study programme and study courses/ modules. Specify also the proportion of the number of the students and the teaching staff within the study programme (at the moment of the submission of the Self-Assessment Report).

The study process cannot be fully realized without the mutual cooperation of faculty members, which needs to be developed by adopting best practices. To facilitate this, LMA employs various mechanisms such as informal faculty meetings, unit sessions, discussions on study outcomes, and quality assurance principles. The faculty members involved in the implementation of the study program collaborate on the content and relevance of the study courses, ensuring coordination of topics to avoid duplication and promote course improvement and interconnection.

Informal faculty meetings are organized by LMA employees, providing a platform for discussing relevant issues in an informal atmosphere. If a formal decision is required for a particular issue (e.g., amending internal regulations, setting restrictions, etc.), unit managers are informed, and the matter is included in the unit's session.

During the planning process for the upcoming academic year, unit managers, together with faculty members, review and update the content of study courses, as well as align the course objectives, tasks, outcomes, and address other issues related to the teaching process and organizational activities. Unit sessions are regularly held, at least once a month, to facilitate communication among unit employees, distribute responsibilities, exchange experiences and opinions on current issues, and ensure the connection between study courses and the latest developments in the academic and industry fields. The improvement of study courses is based on suggestions from both students and faculty members, as well as members of the State Examination Commission. These sessions are documented in protocols for all unit employees to have access to the information, promoting information exchange even in cases when an employee cannot attend the session.

Analyzing the total number of students in the study program compared to the number of faculty members (both full-time on-site and part-time off-site), the ratio of faculty members to students is as follows: for the 2021/2022 academic year, the professional bachelor's study program "Maritime Transport - Navigation" had 42 faculty members and 299 students. On average, there is 1 faculty member for every 7.12 students (data as of October 1, 2022). Detailed information about the faculty members involved in the study program can be found in Appendix 2.3.7.

Annexes

III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		
Sample of the diploma and its supplement to be issued for completing the study programme	KV-BAK-diploms&pielikumsv2ENG.zip	KV-bak-diploms&pielikumsv2LV.zip
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)		
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)		
Statistics on the students in the reporting period	5.pielikums JT-KV.xlsx	5.pielikums JT-KV.xlsx
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard	P06_3.2.1._UCZ0(42525)_AtbilstibaValstsStandartam_ENGv3.docx	P06_3.2.1._UCZ0(42525)_AtbilstibaValstsStandartam_LVv2.docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)	P07_3.2.1._UCZ0(42525)_AtbProfStandd -ENGv3.docx	P07_3.2.1._UCZ0(42525)_AtbProfStand_LVv3.docx
Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)	Compliance with the specific regulatory framework of the relevant industry KVv2.docx	Atbilstība atbilstošās nozares specifiskajam normatīvajam regulējumam KVv2.docx
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme	P08-Kartejums_JT-KV-LV-ENGv2.zip	P08-Kartejums_JT-KV-BAK-LVv2.zip
The curriculum of the study programme (for each type and form of the implementation of the study programme)	JT-KV-BSc-V320_red15-pamatplansENGv2.zip	JT-KV-BSc-V320_red15-pamatplansLVv2.zip
Descriptions of the study courses/ modules	SKA-JT-KV-BAK-EN.zip	SKA-JT-KV-BAK-LV.zip
Description of the organisation of the internship of the students (if applicable)	PRAKSES_NOLIKUMS ENG.docx	P_3.2.4._UCZ(42525)_PRAKSES_NOLIKUMS.docx
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)		
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)		

Navigation (44525)

Study field	*Seafaring*
ProcedureStudyProgram.Name	*Navigation*
Education classification code	*44525*
Type of the study programme	*First cycle (professional qualification) higher education study programme (after secondary, short-cycle or first-cycle higher education)*
Name of the study programme director	*Imants*
Surname of the study programme director	*Aleksandrovs*
E-mail of the study programme director	*Imants.Aleksandrovs@rtu.lv*
Title of the study programme director	*Profesionālais bakalaura grāds jūras transportā un kuģu vadītāja kvalifikācija*
Phone of the study programme director	*+37126599476*
Goal of the study programme	*The aim of the study program is to prepare high-quality, internationally recognized professionals at the management level in the maritime industry who are capable of ship navigation, cargo handling and stowage, radio communication organization, ensuring ship and crew safety, as well as implementing environmental protection measures on board ships, in accordance with the requirements set forth in Standard A-II/2 of the International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW) Code.*
Tasks of the study programme	*The program aims to educate students and enable them to obtain the Level 6 Professional Qualification "Ship navigator (Management Level)", while also enhancing the competitiveness of program graduates in the changing socio-economic conditions and the international job market.*

Results of the study programme	*Graduates of the First-cycle Professional Higher Education Study Program in Navigation:* *Demonstrate understanding of the most important concepts and principles, as well as development trends, in the maritime transport industry, and actively contribute to the development of the maritime sector.* *Independently acquire, select, and analyze information, make decisions, and solve problems related to the maritime transport industry.* *Possess knowledge and understanding of environmental issues and environmental protection, and evaluate the impact of their professional activities on the environment and society.* *Independently structure their own learning, direct their own and others' further learning and professional development, demonstrate a scientific approach to problem-solving, take responsibility and initiative in performing tasks individually, as part of a team, or in a leadership role, make decisions, and find creative solutions in changing or uncertain circumstances.* *Apply acquired theoretical foundations and skills to carry out professional, innovative, or research activities, formulate and analytically describe information, problems, and solutions in the maritime transport industry or the profession of ship navigation.* *Ensure compliance with the requirements of professional qualifications.*
Final examination upon the completion of the study programme	*1. State exam in Maritime English.* *2. Complex examination in the specialty.* *3. Public Defense of the Reviewed Thesis.*

Study programme forms

Full time studies - 2 years - latvian

Study type and form	*Full time studies*
Duration in full years	*2*
Duration in month	*0*
Language	*latvian*
Amount (CP)	*90*
Admission requirements (in English)	*Short cycle professional higher maritime education and fifth level professional qualification navigator (operating level)*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	*—*
Qualification to be obtained (in english)	*Navigator (management level)*

Places of implementation

Place name	City	Address
Latvian Maritime Academy	RĪGA	FLOTES IELA 12 K-1, KURZEMES RAJONS, RĪGA, LV-1016

Part time extramural studies - 3 years - latvian

Study type and form	*Part time extramural studies*
Duration in full years	*3*

Duration in month	*0*
Language	*latvian*
Amount (CP)	*90*
Admission requirements (in English)	*Short cycle professional higher maritime education and fifth level professional qualification navigator (operating level)*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	—
Qualification to be obtained (in english)	*Navigator (management level)*

Places of implementation

Place name	City	Address
Latvian Maritime Academy	RĪGA	FLOTES IELA 12 K-1, KURZEMES RAJONS, RĪGA, LV-1016

3.1. Indicators Describing the Study Programme

3.1.1. Description and analysis of changes in the parameters of the study programme made since the issuance of the previous accreditation form of the study field or issuance of the study programme license, if the study programme is not included on the accreditation form of the study field, including changes planned within the evaluation procedure of the study field evaluation procedure.

Since the previous accreditation review of the study field, the address of the implementation site of the study program has not changed, but the legal name of the institution has changed due to the Cabinet of Ministers Order No. 492 "On the Reorganization of Latvian Maritime Academy," which integrated it into Riga Technical University starting from 1 November 2022. In addition to the Cabinet Order No. 492, the specific provisions regarding the establishment and operation of RTU Maritime Academy are defined in the tripartite agreement "Cooperation Agreement No. 2-2e/22/392 on the Integration of Latvian Maritime Academy into the Structure of Riga Technical University." This agreement, in accordance with point 4.2 of the Cabinet Order No. 492, was concluded on 27 October 2022, between the Ministry of Education and Science, RTU, and Latvian Maritime Academy as a higher education institution. It stipulates that the status of RTU Maritime Academy corresponds to the status of an independent institute within RTU. Since receiving the previous accreditation report, there has also been a change in the director of the study program.

The changes in the first-cycle professional higher education study program "Navigation" since the previous accreditation period are summarized in the following table:

	Parameters of the program submitted in the previous accreditation:	**Parameters of the program submitted in the current accreditation:**
Implementation location:	Latvian Maritime Academy, Flotes iela 12, k-1, Riga, LV-1016, Latvia	Latvian Maritime Academy, Riga Technical University, Flotes iela 12, k-1, Riga, LV-1016, Latvia
Program Director:	**Svetlana Izmailova**	**Imants Aleksandrovs**

In accordance with the Manila Amendments to the STCW Convention in 2016, the first-cycle professional study program "Navigation," designed for graduates of the short-cycle professional higher education program, has been enhanced to provide students with comprehensive theoretical and practical knowledge in the field of study. As a result of the changes made, the number of credit points (CP) has been adjusted in certain courses, and the distribution of courses across semesters has slightly changed.

The changes in the study curriculum are as follows:

Part A: Compulsory Courses

A-1 General Education Courses (9 CP, unchanged)

1. The course "English Language" has been renamed to "Maritime English Language," with the same number of credit points (3 CP).
2. The course "Psychology of Human Relations" has been renamed to "Psychology of Human Relations in the Maritime Environment," with the same number of credit points (2 CP).
3. The course "Philosophy" has been renamed to "Philosophy of Science," with the same number of credit points (2 CP).

A-2 Specialization Courses (22 CP, increased by 1 CP)

1. The course "Information Technology" has been renamed to "Ship Computer Networks and Cybersecurity," with the same number of credit points (2 CP).
2. The course "Chemistry" has been renamed to "Applied Chemistry," with the same number of credit points (2 CP).
3. The course "Mathematics" has increased by 2 KP (now 6 CP).
4. The course "Technical Mechanics" has been renamed to "Technical Mechanics for Ship Navigators," with the same number of credit points (2 CP).
5. 1 CP has been removed from the course "Basics of Gyroscopic Theory" and its content has been integrated into the course "Navigation Technical Equipment."

A-3 Professional Specialization Courses in the Industry (21 CP, increased by 1 CP)

1. The course "Maritime English Language" has been renamed to "Maritime English Language for Ship Navigators," with the same number of credit points (5 CP).
2. The course "Ship Navigation Technical Equipment" has been supplemented with 1 CP.

Part B: Restricted Elective Courses (2 CP, unchanged)

1. The elective course "Labor Legislation" has been renamed to "Labor Legislation on Ships," with the same number of credit points (1 CP).
2. The elective course "Environmental Pollution Prevention" has been renamed to "Environmental Pollution Prevention at Sea," with the same number of credit points (1 CP).

Part C: Free choice study courses (4 CP, volume remains unchanged)

1. Study course "Fundamentals of theses development and presentation skills", the number of CP remains unchanged (2 CP);
2. Study course "Marine Innovations", the number of CP remains unchanged (2 CP).
3. Study course "Project management in maritime transport", the number of CP remains unchanged (2 CP).

Part D: Internship and Practical Training (20 KP, decreased by 2 KP)

E daļa STATE EXAMINATION (12 CP, amount remains unchanged)

1. Study course "Maritime English", the number of CP remains unchanged (1 CP);
2. Study course "Qualification exam in specialty", the number of CP remains unchanged (1 CP).
3. Study course "thesis", the number of credits remains unchanged (10 CP).

3.1.2. Analysis and assessment of the study programme compliance with the study field.

Analysis of the interrelation between the code of the study programme, the degree, professional qualification/professional qualification requirements or the degree and professional qualification to be acquired, the aims, objectives, learning outcomes, and the admission requirements. Description of the duration and scope of the implementation of the study programme (including different options of the study programme implementation) and evaluation of its usefulness.

In accordance with the provisions of Cabinet Regulation No. 793 on the establishment of a new study field, the accreditation documents are submitted in the study field "Seafaring", which aligns most closely with the study programs implemented by RTU LMA, including the first-cycle professional higher education study program "Navigation". According to the requirements of the study field, the study program provides high-quality maritime education, closely aligning with the demands of the labor market and industry needs, thereby ensuring a competitive workforce in maritime engineering.

The first-cycle professional higher education study program "Navigation" corresponds to level 6 of the European Qualifications Framework, enabling students to acquire in-depth theoretical knowledge in the field of maritime transport and ship navigation in accordance with the module requirements of the International Maritime Organization's (IMO) International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW with amendments). During the study process, students' practical skills are developed through the use of simulators and mandatory sea training, which is a prerequisite for completing the study program and obtaining professional qualifications. The name of the study program, professional qualification, objectives, and tasks, as well as admission requirements, comply with the level of implementation of the STCW-78 Convention with amendments by the International Maritime Organization (IMO). Admission requirements and the content of the study program are interrelated, aligned with industry requirements, and coordinated with the Seafarer Register of the Latvian Maritime Administration.

To achieve the set goals of the study program, standardized admission requirements have been defined since the early stages of its implementation. Admission requirements are determined in accordance with regulatory enactments, including the Higher Education Law, Sections 46 and 47, Cabinet Regulation No. 846 of October 10, 2006, "Requirements, Criteria, and Procedures for Admission to Study Programs," and LMA's internal procedure P5 "Admission."

The planning, organization, and implementation of the study process (including the volume, duration, type, and format of the study program) are carried out in accordance with the Constitution of the Republic of Latvia, the Education Law, the Law on Institutions of Higher Education, the Law on Vocational Education, the Law on Scientific Activities, and the LMA Constitution.

The training of ship officers is carried out in accordance with the International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers

with amendments, European Union directives, Cabinet Regulation No. 710 of December 15, 2015, "Regulations on Certification, Implementation, and Monitoring of Professional Training Programs for Seafarers," and other relevant regulatory enactments, as well as LMA's internal regulations.

Duration and scope of study program implementation:

Program name:	**Scope of the study program (CP, also recommended in ECTS):**	**Full-time attendance:**	**Part-time absence:**
First-cycle Professional Higher Education Study Program ”Navigation”	**90 CP, 135 ECTS**	**2 years**	**3 – 6 years**

3.1.3. Economic and/ or social substantiation of the study programme, analysis of graduates' employment.

As known, Latvia has a long-standing tradition in the maritime profession, and it continues to be highly demanded in modern times. In terms of the number of seafarers per economically active population, Latvia has consistently been at the forefront in the European Union and among the top-ranked countries globally. As of January 3, 2023, the Seafarer Register of the State Joint-Stock Company "Latvian Maritime Administration" recorded 10,830 seafarers.

Similar to other industries, with the introduction of new technologies and digital solutions, there is a significant increase in demand for highly skilled workforce in the maritime transport sector. According to a survey conducted by the Seafarer Register in the third quarter of 2022 among Latvian seafarer recruitment companies, it was found that the demand for Latvian seafarers far exceeds the actual supply. Based on the companies' responses and available vacancy data compared to the number of graduates who completed maritime education programs in 2022, it is evident that the demand for Latvian seafarers continues to surpass the supply. Currently, the industry is facing a particular shortage of both ordinary seafarers and deck officers (ratings) as well as management-level ship navigators (third officers, second officers, chief mates, captains). Unlike other study programs, in the first-cycle professional higher education study program "Navigation," which is designed for graduates of the short-cycle study program, the students are already employed in their profession, and the studies in this program aim to enhance their professional skills, knowledge, and competencies in line with the qualifications of a ship navigation officer according to

the standard A-II/2 "Master on ships of 3000 gross tonnage or more." Considering the continuous demand in the industry for highly qualified ship navigators, it is projected that all graduates of the study program, after obtaining the required maritime certification, will be employed according to their acquired education and professional qualifications.

3.1.4. Statistical data on the students of the respective study programme, the dynamics of the number of the students, and the factors affecting the changes to the number of the students. The analysis shall be broken down into different study forms, types, and languages.

First-cycle professional higher education program "Navigation"

During the review period, this study program is only implemented as part-time distance learning.

Part-time distance learning (studies in Latvian).

When examining statistical data on students enrolled in the study program, it can be observed that the overall number of students is small, but the interest in this study program remains. Admission results indicate that after a longer hiatus, there has been a rapid increase in the number of newly enrolled students in the 2021/2022 academic year, which is a positive indicator.

Analyzing the data from the review period, we can conclude that during the period between the 2012/2013 and 2019/2020 academic years, the number of students gradually decreased, but it started to increase again in the 2021/2022 academic year. The number of graduates during the review period is small. Since 2018, no student has graduated from this study program.

The aforementioned statistical data can be explained by the fact that potential applicants, with their work experience, have already achieved a certain level of maturity and financial stability, making it difficult for them to commit to studies. The first-cycle professional higher education study program is typically pursued by graduates of the short-cycle study program, and therefore, the number of students in both study programs is proportionally related. It is known that graduates of short-cycle professional higher education programs, active seafarers, often choose a faster way to progress in their careers by attending professional development courses instead of obtaining a degree in ship navigation engineering, and only a few students choose to continue their studies in the first-cycle study program.

3.1.5. Substantiation of the development of the joint study programme and description and evaluation of the choice of partner universities, including information on the

development and implementation of the joint study programme (if applicable).

3.2. The Content of Studies and Implementation Thereof

3.2.1. Analysis of the content of the study programme. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators with the aims of the study course/ module and the aims and intended outcomes of the study programme. Assessment of the relevance of the content of the study courses/ modules and compliance with the needs of the relevant industry, labour market and with the trends in science on how and whether the content of the study courses/ modules is updated in line with the development trends of the relevant industry, labour market, and science.

Maritime education is based on the International Maritime Organization's (IMO) International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW) convention modules. These modules include requirements for different levels of professional competence, which must be considered in the implementation of study programs. This process is regulated and monitored by the Maritime Registry unit of the Latvian Maritime Administration. Therefore, maritime education is overseen and evaluated by both the Ministry of Education and Science of the Republic of Latvia and the Maritime Registry of the Latvian Maritime Administration.

The planning, organization, and implementation of the study process are carried out in accordance with the Constitution of the Republic of Latvia, the Education Law, the Higher Education Law, the Vocational Education Law, the Scientific Activities Law, and the Constitution of the Latvian Maritime Administration. The training of ship officers is conducted in accordance with the International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers, relevant directives of the European Union, and other applicable regulations, such as Cabinet Regulation No. 710 of December 15, 2015, "Regulations on Certification, Implementation, and Supervision of Professional Training Programs for Seafarers," and internal regulations of the Latvian Maritime Administration.

The goals, objectives, and expected outcomes of the study program fundamentally reflect the set of knowledge, skills, and competencies acquired through the study courses and practical training within the program. Detailed information about the objectives, outcomes, topics, etc., of each specific study course is provided in the description of that particular course.

In order for a graduate to obtain competence certificates from the Maritime Registry

of the Latvian Maritime Administration, the necessary seafarer training courses are integrated into the study program.

FIRST-CYCLE PROFESSIONAL HIGHER EDUCATION STUDY PROGRAMME "NAVIGATION" (AFTER COMPLETION OF THE SHORT-CYCLE STUDY PROGRAMME)		
STUDY COURSE	**TRAINING COURSE TITLE**	**REFERENCE**
A-3 Industry professional specialization study courses		
Use of RLS and ECDIS in ship management	*Radar Navigation, Radar Plotting and Use of ARPA at Operational Level*	IMO Model Course 1.07 and STCW Code A-II/1
	Operational use of Electronic Chart Display and Information Systems (ECDIS)	IMO Model Course 1.27 STCW Code A-II/1, A-II/2
Maritime english		IMO Model Course 3.17

The assessment of the relevance and compliance of the content of study courses with the needs of the industry, labor market, and scientific trends is carried out in accordance with the Procedure Handbook of the Latvian Maritime Administration No. P4-3 "Development and Maintenance of Study Course Documentation" and Procedure No. P4-4 "Maintenance of Study Course Documentation". The study course descriptions are regularly updated, taking into account student-centered education principles, industry trends, and recommendations from members of the State Examination Commission. The study course descriptions of the first-cycle professional higher education study program "Navigation" were last updated in May 2023.

The study program ensures active integration of information included in the study courses with the set objectives and achievable outcomes. The outcomes of each individual study course are connected to the outcomes of the study program, as each study course is an integral part of the study program. Upon analyzing the content of the study courses, it has been observed that the selection of topics corresponds to the defined outcomes of the study courses - knowledge, skills, and professional competencies in accordance with the requirements of the STCW and higher education. The achievement of study program outcomes occurs logically and sequentially, and the included study courses ensure the attainment of all study program outcomes, with all the study courses in the program oriented towards the overall achievement of the study program outcomes.

To ensure continuous improvement of the content and quality of the study programs, and to update the content of the study courses in line with industry, labor market, and scientific development trends, external and internal quality evaluations of the study programs are taken into account. These evaluations include surveys of students, graduates, internships, and employers, providing a comprehensive assessment of the

overall quality of the study process.

The feedback from employers and professional organizations is based on the opinions formed during student internships and state examinations, and their feedback indicates that the resources of the study program successfully support the achievement of the program's objectives. The obtained results are analyzed annually and used for the enhancement of the study program - additional material and technical resources are procured, the study information base is supplemented, and the study courses are improved in collaboration with the course instructors. Overall, the surveys of students, graduates, employers, and industry specialists consistently indicate that the study program is positively evaluated and the competencies acquired are relevant in the labor market.

To ensure continuous analysis of the study courses, study program directors and administration regularly plan for observations, both on-site and through remote platforms such as Zoom or Teams, where the observer connects to the e-lecture.

Additionally, a content audit of the study courses is conducted each year to control and update the course content, teaching methods, and achievable outcomes.

3.2.2. In the case of master's and doctoral study programmes, specify and provide the justification as to whether the degrees are awarded in view of the developments and findings in the field of science or artistic creation. In the case of a doctoral study programme, provide a description of the main research roadmaps and the impact of the study programme on research and other education levels (if applicable).

3.2.3. Assessment of the study programme including the study course/ module implementation methods by indicating what the methods are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study programme. In the case of a joint study programme, or in case the study programme is implemented in a foreign language or in the form of distance learning, describe in detail the methods used to deliver such a study programme. Provide an explanation of how the student-centred principles are taken into account in the implementation of the study process.

In the implementation of the study process, the following principles of student-centered teaching and learning are taken into account: each student is treated as an individual, and work with students is conducted both in groups and (to the extent possible) through individual consultations to help them understand the topics of the study course. When starting their studies, students are familiarized with the

requirements, assessment criteria, and achievable outcomes of the respective study course. The assessment criteria are chosen to provide students with an overview of the extent to which they have achieved the expected study outcomes. Students receive feedback indicating the directions for their learning process and competence development. The teaching process promotes the ability of students to learn independently, search and select information, as well as fosters academic and professional growth. Mutual respect between the instructors and students is encouraged. LMA has developed procedures that allow students to provide feedback on the quality of the study process, giving them the opportunity to influence their own study process. Students are involved in the evaluation of the quality of study programs every semester.

The implementation of the study program utilizes creative and collaborative teaching methods to promote understanding, critical thinking, and communication. These methods include working in pairs/groups, seminars and discussions, case studies, and problem analysis. PowerPoint presentations with visual materials, instructional videos, and audio materials are used for lecture explanations. Within the study course, students receive feedback from the instructor regarding their performance and growth opportunities. The organization of the study content ensures a sequential and in-depth acquisition of the intended knowledge of the study program and is oriented towards practical examples and problem-solving in the maritime industry.

Ship navigation and engineering systems are currently more technologically advanced than ever before, and students become familiar with these technologies within the study program. In accordance with the requirements of the STCW convention, the professional study courses in the industry actively utilize GMDSS, ARPA/RADAR, bridge simulators, the navigation and technical equipment laboratory, as well as the navigation laboratory, where students are introduced to ship navigation technical means and equipment during lectures. The use of simulators in the study process offers several significant advantages:

1. The use of simulators allows students to experiment with multiple approaches to problem-solving in a safe environment and offers the opportunity to "review and repeat" more complex scenarios and receive feedback from the instructor during the course of the study.
2. Simulators can be used for both normal and emergency situation training, reducing the risk of endangering people or the environment.
3. The use of simulators enables students to acquire and demonstrate the skills and competencies specified in the study program, as well as to try out different decision-making options in the study process to see which yields the desired results. It also facilitates the development of critical thinking and situational understanding at multiple levels.
4. Simulators allow targeted exercises to be performed within a few minutes, compared to the time it would take to experience the same situation on a ship. They also provide repetitive actions that can be repeated multiple times to

accelerate student learning and skill development.

Since 2020, the Latvian Maritime Academy (LMA) has been using the interactive e-learning environment platform omars.latja.lv, which is based on the Moodle software. The study process is supported through the use of IT tools such as Zoom or Microsoft Teams platforms, which involve the use of video cameras and microphones, ensuring a quality learning experience and facilitating communication between instructors and students. All academic units of LMA continuously enhance the e-learning environment to ensure full accessibility of the content included in all study programs within the e-learning platform. LMA is constantly working on the development of the interactive e-learning platform OMARS, and instructors create new study materials and activities as needed, as well as adapt existing ones for remote work with students. Pedagogical methods and solutions are carefully chosen to achieve the goals of each study course and facilitate the acquisition of defined knowledge, skills, and competencies during remote learning. Systematic and high-quality feedback is provided to students on their learning process and performance, as well as the necessary improvements.

3.2.4. If the study programme envisages an internship, describe the internship opportunities offered to students, provision and work organization, including whether the higher education institution/ college helps students to find an internship place. If the study programme is implemented in a foreign language, provide information on how internship opportunities are provided in a foreign language, including for foreign students. To provide analysis and evaluation of the connection of the tasks set for students during the internship included in the study programme with the learning outcomes of the study programme (if applicable).

The internship comprises 52 CP credits. The implementation of the internship is regulated by the Guidelines No.2 "On the Sea/Shore Internship for full-time and part-time professional bachelor's study programs in Sea Transport - Ship Management, Sea Transport - Marine Engineering, and Sea Transport - Marine Electroautomation" approved by the RTU Rector's Order No. 01000-1.1-e/152 on 22.05.2023. For candidates aspiring to be certified as Navigation Watchkeeping Officers on ships with a gross tonnage of 500 GT or more, sea practice is an integral part of the training program. The objective of the internship is to consolidate and enhance theoretical knowledge and practical skills.

The internship department at LMA ensures the provision of sea internships, prepares tripartite agreements, and maintains records of internships. The internship planner advises, informs, and educates LMA students on career development matters, provides support in career planning and development, including job search skills. The internship department monitors the progress of internships and the execution of internship programs. Internship placements are offered to students only in companies

and crewing agencies that ensure the intern's well-being and the fulfillment of the internship program.

In the part-time distance learning study programs, the internship at sea is conducted for a total of 20 credits. Part-time distance learning students, upon commencing their studies, receive internship assignments and complete the internship concurrently with their studies. The defense of the internship report takes place before the State Examination Board, and as proof of the internship, students receive a Certificate of Competence for the Ship's Officer issued by the Latvian Maritime Administration or a statement on the acquisition of the required service for obtaining this certificate (Sea Service Report).

The internship is carried out in accordance with the tripartite Internship Agreement concluded between the Latvian Maritime Academy, shipping companies, and interns. The Internship Agreement includes the objectives and tasks of the internship, as well as the obligations and responsibilities of the parties involved. The Maritime Department of LMA has developed the Internship Assignment and Requirements, which are aligned with the Internship Manual approved by the Maritime Administration. The internship report includes a section where students and the ship's captain or the designated officer in charge of the ship - the internship supervisor can provide their suggestions for improving the internship program and studies. Upon receiving and evaluating the internship reports, these suggestions are discussed with the students who submitted the reports and serve as a basis for adjusting the internship assignments.

To ensure internship placements on sea vessels, the rector of LMA has entered into cooperation agreements with several companies, including LSC, LAPA Ltd, BaltCrew Agency OU, WELL Co. Ltd, Anglo-Eastern, BSM CSC Latvia (Bernhard Schulte Shipmanagement), and others, where LMA students are sent for sea internships. The major providers of internship placements for LMA offer students the opportunity to practice on vessels operated by internationally recognized companies and also provide them with the possibility of pursuing their professional careers in these companies as graduates.

The collaboration with companies and crewing agencies is conducted as follows:

1. The internship department of the LMA prepares tripartite agreements.
2. The LJA establishes and maintains relationships with crewing companies where graduates of study programs work. Potential employers, observing the students' work during internships, can choose the specialists they need and offer employment contracts.
3. Feedback for the improvement of the learning process. Regular surveys of employers are conducted to determine their satisfaction and the level of preparedness of LMA students.
4. Employers are involved in the qualification defense commission and participate in the defense process.

Student internships are linked to the learning outcomes of the study program, using the Practitioner's Logbook for Ship's Master and preparing reports according to LMA Procedure P6-3 guidelines. During internships, students acquire knowledge and skills in the following competencies:

1. Plan and conduct passages and determine the vessel's position.
2. Determine the vessel's position and verify the accuracy of the specified locations using all available means.
3. Perform safe navigation watchkeeping.
4. Determine watchkeeping measures and procedures.
5. Maintain safe navigation using information obtained from navigation equipment and systems, assisting in decision-making.
6. Use radar and Automatic Radar Plotting Aid (ARPA) for safe navigation.
7. Use Electronic Chart Display and Information System (ECDIS) to maintain navigational safety.
8. Maritime safety.
9. Respond to distress signals at sea.
10. Forecast meteorological and oceanographic conditions.
11. React in ship handling emergency situations.
12. Main propulsion machinery and control of technical equipment and systems at a distance.
13. Use IMO Standard Marine Communication Phrases and communicate in written and oral English.
14. Transmit and receive information using visual signaling.
15. Maneuver the vessel.
16. Monitor cargo loading, stowage, securing, and unloading, ensuring necessary conditions during the voyage.
17. Plan and ensure safe cargo loading, stowage, securing, and unloading, and provide necessary conditions for the cargo during the voyage.
18. Transport dangerous goods.
19. Inspect cargo spaces, hatch covers, and ballast tanks, and report defects and damages.
20. Evaluate defects and damages in cargo spaces, hatch covers, and ballast tanks as reported and take appropriate actions.
21. Control draft, trim, and stress.
22. Ensure compliance with pollution prevention requirements.
23. Maintain the vessel's seaworthiness.
24. Prevent, control, and fight fires on board.
25. Develop emergency response plans and damage control plans and act in emergency situations.
26. Use life-saving appliances.
27. Provide first aid on board.

28. Utilize leadership and organizational skills.
29. Monitor compliance with legal requirements.
30. Apply managerial and teamwork skills.
31. Promote personnel and vessel safety.

During the internship, the student-practitioner stands watch with each of the watch officers and performs all assigned duties, participates in vessel operations and cargo handling operations, practically learns the vessel's operations, navigation safety, and environmental protection regulations, and acquires skills in the preparation of documents related to the vessel's operations. The intern must fulfill the prescribed internship task on the vessel and simultaneously complete the "Ship Officer Trainee Internship Logbook" for the specific vessel, mastering the internship elements specified in the logbook. At the end of the internship, the student submits the internship logbook to the captain or other responsible officer for the final assessment of the intern's competencies, which is endorsed by the responsible officer's signature. If any of the main tasks were not mastered during the internship, it should be indicated that this task was not assessed. The intern prepares the internship task report throughout the internship in accordance with the main tasks and subtasks specified in the logbook, which were mastered during the internship. Each completed task should include references to precise sources of information to avoid the possibility of plagiarism. The student should avoid copying textual information, emphasizing personal notes, diagrams, and calculations. Upon returning from the internship, the student fills out a post-internship survey questionnaire within two working days and registers in the LMA system, entering the start and end dates of the internship (as indicated in the "Certificate of Work on the Vessel") and attaching scanned copies of the "Certificate of Work on the Vessel" and "Evaluation of the Sea Internship" for the respective internship. The internship results, report content, and achieved outcomes are discussed in unit meetings and through collaboration with the internship planner.

3.2.5. Evaluation and description of the promotion opportunities and the promotion process provided to the students of the doctoral study programme (if applicable).

3.2.6. Analysis and assessment of the topics of the final theses of the students, their relevance in the respective field, including the labour market, and the marks of the final theses.

At the end of the study process, a state examination (national exam) in maritime English, a comprehensive examination in the specialization, and the defense of the

reviewed thesis are scheduled.

Below is a table summarizing the average arithmetic grades of students in the final assessments during the review period of the study program.

	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022
Complex examination in the specialty	6.5	9	-	-	-	-
State exam in Maritime English	6.0	8.0	-	-	-	-
Thesis defense	6.5	8.0	-	-	-	-

As can be seen, over the last 4 academic years, none of the students in the first-cycle study program have taken the final examinations. Therefore, data is available only for the 2016/2017 and 2017/2018 academic years. The table shows a significant increase in the average grade in the comprehensive examination in the specialization, the state examination in maritime English, and the thesis development. However, this is not a completely objective indicator because in the 2017/2018 academic year, only one student completed the study program and took the final examinations with excellent knowledge in all study areas.

The topics of the students' final theses (diploma theses) are selected in accordance with industry requirements and the ability to develop research within the allocated time. Relevance is determined by contemporary demands and industry development trends from the perspective of the thesis author and their supervisor. The theses are developed in accordance with the LJA Guidelines No. 17 "On the Development of Diploma Theses in the Department of Maritime Transport" with relevant amendments due to organizational structure changes. According to the regulations, the purpose of the thesis is to systematize, expand, and strengthen the student's theoretical knowledge and practical skills. The thesis must include both theoretical and practical research components. In the theoretical part, the student must demonstrate the ability to solve a specific theoretical problem, which should be connected to the analytical part of the work.

The thesis must adhere to the following requirements:

1. The thesis should involve independent research on a specific problem in the maritime industry or a company.
2. The latest scientific research and publications used in the thesis should be evaluated.
3. The thesis should address a specific and relevant problem for independent research.
4. It should demonstrate knowledge of relevant specialized literature, economic information, and other sources, as well as the ability to analyze them using modern research and data processing methods.

5. The thesis should provide a precise, clear, and logical presentation of the research process and results, including the author's conclusions and recommendations based on the research findings.
6. It should demonstrate the ability to utilize positive or negative foreign experiences in solving specific technical and economic issues.

To improve the development of the State Examination "Thesis" and presentation skills, a elective course "Fundamentals of Thesis Writing and Presentation Skills" has been offered since the academic year 2014/2015. Additionally, starting from the academic year 2020/2021, the course catalog includes an elective course "Maritime Innovations". Furthermore, from the academic year 2020/2021, students have the opportunity to participate in innovation competitions organized by the Latvian Maritime Education and Research Development Fund to promote the achievement of project goals and address challenges in the maritime industry. During the innovation competition, students work on their innovation projects in collaboration with maritime industry companies, conducting research and facilitating the prototyping process. This approach ensures the integration of research and practical experience in the higher education process through close collaboration with the industry.

3.3. Resources and Provision of the Study Programme

3.3.1. Assessment of the compliance of the resources and provision (study provision, scientific support (if applicable), informative provision (including libraries), material and technical provision, and financial provision) with the conditions for the implementation of the study programme and the learning outcomes to be achieved by providing the respective examples.

The existing study materials and technical resources provide the opportunity to ensure the acquisition of theoretical knowledge and practical skills within the study process, enabling students to achieve the level of professional competence in accordance with the requirements of the International Maritime Organization's (IMO) International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW with amendments) in relation to the A-II/1 and A-II/2 standards.

Information on the material and technical provision of the study program is summarized in the table below:

№	***NAME***	***Quantity/Units***	***Classroom***
A.	**Simulators, training laboratories, classrooms**		
1	Navigation simulator Transas „Navi Trainer Professional 5000” - ARPA / RADAR with ECDIS	12 work stations	410/411

2	Navigation simulator Transas „Navi Trainer Professional 5000” - full mission navigation bridge [ARPA/RADAR ar ECDIS un BRM] with seven visualisation channels	1 set	417
3	GMDSS simulator Transas TGS-5000	10 work stations	409
4	Wartsila liquid cargo handling simulator	6 work stations	314
5	Maritime Safety Management Support System Simulator includes SAR functions simulator with VHF GMDSS elements)	3 work stations	314
6	The classroom "Ship Navigation Equipment" is equipped with traditional ship navigation instruments and the Satellite Compass PK-2306.	1 set	405
7	The Navigation classrooms (rooms 418 and 403) are equipped with navigation charts and publications featuring 45 chart tables.	2 classrooms	418/403
8	Naviplanner 4000 pārgājiena plānošanas simulators	31 stacija	418, 403 (tikai pasniedzēja stacija), B3 (bibliotēka)
9	VHF (very high frequency) radio station set with DSC (digital selective calling)	1 set	409
10	MF/HF (medium frequency/high frequency) radio station set with DSC and Radiotelex	1 set	409
11	INMARSAT C sattelite terminal	1 set	409
12	NAVTEX	1 set	409
13	GPS	1 set	409
14	EPIRB	3 units	409
15	SART	1 unit	409
B	**Equipment, tools**		
1	Navigational chart tools: Navigational triangle ruler	92 pcs	418/403/408/411
2	Navigational chart tools: paralel ruler	79 pcs	418/403/408/411
3	Navigational chart tools: navigational dividers	21 pcs	408
4	„Star Finder”	1 set	211
5	Star globe	3 sets	211
6	Sextant	10 pcs	418/211
7	Protractor	6 pcs	418
C	**Demonstration equipment, software**		
8	Laptops (for lecture preparation and reading in classrooms)	3 pcs	322
11	Portablr projectors (for presentations)	3 pcs	126, 405, 418
D	**Teaching charts, yearbooks, and handbooks**		
1	Admiralty Tide Tables	16 pcs	403/418
2	Astronomical yearbook (55.lpp)	70 pcs	211
3	Manual for use by Maritime Mobile and Maritime Mobile-Satellite Services ITU	3 pcs	409
4	List of Coast Radio Stations ITU	3 pcs	409
5	Admiralty list of radio signals	65 pcs	403/409/418
6	Admiralty list of light and fog signals	100 pcs	403/418

7	Guide to port entry	9 pcs	403/418
8	Inmarsat maritime handbook	3 pcs	409
9	Handbook for GMDSS operators	1 pcs	409
10	Ports and terminals guide	3 pcs	418
11	Admiralty Sailing Directions	211 pcs	403/418
12	Ships routeing	4 pcs	403/418
13	Browns nautical almanac	15 pcs	418
14	NP 294 How to keep Your charts up-to-date	14 pcs	418
15	Chart Symbols, Abbreviations and Terms	3 pcs	418
16	Tabulated ranges of Natural Trigonometric Functions	3 pcs	418
17	GMDSS Manual, IMO	3 pcs	409
18	List of Ship Stations, ITU	2 pcs	409
19	Model course 1.25, General Operator’s Certification for GMDSS, IMO	1 pcs	409
20	Model course 1.26, Restricted Operator’s Certification for GMDSS, IMO	1 pcs	409
21	List of radio determination	1 pcs	409
E	**Navigational charts**		
1	Chart 1011 Baltijas jūra/Rīgas jūras līcis, Ziemeļaustrumu daļa 1:100 000	83 pcs	418
2	Chart 1013 Baltijas jūra/Rīgas jūras līcis, Irbes jūras šaurums 1:100 000	77 pcs	418
3	Chart 1014 Baltijas jūra, No Irbes jūras šauruma līdz Ventspils ostai 1:100 000	75 pcs	418
4	Chart 1015 Baltijas jūra, No Ovīšu bākas līdz Pāvilostai 1:100 000	25 pcs	418
5	Chart 1016 Baltijas jūra, No Pāvilostas līdz Šventojas ostai 1:100 000	54 pcs	418
6	Chart 1021 Baltijas jūra/Rīgas jūras līcis 1:200 000	1 pcs	418
7	Chart 1022 Baltijas jūra, No Ventspils līdz Ristnas bākai 1:200 000	1 pcs	418
8	Chart 1023 Baltijas jūra, No Ventspils līdz Klaipēdai 1:200 000	53 pcs	418
9	Chart 1251 Baltijas jūra/Rīgas jūras līcis 1:250 000	12 pcs	418
10	Chart 1252 Baltijas jūra, No Irbes jūras šauruma līdz Gotlandes salai 1:250 000	43 pcs	418
11	Chart 2100 Baltijas jūra, Ventspils osta ar pieejām 1:10 000	43 pcs	418
12	Chart 2102 Baltijas jūra, Rīgas ostas Ziemeļu daļa 1:10 000	11 pcs	418
13	Chart 2103 Baltijas jūra, Rīgas ostas Dienvidu daļa 1:10 000	21 pcs	418
14	Chart 2253 Baltijas jūra/Rīgas jūras līcis, Rīgas osta ar pieejām 1:25 000	2 pcs	418
15	Chart 2257 Baltijas jūra, Pieejas Ventspils ostai 1:25 000	4 pcs	418
16	Chart 2259 Baltijas jūra, Pieejas Liepājas ostai 1:25 000	100 pcs	418
17	Chart 3502 Baltijas jūra, Liepājas osta 1:5 000	85 pcs	418
18	Chart 3531 Baltijas jūra/Rīgas jūras līcis, Mērsraga osta 1:5000	1 pcs	418

Training simulators and laboratories used in the study program:

1. Are suitable for training purposes and tasks.
2. Can simulate the operational capabilities of the relevant ship equipment as realistically as necessary for training purposes, including the equipment's functionalities, limitations, and possible malfunctions.
3. Provide realistic conditions for human action, enabling students to acquire the skills corresponding to the training objectives.
4. Ensure a controlled operating environment that allows the simulation of various conditions, including emergency, hazardous, or unusual situations in line with the training objectives.
5. Provide an interface through which students can interact with the equipment, simulated environments, and, if applicable, with the instructor.
6. Enable the instructor to guide, monitor, and record the training sessions for effective analysis of the results.

LMA's radar simulators can simulate the operational capabilities of navigation radar equipment in compliance with all applicable performance standards:

1. Operate in stabilized relative motion mode and stabilized true motion mode relative to the sea and seabed.
2. Simulate meteorological conditions, tidal movements, currents, shadow sectors, false echo signals, and other factors affecting the propagation of radio waves, as well as display coastlines, navigation buoys, and search and rescue radar responders.
3. Create a real-time operational environment that includes at least two ship stations capable of changing their course and speed, and involve parameters for at least 20 target vessels and corresponding communication means.

LMA's Automatic Radar Plotting Aid (ARPA) simulator is capable of simulating the operational capabilities of ARPA equipment that complies with all applicable International Maritime Organization (IMO) performance standards. It is equipped with the following devices:

1. Manual and automatic target acquisition capabilities.
2. Provision of information about previous routes.
3. Utilization of restricted areas.
4. Display of vector/graphic time scales and data on the screen, as well as conducting trial maneuvers.

In general education courses and theoretical basic courses in the field, such as "Bridge Team and Resource Management," the Transas NaviTrainer Professional 5000 navigation simulator with seven visualization channels is used, providing a full mission navigation bridge experience [ARPA/RADAR with ECDIS and BRM].

Simulators and specialized software are utilized in professional specialization courses in the field. The NaviTrainer Professional 5000 navigation simulator - ARPA/RADAR with ECDIS (12 workstations) and NTPRO 5000 ver.5.40 navigation simulator are used in courses such as "Ship Handling, Maneuvering, and SAR" and "Use of Radar and ECDIS in Ship Handling.

GMDSS simulators, specifically the Transas TGS-5000 (with 10 workstations), are utilized in the course "Communication Organization and GMDSS."

The "NAPA Loading Computer" is employed to solve various practical tasks in study courses such as "Ship Cargo Transportation Technology," "Ship Theory," and "Ship Construction and Operation."

The study course "Ship Navigation Equipment" is equipped with a training room containing traditional ship navigation instruments and the PK-2306 Satellite Compass.

The study courses "Navigation," "Maritime Astronomy," and "Navigation Meteorology" are facilitated by training rooms furnished with chart tables, instruments, paper charts, and collections of navigation publications.

The study course "Maritime Safety" is conducted both in the premises of the Training Center and on the pontoon "Kadets," which is equipped with specialized technical equipment corresponding to the specific course program approved by the Maritime Register (e.g., lifeboats, life rafts, firefighting equipment, towing and mooring devices, first aid kits).

All the aforementioned simulators and technical equipment enable "learning through practice." With their assistance, students:

Gain the ability to independently acquire knowledge and relate their studies to real situations.

Develop their capacity to utilize their experience and acquire new skills.

Learn to work collectively and take responsibility for their work results.

Demonstrate proficiency in handling non-standard situations.

Develop analytical skills to assess situations.

LMA's e-learning platform:

For remote studies, LMA utilizes the interactive e-learning platform omars.latja.lv, which is based on the Moodle software framework.

In case of emergency situations, all necessary study materials, including course descriptions, are uploaded to the platform https://omars.latja.lv. The platform is regularly updated to ensure convenient access to study materials for both instructors and students.

LMA Library:

The Study Center Library provides access to previous years' students' theses/projects, methodological materials prepared by LMA faculty, and other types of technical support. The results of the 2021/2022 academic year Student Survey indicate that a portion of students (approximately 57%) believe they could obtain the necessary study books from the library, but students remain dissatisfied with the insufficient quantity of newer literature resources in their professional field. Students expressed their desire for a larger number of professional books to be available not only for reading within the library but also for loaning. Additionally, students would like to have more e-books. It should be noted that in the maritime industry, books are mostly available

in foreign languages, with limited resources in Latvian.

Due to the measures implemented in response to COVID-19, aimed at reducing possible risks and declaring a state of emergency, the LMA Library continued its operations with significant restrictions. Users had the opportunity to remotely order the necessary study materials, which were prepared and provided to users in a safe manner following epidemiological guidelines.

Students and faculty have access to subscribed databases for studying and research purposes, including:

1. EBSCO: Access to full-text and review databases in the humanities, social sciences, and exact sciences. Collection: National package AcademicSearchComplete.
2. EBSCO: INSPEC: Access to full-text database in the exact sciences.
3. KR - CON:2: Access to a subscription code for a specialized maritime regulatory document database.
4. International Maritime Organization (IMO): Database of current IMO documents.

The review of the study program's methodological and informational support, as well as the determination of procurement and improvement measures, takes place at least once during the academic year, through the preparation of annual reports and quality objectives by the relevant structural units of LJA for the upcoming accreditation review period.

3.3.2. Assessment of the study provision and scientific base support, including the resources provided within the framework of cooperation with other science institutes and higher education institutions (applicable to doctoral study programmes) (if applicable).

3.3.3. Indicate data on the available funding for the corresponding study programme, its funding sources and their use for the development of the study programme. Provide information on the costs per one student within this study programme, indicating the items included in the cost calculation and the percentage distribution of funding between the specified items. The minimum number of students in the study programme in order to ensure the profitability of the study programme (indicating separately the information on each language, type and form of the study programme implementation).

The funding for the first-cycle professional higher education program "Navigation" includes:

1. Fee-paying student funding (part-time distance fee-paying student training, as well as fees for retaking exams)

The tuition fee for one student for the short-cycle professional higher education program "Navigation" is 3,100 EUR per year.

The calculation of tuition fees includes the following items:

Compensation – 80.48%; Study, work, and business trips, official duty trips, work-related travel – 0.27%; Service fees – 12.44%; Acquisition of stocks, materials, energy resources, goods, office supplies, and inventory – 3.18%; Real estate tax – 0.15%; Formation of basic capital – 2.23%; Deductions for sports and culture – 0.26%; Deductions for ensuring scientific activities – 0.99%.

The minimum number of students to ensure the profitability of the study program in 2023/2024 is two part-time distance students with self-financing.

The minimum number of students to ensure the profitability of the study program in 2024/2025 could be two part-time distance students.

The budget of the study program can be supplemented by donations from Latvian and foreign institutions or individuals.

see attached annex "Rentability modeling first-cycle "Navigation" LV-ENG".

3.4. Teaching Staff

3.4.1. Assessment of the compliance of the qualification of the teaching staff members (academic staff members, visiting professors, visiting associate professors, visiting docents, visiting lecturers, and visiting assistants) involved in the implementation of the study programme with the conditions for the implementation of the study programme and the provisions set out in the respective regulatory enactments. Provide information on how the qualification of the teaching staff members contributes to the achievement of the learning outcomes.

In the implementation of the study programs, both the university's selected academic staff and guest lecturers and industry specialists are involved to enhance the quality of education and ensure the relevance to the field. The faculty members engaged in the implementation of the study programs are highly qualified with completed higher education degrees. They possess the necessary research skills, theoretical knowledge, and expertise to provide students with the required learning outcomes within the scope of the conducted courses, in accordance with STCW and higher education requirements. The qualification requirements for lecturers at maritime education institutions and training centers are determined by the Cabinet of Ministers Regulation No. 710 of December 15, 2015, "Regulations on Certification, Implementation, and Monitoring of Professional Preparation Programs for Seafarers." To deliver maritime professional education study programs or courses and assess the knowledge and skills acquired by the trainees, instructors-evaluators must be trained according to the requirements of STCW Convention Regulation I/6 and qualified in the field of instruction and evaluation. Compliance with STCW Convention requirements for instructor-evaluator is evidenced by a certificate issued by the Maritime Register of Latvia. This requirement does not apply to the faculty members of educational study programs who teach courses unrelated to the competencies defined in the STCW Convention (general courses specified in Section A-1 of the curriculum). To

obtain an instructor-evaluator certificate, a person must receive training in teaching and assessment methodologies as well as maritime legislation. An instructor-evaluator providing training with a simulator must be trained to work with the specific type of simulator. After receiving the certificate, an instructor-evaluator renews their knowledge of the STCW Convention and other international regulatory requirements in the field of professional seafarer training every five years. All faculty members teaching specialized courses within the study program have obtained the appropriate instructor-evaluator certificates and regularly update their competencies and knowledge.

At the time of submission of accreditation documents 2022/2023. Acad. year, 32 teaching staff from the total LMA staff are involved in the first cycle study program, which is designed after completing the short cycle study program. Provision of teaching staff in the study program "Navigation" is as follows:

Position	**Number**
Researchers	1
Assistants	2
Lecturers (including guest lecturers and acting lecturers)	7
Docents (including guest docents and acting docents)	13
Asoc. Professors	3
Professors	6
Total	***32***

The compliance of visiting professors, associate visiting professors, visiting docents, visiting lecturers, and visiting assistants is evaluated based on Section 4 of the Regulations No. 4 "On the Management of Academic Staff at the Latvian Maritime Academy" of the Latvian Maritime Academy dated February 24, 2003, specifically under the provision "Conclusion of Individual Employment Contracts." The evaluation criteria for the academic staff of LMA, who are eligible for additional or adjunct status, are specified in the Appendix 2 of the mentioned regulations and include the following sections with respective subsections: pedagogical qualification, scientific qualification, organizational competence, as well as qualification for the faculty of specialized study courses in the respective field. Regulations No. 4 Appendix 2 is attached in section:"Other appendixes".

According to the aforementioned regulations, the minimum number of criteria for assessing the compliance of the job applicant's performance is summarized in the table.

Academic position	**Scientific qualification**	**Pedagogical qualification**	**organizational competence**	**Professional qualification**
Professor	5	6	3	-
Asoc. professor	4	5	2	-
Docent	3	4	1	1
Lecturer	2	3	-	1
Assistant	-	-	-	-

As stated in Annex 2 of the Regulations No. 4 "On the Management of Academic Staff at the Latvian Maritime Academy" of the Latvian Maritime Academy dated February

24, 2003, considering the practical considerations to ensure the educational process with professional faculty members who possess relevant professional work experience, relaxed criteria may be applied, with the basic criterion being the highest professional education and professional work experience corresponding to the course being taught.

The academic staff involved in the implementation of study programs are provided with regular opportunities for the improvement of methodological and didactic skills. The personnel of LMA actively participate in training courses organized by the LMA Training Center, professional English language courses, instructor-evaluator courses, as well as within the framework of the European Union's operational program "Growth and Employment," specific support objective 8.2.2 "Strengthening the strategic specialization of academic personnel in higher education institutions." Within the framework of the project implemented by the Ministry of Education and Science, the teaching staff had the opportunity to enhance their professional qualifications through courses facilitated by external service providers. Thanks to the interest and responsiveness of the employees, a large number of staff members—53 in total—have undergone qualification training in the 2021/2022 academic year, primarily due to the implementation of various projects. Detailed information on the qualification enhancement measures for LMA personnel is summarized in the table 8.2.2.

Qualification Enhancement for LJA Staff in the 2021/2022 Academic Year

Table 8.2.2.

No.	Time Period	Name of Qualification Enhancement Course	Number of Hours	Number of Employees
1.	From 2021.august	Internship with a Commercial Entity in 2021	200 h	11
2.	15.09.-17.11.2021.	Project Management	60 h	14
3.	08.11.-12.11.2021.	English Language Internship with Foreign Language Department Lecturers	40 h	6
4.	08.11.-03.12.2021.	SOLAS basic safety course	56 h	7
5.	11.11.2021.-30.04.2022.	Advanced training in fire fighting	30 h	7
6.	13.11.2021.-21.05.2022.	Operation of Life-Saving Equipment (excluding Fast Rescue Boats)	31 h	6
7.	15.12.-17.12.2021	ISO 9001:2015 Internal Auditor Course	24 h	2
8.	30.12.2021.	Leadership and Team Building Skills in Maritime Industry	9 h	10
9.	16.03.-13.06.2022.	Bridge resource management	45 h	5
10.	01.04.2022.	Cybersecurity	2 h	16
11.	19.04.-18.05.2022.	Course on Online Course Development and Digitization of Study Content	19 h	15
12.	09.05.-10.05.2022.	Training on Eco-Innovation, Green Workplace, and Application of Green Public Procurement in Institutional Management Processes	4 h	13
13.	10.05.-27.05.2022.	Bridge resource management	40 h	8

14.	21.05.2022.	Quality Management of Studies in the European Higher Education Area	3 h	11
15.	09.06.2022.	Financial Management. Financial Sustainability of Higher Education Institutions	3 h	16
16.	27.06.-01.07.2022.	Communication and Collaboration in Digital Communication Management	8 h	15
17.	29.06.-30.06.2022.	Organization of Teamwork Remotely and In-Person	8 h	15
18.	04.07.-08.07.2022.	Digital Tools for Remote Work Teams	8 h	15
19.	15.08.-18.08.2022.	Training on CAD Technology in Shipbuilding - SolidWorks	28 h	5
20.	22.08.-26.08.2022.	Training on CAD Technology in Shipbuilding - SolidWorks	40 h	5

Qualification enhancement is promoted both locally and internationally by encouraging staff mobility to partner universities, participating with presentations, or attending international scientific conferences.

With the aim of improving competencies and enriching the study content, including addressing current industry problems through student research projects and familiarizing oneself with the latest technologies used in the field, academic staff members can undergo internships in industry companies. The companies where academic staff internships will take place include SIA LSC, SIA KlipMarineShipmanagement, SIA Selandia Marine Shipmanagement, SIA Novikontas Jūras Koledža, HydroBalt, RĪGAS BRĪVOSTAS FLOTE, WT-terminal, SIA LAT-B.G.I., SIA Cryogenic and Vacuum Systems, STREK, and others.

The administration of LMA continuously monitors the quality assurance of the academic staff involved in the implementation of study programs. In the assessment conducted by internal and external auditors, the academic staff involved in the implementation of the study program meets the conditions for the implementation of the study program, the achievement of study results, and the requirements of regulatory acts. Analyzing the mechanisms implemented at LMA, auditors conclude that the qualifications and opportunities for qualification enhancement offered to academic staff contribute to the achievement of study program outcomes. Support for professional development and scientific activities facilitates the transfer of newly acquired knowledge and experience to the content of study courses, which significantly impacts the quality of education.

Additionally, LMA plans regular observations (hospitations) every semester, both on-site and through remote access to e-lectures, during which program directors monitor the study process and its quality.

3.4.2. Analysis and assessment of the changes to the composition of the teaching staff over the reporting period and their impact on the study quality.

The implementation of the study program involves teachers with different levels of expertise and professional qualifications. The teaching staff consists of both practicing mariners (mostly graduates of the institution) and professionals from the maritime industry who can provide students with insights into industry trends and current practices relevant to the modern job market. Although the low level of remuneration in higher education poses challenges in attracting new teaching staff for independent work at the institution, the management has repeatedly emphasized that the provision of teaching staff for ensuring the quality and sustainability of the study program is at a very good level.

During the reporting period, the allocation of teaching staff for the study program was not specified separately, and the annual reports analyzed the entire organizational structure rather than individual study programs. Changes in the teaching staff mainly affected the qualifications of the staff, which were progressively improved over time. However, significant changes in the composition of the teaching staff did not occur during the reporting period, as ensuring the succession of teaching staff is challenging primarily due to financial considerations. The remuneration in the higher education sector as a whole is not competitive compared to the salaries received by industry experts in the private sector. Consequently, industry professionals are not particularly motivated to combine shipboard work with teaching responsibilities. It should be noted that the current implementation of the first-cycle study program is only part-time and conducted through distance learning, allowing for remote communication with the teaching staff, which facilitates the organization of the study process.

3.4.3. Information on the number of the scientific publications of the academic staff members, involved in the implementation of doctoral study programme, as published during the reporting period by listing the most significant publications published in Scopus or WoS CC indexed journals. As for the social sciences, humanitarian sciences, and the science of art, the scientific publications published in ERIH+ indexed journals or peer-reviewed monographs may be additionally specified. Information on the teaching staff included in the database of experts of the Latvian Council of Science in the relevant field of science (total number, name of the lecturer, field of science in which the teaching staff has the status of an expert and expiration date of the Latvian Council of Science expert) (if applicable).

3.4.4. Information on the participation of the academic staff, involved in the implementation of the doctoral study programme, in scientific projects as project managers or prime contractors/ subproject managers/ leading researchers by specifying the name of the relevant project, as well as the source and the amount of the funding. Provide information on the reporting period (if applicable).

3.4.5. Assessment of the cooperation between the teaching staff members by specifying the mechanisms used to promote the cooperation and ensure the interrelation between the study programme and study courses/ modules. Specify also the proportion of the number of the students and the teaching staff within the study programme (at the moment of the submission of the Self-Assessment Report).

The study process cannot be fully realized without the mutual collaboration of teaching staff, which needs to be developed by adopting best practices. To foster the improvement of study courses and mutual integration, the institution employs various mechanisms such as informal meetings of teaching staff, departmental meetings, discussions on study outcomes, and principles of quality assurance, among other initiatives. Thus, it can be said that the institution has established a mechanism for the mutual collaboration of teaching staff, promoting the enhancement of study courses and interconnection among faculty members.

Informal meetings of teaching staff are organized gatherings where current issues are discussed in a relaxed atmosphere. If a formal decision is required to address a specific issue (e.g., amending internal regulations, imposing certain restrictions, etc.), department managers are informed, and the matter is included in departmental meetings.

When initiating the planning process for the next academic year, department managers, along with teaching staff, review the content of study courses and align the objectives, tasks, outcomes, and other aspects related to the teaching and organizational aspects of the courses. Departmental meetings are held regularly, at least once a month, to facilitate communication among departmental staff, the delegation of responsibilities, exchange of experiences and perspectives on current issues, as well as the integration of study courses with academic research and the industry as a whole. The improvement of study courses is based on suggestions from both students and teaching staff, as well as members of the state examination commission. These meetings are recorded in minutes, allowing all departmental staff members to familiarize themselves with the discussions and promoting information sharing, even in cases when an employee cannot attend the meeting.

When analyzing the total number of students in the study program relative to the number of teaching staff, the ratio is as follows: for the academic year 2021/2022, in

the first-cycle professional study program "Navigation," there were 32 teaching staff members and 5 students, resulting in an average of 6.4 teaching staff per student (data as of 1 October 2022).

Annexes

III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		
Sample of the diploma and its supplement to be issued for completing the study programme	KV-II-diploms&pielikumsENGv2.zip	KV-II-diploms&pielikumsLVv2.zip
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)		
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)		
Statistics on the students in the reporting period	5.pielikums KV 2.lim..xlsx	5.pielikums KV 2.lim..xlsx
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard	P06_UIV0(44525)_AtbilstibaValstsStandartam_ENGv2.docx	P06_UIV0(44525)_AtbilstibaValstsStandartam_LVv2.docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)	P07_3.2.1._UCZ0(42525)_AtbProfStand_2lim-ENGv3.docx	P07_3.2.1._UCZ0(42525)_AtbProfStand_2lim-LVv3.docx
Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)	Compliance with the specific regulatory framework of the relevant industry KV-2v2.docx	Atbilstība atbilstošās nozares specifiskajam normatīvajam regulējumam KV-2v2.docx
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme	Kartejums KV-II_ENGv2.zip	Kartejums KV-II_LVv2.zip
The curriculum of the study programme (for each type and form of the implementation of the study programme)	KV-II-V310-N-plansENGv3.zip	KV-II-V310-N-plansLVv3.zip
Descriptions of the study courses/ modules	SKA_KVII_ENv3.zip	SKA KVII_LVv3.zip
Description of the organisation of the internship of the students (if applicable)	PRAKSES_NOLIKUMS ENG.docx	P_UIV0(44525)_PRAKSES_NOLIKUMS.docx
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)		
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)		

Maritime Transport - Marine Electrical Automation (42525)

Study field	*Seafaring*
ProcedureStudyProgram.Name	*Maritime Transport - Marine Electrical Automation*
Education classification code	*42525*
Type of the study programme	*First cycle (professional bachelor's) study programme*
Name of the study programme director	*Maksims*
Surname of the study programme director	*Vorobjovs*
E-mail of the study programme director	*maksims.vorobjovs@rtu.lv*
Title of the study programme director	*M.Sc.Ing.*
Phone of the study programme director	*+37122387031*
Goal of the study programme	*To prepare high-quality, internationally recognized management-level specialists in the maritime industry who are capable of performing engineering system, electrical, electronic, communication, and computer system management and operation on ships without restrictions, with a focus on main power equipment, as well as conducting technical maintenance and repairs while ensuring ship and crew safety and environmental protection. This includes developing skills related to the energetic, mechanical, electrical, and electronic equipment, devices, and machinery design, installation, improvement, and innovative solutions.*
Tasks of the study programme	*Tasks of the study program:* *- Develop the ability to create and interpret technical drawings and diagrams, as well as acquire knowledge of electroautomation standards and regulations.* *- Foster students' understanding and application of mathematical and physical knowledge essential in this field.* *- Provide students with the capability to identify and solve problems related to ship electroautomation systems using analytical and problem-solving skills.* *- Cultivate an understanding of engineering principles and their application in the field of ship electroautomation.* *- Develop skills that enable students to conduct research and innovate in the field of ship electroautomation.*

Results of the study programme	*Graduates of the study program will:* *- Effectively compete in a dynamic socio-economic environment and the international job market by enhancing their professional skills and qualifications in accordance with regulatory acts and standards of the maritime transport sector.* *- Acquire fundamental knowledge and skills in the use of information technology, professional English language, and the state language for work duties, research, lifelong learning, as well as creating and sharing digital content.* *- Develop as mentally and physically capable, free, responsible, and creative individuals, capable of applying principles and methods of mathematics and natural sciences, adhering to social and civic principles, labor law norms, as well as understanding business and self-initiative principles.* *- Be capable of operating and overseeing ship mechanisms, engineering systems, ship electrical, electronic, and control systems, as well as ship generators, electrical distribution and high-voltage systems, ship computers, and computer networks.* *- Possess the skills to plan, organize, and manage the operation of mechanisms, engineering systems, and ship electrical, electronic, and control systems, as well as perform their technical maintenance and repairs on ships.* *- Effectively ensure ship and crew safety and environmental protection by complying with environmental pollution prevention requirements, controlling and extinguishing ship fires, using life-saving equipment, providing first aid, and promoting personnel and ship safety.* *- Acquire leadership and teamwork skills, be able to manage the care for ship and crew safety and environmental protection, as well as supervise compliance with regulatory requirements.* *- Perform tasks of a ship electro-mechanic, use ship internal communication systems, act in emergencies on board, and utilize information and communication technologies.* *- Carry out technical maintenance and repairs of ship navigation equipment and communication systems, deck machinery and cargo handling equipment, as well as household equipment control and safety systems.*
Final examination upon the completion of the study programme	*State examination components include:* *1. Preparation and defense of a diploma thesis (diploma project) or bachelor's thesis.* *2. Examination of maritime English language proficiency.* *3. Qualification examination in accordance with STCW and VSIA "Latvian Maritime Administration" Seafarers Register methodology.*

Study programme forms

Full time studies - 4 years, 3 months - latvian

Study type and form	*Full time studies*
Duration in full years	*4*

Duration in month	*3*
Language	*latvian*
Amount (CP)	*185*
Admission requirements (in English)	*Secondary education*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	*Professional bachelor degree in maritime transport*
Qualification to be obtained (in english)	*Marine electromechanical engineer*

Places of implementation

Place name	City	Address
Latvian Maritime Academy	RĪGA	FLOTES IELA 12 K-1, KURZEMES RAJONS, RĪGA, LV-1016

Full time studies - 4 years, 3 months - english

Study type and form	*Full time studies*
Duration in full years	*4*
Duration in month	*3*
Language	*english*
Amount (CP)	*185*
Admission requirements (in English)	*Secondary education and knowledge of the English language at least at B2 level*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	*Professional bachelor degree in maritime transport*
Qualification to be obtained (in english)	*Marine electromechanical engineer*

Places of implementation

Place name	City	Address
Latvian Maritime Academy	RĪGA	FLOTES IELA 12 K-1, KURZEMES RAJONS, RĪGA, LV-1016

Part time extramural studies - 5 years - latvian

Study type and form	*Part time extramural studies*
Duration in full years	*5*
Duration in month	*0*
Language	*latvian*
Amount (CP)	*185*
Admission requirements (in English)	*Secondary education*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	*Professional bachelor degree in maritime transport*
Qualification to be obtained (in english)	*Marine electromechanical engineer*

Places of implementation

Place name	City	Address
Latvian Maritime Academy	RĪGA	FLOTES IELA 12 K-1, KURZEMES RAJONS, RĪGA, LV-1016

Part time extramural studies - 5 years - english

Study type and form	*Part time extramural studies*
Duration in full years	*5*

Duration in month	*0*
Language	*english*
Amount (CP)	*185*
Admission requirements (in English)	*Secondary education and knowledge of the English language at least at B2 level*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	*Professional bachelor degree in maritime transport*
Qualification to be obtained (in english)	*Marine electromechanical engineer*

Places of implementation

Place name	City	Address
Latvian Maritime Academy	RĪGA	FLOTES IELA 12 K-1, KURZEMES RAJONS, RĪGA, LV-1016

3.1. Indicators Describing the Study Programme

3.1.1. Description and analysis of changes in the parameters of the study programme made since the issuance of the previous accreditation form of the study field or issuance of the study programme license, if the study programme is not included on the accreditation form of the study field, including changes planned within the evaluation procedure of the study field evaluation procedure.

Since its accreditation in 2012 and subsequent implementation in 2013, the program has fully aligned its content with the amendments adopted during the 2010 Manila Conference to the International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW 1978).
In 2022, on November 1st, the Latvian Maritime Academy, in accordance with the Cabinet of Ministers' order No. 492[1] of 6 July 2022, underwent reorganization and became a structural unit of Riga Technical University. The university assumed the rights and obligations of the Maritime Academy.
After the initial accreditation in 2012, another accreditation process was conducted in 2017 to implement the program in English.

According to the Law on Higher Education Institutions[2], Riga Technical University is responsible for the separation of the study program acquired from the Latvian Maritime Academy and its inclusion in the study field "Seafaring" by 30 July 2023. Subsequently, the study field will undergo evaluation and accreditation to ensure the training of specialists in the maritime sub-sector of the transport industry.

The first-cycle professional higher education program comprises 185 CP, consisting of study courses (131 CP), internships (40 CP), and a state examination (14 CP), which includes passing the maritime English and qualification exams, developing and defending a diploma project. A secondary education is required to start the studies. Upon successful completion of the program, students are awarded a professional bachelor's degree in maritime transport and a ship electro-technical officer qualification. Implementation methods include 4.3 years of full-time on-site or 5 years of part-time off-site studies. The study program integrates the latest teaching methods, supplements with current topics, and involves industry professionals in teaching theoretical and professional specialization courses, attracting lecturers from the field. The study courses are developed in accordance with the STCW Convention Code A-III/6 standard and the requirements of the professional standard, considering IMO Model Course 7.08 recommendations and other applicable regulatory documents.

To enhance the quality of the study program based on feedback from students, graduates, and stakeholders (Latvian Maritime Administration Seafarer Register, employers, Latvian legislative acts), the program has undergone editorial changes five times since 2012. The main changes are as follows:

1. Senate of the Latvian Maritime Academy (LMA), Protocol No.150, 28.06.2013:
    - Renamed the course "Engineering Graphics and Descriptive Geometry" to "Engineering Graphics," reducing CP from 3 to 1.
    - Moved the course "Maritime Law" from industry-specific courses to theoretical courses, reducing CP from 2 to 1.
    - Added a new course "Integrated Ship Control Systems" with 3 Cp.
2. Senate of LMA, Protocol No.166, 29.06.2015:
    - Reduced the CP of the course "Quality Management in Maritime Transport" from 2 to 1.
    - Introduced a new course "Civil Protection" with 1 CP.
3. Senate of LMA, Protocol No.183, 26.06.2017:

- Divided the 2 CP course "Transport Economics" into two separate courses, one for implementing "Transport Economics" and one for study work.

4. Senate of LMA, Protocol No.15, 05.09.2019:
   - Minor changes were made by moving some courses to different semesters, considered as minor adjustments.
5. Integration into the Riga Technical University (RTU) structure in 2022 resulted in changes to several course names in the program:
   - Renamed "Human Relations Psychology" to "Human Relations Psychology in Maritime Environment."
   - Renamed "English Language" to "Maritime English Language."
   - Renamed "Transport Economics" to "Maritime Economics."
   - Renamed "Philosophy" to "Philosophy of Science."
   - Renamed "Engineering Mechanics" to "Engineering Mechanics for Ship Engineers."
   - Renamed "Electrical Materials" to "Shipbuilding Materials."
   - Renamed "Computer Science and Programming" to "Ship Computer Networks, Programming, and Cybersecurity."
   - Renamed "Electrical Machines" to "Ship Electrical Machines."
   - Renamed "Electronics" to "Ship Electronics."
   - Renamed "Electrical Engineering" to "Ship Electrical Engineering."
   - Renamed "Occupational Safety and Legislation" to "Occupational Safety and Legislation on Ships."
   - Renamed "Maritime English Language" to "Maritime English Language for Ship Engineers."

1 https://likumi.lv/ta/id/333786-par-latvijas-juras-akademijas-reorganizaciju (in Latvian)
2 https://likumi.lv/ta/id/37967#p48_3 (in Latvian)

3.1.2. Analysis and assessment of the study programme compliance with the study field. Analysis of the interrelation between the code of the study programme, the degree, professional qualification/professional qualification requirements or the degree and professional qualification to be acquired, the aims, objectives, learning outcomes, and the admission requirements. Description of the duration and scope of the implementation of the study programme (including different options of the study programme implementation) and evaluation of its usefulness.

Study field - Seafaring - encompasses similar programs that have specific requirements for professions in the maritime industry and are linked to various maritime professions. All programs that award regulated maritime qualifications are included in one accreditation field. The program's name reflects both the field and qualification requirements. Upon completion of the program, students are awarded a professional bachelor's degree in maritime transport, ship electro-technical officer, which represents the first-cycle professional higher education (Level 6 professional qualification and professional bachelor's degree) achievable after obtaining secondary education. The duration of full-time studies is four years and three months, while part-time distance learning takes five years.
The study program provides for the acquisition of the marine electromechanical engineer professional qualification after gaining relevant work experience in the electromechanic profession, in accordance with the Cabinet of Ministers Regulation No. 895 of November 22, 2005, "Regulations on Certification of Seafarers," the European Parliament and Council Directive 2022/993 of June 8, 2022, on minimum training requirements for seafarers and the 1978 International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW), as well as the requirements for a professional bachelor's degree and Level 6 of the National Qualifications Framework.
The program's objective is to prepare high-quality management-level specialists in the

maritime industry at an internationally recognized level, capable of performing the operation and maintenance of engineering systems, electrical, electronic control systems, communication, and computer systems on ships without limitations, in relation to the main propulsion installations, as well as to perform technical maintenance and repair, ensuring the safety of the ship and its crew, as well as environmental protection. This includes developing skills related to the energy, mechanical, electrical, and electronic systems, equipment, and machinery design, installation, improvement, and innovative solutions.

Objectives of the study program:

- Develop the ability to create and interpret technical drawings and diagrams, as well as knowledge of electroautomation standards and regulations.
- Promote students' ability to understand and apply mathematical and physical knowledge relevant to this field.
- Provide students with the ability to identify and solve problems related to ship electroautomation systems using analytical and problem-solving skills.
- Foster an understanding of engineering principles and their application in the field of ship electroautomation.
- Provide students with the opportunity to learn various engineering technologies and software to analyze and model ship machinery and systems.
- Develop skills that allow students to conduct research and develop innovations in the field of ship electroautomation.
- Ensure that students learn and utilize various tools, instruments, and technologies to perform engineering analysis and evaluations for repairs.
- Provide knowledge of relevant international maritime norms and standards, including IMO standards, to ensure students' understanding of international regulations and requirements.
- Provide an overview of ship main propulsion system management, maintenance, and repair, imparting knowledge and skills in this area.
- Strengthen students' foreign language knowledge to facilitate effective communication in the international maritime environment.

Graduates of the study program:

- Can effectively compete in the changing socio-economic conditions and the international job market, improving their professional skills and qualifications in accordance with the regulatory acts and standards of the maritime transport industry.
- Acquire fundamental knowledge and skills to use information technology, professional English, and national languages for performing job duties, research, lifelong learning, as well as acquiring, creating, and sharing digital content.
- Develop as mentally and physically developed, free, responsible, and creative individuals capable of applying mathematical and scientific principles and methods, observing social and civic principles, labor legal relationship norms, as well as understanding the principles of entrepreneurship and self-initiative.
- Can operate and supervise ship mechanisms, engineering systems, electrical, electronic, and control systems, as well as ship generators, electrical power distribution and high-voltage systems, ship computers, and computer networks.
- Gain skills to plan, organize, and manage the operation of mechanisms, engineering systems, and ship electrical, electronic, and control systems, as well as perform their technical maintenance and repair on ships.
- Can effectively ensure ship and crew safety and environmental protection, observing environmental pollution prevention requirements, controlling and extinguishing fires on board, using life-saving equipment, providing first aid, and promoting personnel and ship safety.
- Gain leadership and teamwork skills, able to manage the care of ship and crew safety and environmental protection, as well as oversee compliance with regulatory requirements.
- Can perform ship electromechanic tasks, use internal communication systems on the ship, act in emergency situations on board, and use information and communication technology.
- Can perform technical maintenance and repair of ship navigation equipment and communication systems, deck machinery, cargo handling equipment, as well as domestic equipment control and safety systems.

Within the study process, practical skills of students are developed using laboratories and simulators, along with mandatory maritime internships, a prerequisite for completing the study program and obtaining a professional higher education degree and qualification. Admission requirements and the content of the study program are mutually related, meet industry standards, and are aligned with the Latvian Maritime Administration's Seafarer Register.

To fulfill the study program's set goals, standardized admission requirements have been defined since the program's inception. In addition to essential documents (application, copy of the

secondary education diploma with the original, copies of mandatory centralized exam certificates specified for the graduation year, with the originals presented), in accordance with the "Maritime Administration and Maritime Safety Law," Section 29, Paragraph (1): "A seafarer who is preparing to obtain a document certifying professional qualifications or who is employed or wishes to start work on a ship must have a valid medical opinion from a doctor certifying fitness for work on a ship," the applicant must submit a valid medical certificate issued by a maritime doctor attesting to the person's health suitability for work on a ship in the selected specialty.

The professional bachelor's degree in maritime transport and the ship electro-technical officer's qualification are awarded if the student fulfills all the requirements set during the study process. If the evaluation obtained in the comprehensive examination in the specialty or the state examination in maritime English is below 7 points, professional qualification can be obtained from the Seafarer Register by retaking the exam and negotiating with the inspectors of the Latvian Maritime Administration.

The duration of the study program's implementation complies with the regulations of the Republic of Latvia. Students have the opportunity to study full-time on-site (4 years and 3 months), part-time off-site (5 years), or, according to the amendments proposed by the Latvian Maritime Administration Regulation No. 10 regarding the retake of session results, change the study type and form from full-time on-site to part-time off-site during the study process to settle academic debts according to an individual schedule in the longer term.

Considering the above, there is an unequivocal mutual connection between the study program's goals, tasks, study outcomes, and admission requirements, ensuring the maritime industry with new specialists with the ship electro-technical officer's qualification and a bachelor's degree.

3.1.3. Economic and/ or social substantiation of the study programme, analysis of graduates' employment.

Currently, there are approximately 1.89 million seafarers worldwide serving the merchant fleet with over 74,000 ships. According to the Baltic and International Maritime Council (BIMCO) and the International Chamber of Shipping (ICS) in their 2021 "Seafarer Workforce Report," there is a current shortage of 26,240 STCW-certified officers, and an additional 89,510 officers will be needed by 2026 to meet the demand for the world's merchant fleet.
As of January 1, 2023, there were 10,830 active registered sailors in the Maritime Register of Latvia, of which 935 were certified for work on fishing and inland waterway vessels, while 9,895 sailors were certified for work on merchant vessels. Approximately 55% of sailors hold positions as ship officers. According to the Economic Ministry's labor market forecasts, maritime industry employees are among the highest-paid jobs in Latvia.[2]
Among employed Latvian sailors, 98% work on foreign-flagged vessels, with 39% on European Union-flagged vessels and 59% on vessels of third countries. Latvian-flagged vessel sailors primarily work on Intra-EU cargo ships, port auxiliary fleets, or fishing vessels.
A majority of seafarers (65-70%) employed in international shipping in 2022 found work through one of the 54 Latvian-registered and licensed crewing companies.
The Economic Ministry predicts that the unemployment rate in Latvia will reach 5-6% by 2030, compared to the current rate of 7%. One of the reasons is the emigration of working-age population. The highest risks of unemployment are expected among people with low levels of education and without professional skills/professional qualifications. Highly qualified workers with higher education will be given preference. The qualification of ship mechanics is relatively broad, and graduates are provided with well-paid jobs onshore[34].
The study program " Marine transports-Marine Electrical Automation" is the only bachelor's study program in Latvia, upon completion of which a professional bachelor's degree in maritime transport and a professional qualification as a ship electromechanic are awarded, corresponding to the 6th level of professional qualification. Other Latvian educational institutions offering maritime engineering education only provide short-cycle programs.
Based on the data from the Latvian Maritime Administration's Seafarer Register, the overall information on available vacancies, compared to the number of graduates who completed maritime education programs in 2022, indicates that the demand for Latvian seafarers continues to exceed the supply. Companies are still facing a situation where they need to seek sailors outside Latvia. According to statistical data, 55%, or 5483, of certified seafarers in the merchant fleet are officers (2573 ship masters, 2558 ship engineers, 352 electro-technical officers, and refrigeration engineers), while 45%, or 4412, are ratings. The total number of registered active seafarers has decreased by 13% or 1646 seafarers in the last five years. The number of officers in the merchant fleet has decreased by 4%, or 227 officers. Specifically, the number of electro-technical officers and refrigeration engineers has decreased by 105 seafarers or 23% compared to 2018 data.

According to the Latvian Maritime Administration's Seafarer Register data, since 2012, out of 77 graduates with an electro-technical officer qualification, 65 are currently active seafarers, with an employment rate of 84%.

2 Darba tirgus prognozes - NVA

3
https://www.em.gov.lv/lv/jaunums/em-arvien-radisies-jaunas-darbavietas-augstakas-kvalifikacijas-profesijas-bet-truks-specialistu-ar-profesionalo-izglitibu| Ekonomikas ministrija

4 https://www.bimco.org/about-us-and-our-members/publications/seafarer-workforce-report

3.1.4. Statistical data on the students of the respective study programme, the dynamics of the number of the students, and the factors affecting the changes to the number of the students. The analysis shall be broken down into different study forms, types, and languages.

Detailed statistics on students during the reporting period are available in attached file:"5. pielikums JT-KEA".
During the reporting period, the program was implemented in the Latvian language.

Admission results by study types and forms:

	2012./ 2013.	2013./ 2014.	2014./ 2015.	2015./ 2016.	2016./ 2017.	2017./ 2018.	2018. /2019.	2019./ 2020.	2020./ 2021.	2021./ 2022.
Full-time on-site study program	25	27	18	9	1	9	9	12	0	0
Part-time distance learning	9	7	4	4	3	3	1	2	2	2
TOTAL	34	34	22	13	4	12	10	14	2	2

Since the academic year 2013/2014, the number of enrolled students has gradually decreased and remains stable, which is linked to the demographic situation in Latvia. The small number of enrollments at LMA could be attributed to several reasons.
From 2012 to 2021, the population of Latvia aged 20 to 24, which is the approximate age for entry into higher education institutions, has continuously decreased from 149,364 in 2012 to 83,094 in 2021. Consequently, the pool of potential students who could theoretically enter LMA was not very large.
The location of RTU LMA in Daugavgrīva is far from the city center, which attracts fewer potential students. For example, the commute from the city outskirts to the academy takes at least an hour, regardless of the mode of transportation, and this could be one of the indirect factors reducing the desire of prospective students to enroll at RTU LMA.
LMA does not offer better conditions or facilitations to maritime school graduates compared to other institutions, such as Liepājas Jūrniecības Koledža or Novikontas Jūrniecības koledža. Programs like LMC or NMC seem more attractive since they provide the opportunity to obtain the first officer's diploma after only 2 years of study in a short-cycle program. In contrast, RTU LMA's bachelor's program takes twice as long - 4 years and 3 months.

Graduates in total by study types and forms.

	2012./2013.	2013./2014.	2014./2015.	2015./2016.	2016./2017.	2017./2018.	2018./2019.	2019./2020.	2020./2021.	2021./2022.
Full-time on-site study program	5	12	12	3	5	7	5	10	5	0

Part-time distance learning	0	1	3	2	0	0	0	0	0	1
TOTAL	5	13	15	5	5	7	5	10	5	1

The number of graduates has decreased due to the decrease in the intake since 2019/2020 and a high attrition rate. The reasons for attrition were analyzed in subsection 3.2.3 of this document.

	2012./2013.	2013./2014.	2014./2015.	2015./2016.	2016./2017.	2017./2018.	2018./2019.	2019./2020.	2020./2021.	2021./2022.
Full-time on-site study program	64	52	39	37	28	29	27	23	5	7
Part-time distance learning	18	18	19	16	10	12	12	11	10	7
TOTAL	82	70	58	53	38	41	39	34	15	14

The total number of students is also gradually decreasing mainly among full-time on-campus students. The number of part-time distance learning students remains relatively stable.

Reasons for exmatriculation	2012./2013.	2013./2014.	2014./2015.	2015./2016.	2016./2017.	2017./2018.	2018./2019.	2019./2020.	2020./2021.	2021./2022.
By own choice	8%	19%	21%	13%	20%	100%	100%	17%	46%	0%
Unsuccessful progress	88%	74%	79%	88%	60%	0%	0%	50%	38%	0%
Change of study type and mode (and/or program)	0%	4%	0%	0%	20%	0%	0%	33%	15%	0%
Failure to re-register after an academic break	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Non-payment of tuition fees	4%	4%	0%	0%	0%	0%	0%	0%	0%	0%
Total	25	27	19	8	5	1	6	6	13	0

According to statistical data, the number of graduates in all study modes has been gradually decreasing since the academic year 2018/2019. During the academic year 2021/2022, the number of graduates from part-time distance learning programs decreased by 80%, and the number of graduates from full-time on-campus programs decreased by 100%.

The largest attrition of students occurred during the academic year 2020/2021, with 13 full-time and part-time students leaving the program voluntarily.

3.1.5. Substantiation of the development of the joint study programme and description and evaluation of the choice of partner universities, including information on the development and implementation of the joint study programme (if applicable).

3.2. The Content of Studies and Implementation Thereof

3.2.1. Analysis of the content of the study programme. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators with the aims of the study course/ module and the aims and intended outcomes of the study programme. Assessment of the relevance of the content of the study courses/ modules and compliance with the needs of the relevant industry, labour market and with the trends in science on how and whether the content of the study courses/ modules is updated in line with the development trends

of the relevant industry, labour market, and science.

The content of the study program is designed to meet the requirements of a professional bachelor's degree and the 6th level of the European Qualifications Framework (EQF), as well as the Seafarers Certification Regulations, European Parliament and Council Directive 2022/993, and the International Maritime Organization (IMO) International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW, as amended) convention modules.

The content of professional and specialization study courses is developed using the recommendations of the International Maritime Organization (IMO) Model Course 7.08 "Electro-technical officer."

The professional courses in the field ensure the implementation of three core functions of a marine electro-mechanical engineer, which include:

- Electrical, electronic, and control equipment;
- Ship technical maintenance and repairs;
- Ship operations management and care for personnel on board.

Practical training plays an important role in reinforcing theoretical knowledge, and the program includes a practice module of 40 (60 ECTS) credits, comprising workshop practice, ship repair practice, and sea practice. The practice should last for at least 12 months, including six months as part of the engineering team on board a ship.

The program also includes compulsory courses in humanities and social sciences, which develop social, communicative, and organizational skills, totaling 20 (30 ECTS) credits.

Theoretical knowledge in the field of specialization and information technology courses amount to 43 (64.5 ECTS) credits. Additionally, specialized study courses in the relevant field of specialization amount to 62 (93 ECTS) credits, with elective courses comprising at least 6 (9 ECTS) credits.

The state examination consists of 14 (21 ECTS) credits, which includes the preparation and defense of a diploma project, and a part of it involves the examination of maritime English and a qualification exam in the specialty.

Due to the wider use of computer technologies on ships and related cybersecurity risks, such as cybercrime and hacker attacks, malware and malicious software, unintended employee errors, inadequate system updates and maintenance, mentioned is various sources, such as "Guidelines on Maritime Cyber Risk Management"; "The Guidelines on Cyber Security onboard Ships" - CLIA (Cruise Lines International Association) un ICS (International Chamber of Shipping), the study course "Computer Learning and Programming" was transformed into "Ship Computer Networks, Programming and Cyber Security."

The course projects are designed to help students develop their diploma projects: Marine Electrical Equipment, Ship Power Electronics, Ship Theory and Construction, Marine Automation and Control Systems.

The program's structure and all formal requirements comply with national regulations, RTU LMA quality management system, and requirements set by the RTU Senate.

To closely align the program's content with the needs of the labor market, industry representatives, mostly ship electro-technical officers or senior maritime professionals, participate in the defense of final projects. Students choose their diploma project topics based on practical knowledge gained during their studies, as well as suggestions from industry specialists or RTU LMA faculty on relevant research topics in the labor market. Students work on study projects and diploma works in collaboration with employers. The performance of students in their research and defense is positively evaluated by commission members, including industry representatives, during the defense of their final projects.

3.2.2. In the case of master’s and doctoral study programmes, specify and provide the justification as to whether the degrees are awarded in view of the developments and findings in the field of science or artistic creation. In the case of a doctoral study programme, provide a description of the main research roadmaps and the impact of the study programme on research and other education levels (if applicable).

3.2.3. Assessment of the study programme including the study course/ module implementation methods by indicating what the methods are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study programme. In the case of a joint study programme, or in case the study programme is implemented in a foreign language or in the form of distance learning, describe in detail the methods used to deliver such a study programme. Provide an explanation of how the student-centred principles are taken into account in the implementation of the study process.

The IMO Model Course 7.08, Electro-technical officer, provides detailed recommendations on the methods, equipment, and achievable results. To reinforce professional skills, a 12-month practice is implemented during the study, documented in a practice book with specific criteria for each task.

In the study processes, simulators, specialized computer programs, laboratories, mechanical workshops, stands, equipment, and the Moodle platform for course e-learning environment (from 2023, RTU ORTUS, previously OMARS) are utilized.

In the implementation of the study process, the following student-centered teaching and learning principles are taken into account: each student is treated as an individual, therefore, work with students takes place both in groups and (within the limits of possibilities) individually during consultations, to help understand the topics of the study course. Upon starting their studies, students are introduced to the requirements of the respective study course, assessment criteria, and achievable results. The assessment criteria are chosen to provide the student with an insight into the extent to which they have achieved the expected study outcomes. Students receive feedback indicating directions for learning and competence improvement. During the teaching process, students' ability to learn independently, search and select information is promoted, as well as academic and professional growth is facilitated. Mutual respect between teachers and students is encouraged. Procedures have been developed at the institution to provide students with feedback on the quality of the study process, thereby giving students the opportunity to influence their own study process. Students are involved in the evaluation of the quality of study programs every semester.

Various study methods and forms are used in the study process, the selection of which is related to the specific nature of each study course - lectures, seminars, group work, discussions, case studies, problem analysis, etc. General topics and theory are presented in the form of lectures, using PowerPoint presentations with visual materials, instructional videos, and audio materials. The materials are available on the interactive e-learning platform omars.latja.lv, based on the Moodle software base. Practical work is organized in the form of laboratory work using special equipment or in the form of practical tasks, within which students are required to apply the knowledge and skills acquired from several study courses. The resources available to students are regularly improved methodically, methodological tools are prepared for use, and the teaching laboratory equipment is regularly modernized and improved. The latest technologies, such as modeling software, microcontroller kits, unified digital and analog control boards, and other types of technology, are used in the training process (lectures, practical classes, and laboratory work). Some of the technological equipment and computer programs are self-developed, and some are purchased. The work envisaged in the study program is carried out as project work with project tasks, evaluation, and defense. Within the framework of the study course, students receive feedback from the teaching staff on their performance and growth opportunities. Students can receive counseling and assistance from teachers and program directors in person, as well as through the e-environment and by phone.

The organization of the study content ensures the sequential and in-depth acquisition of the knowledge envisaged in the study program and is oriented towards practical examples and problem-solving in the maritime sector.

In accordance with the requirements of the STCW Convention, various laboratories, simulators, special computer programs, mechanical workshops, stands, equipment, and the Moodle platform course e-environment (from 2023, RTU ORTUS, previously OMARS) are actively used in professional study courses in the industry, such as the ship control system laboratory, electronics and electrical engineering laboratory, electrical machinery laboratory, high-voltage equipment

laboratory, electrical workshop, engine room simulator, etc., allowing the reinforcement of theoretical knowledge with practical tasks.

The use of laboratories, simulators, specialized computer programs, stands, mechanical workshops in the study process has several significant advantages. It:

- allows students to acquire theoretical knowledge and to test it practically;
- enables the planning of operations in accordance with the adopted regulations and procedures to ensure operational safety;
- enables students to acquire and demonstrate the skills and competencies specified in the study program, as well as to try out various decision-making options in the study process to see which yield the desired results, and to ensure the development of multi-level critical thinking and situational understanding.

After evaluating students' performance and achievements, certain issues have been identified concerning mandatory courses in humanities and social sciences, as well as the scope of general and theoretical knowledge in the first year of study. These issues are related to insufficient preparation levels in secondary schools and students' desire to see the connection between the study material and the maritime industry.

To move towards institutional accreditation, the process of program transformation continues to create a sense among students that they have enrolled in the Latvian Maritime Academy of Riga Technical University to obtain a professional bachelor's degree in maritime transport and the qualification of a marine electromechanical engineer and to prepare them for a substantial amount of theoretical knowledge required for obtaining the specialty.

In the first year, fundamental courses related to maritime and transportation, as well as language and humanities courses, are taught. The second and partially the third-year courses of the study program are focused on professional specialization in the industry. Upon completion of the first and the second years, students are prepared to synthesize previously acquired knowledge, facts, examples, and tasks. The third year of studies is oriented towards the mastery of compulsory specialized industry courses and sea practice, where theoretical knowledge is solidified. Upon returning from practice, students continue to master the courses related to their professional focus. In the final year, students develop and defend their diploma projects, as well as take qualification and maritime English language examinations.

All study courses are interconnected, providing progressive education and allowing the acquisition of theoretical and practical knowledge, developing the necessary competencies and skills suitable for the contemporary job market.

Academic staff regularly attend courses and seminars on the latest teaching and pedagogical methods, and their qualification improvement is encouraged both at the RTU level and internationally. The RTU Academic Excellence Center organizes academic staff development events at the university level.

Study course achievements are evaluated through examinations or assessments. The knowledge assessment uses a 10-point grading system. Positive knowledge assessment is graded with marks from 4 to 10. If a student's knowledge in a study course is assessed with marks from 1 to 3, a repeat knowledge assessment is organized. If a repeat knowledge assessment does not yield a positive result, a commission formed by the department evaluates the student's knowledge for the third time. Assessments are provided without marks. The summative assessment allows humanitarian and social science courses, as well as elective courses, to be concluded with a pass. Exam questions are prepared by the teaching staff responsible for the respective course, based on the approved program.

The information on all passed assessments, study papers, and exams is recorded in individual study plans (grade reports).

Study projects are developed in close cooperation with lecturers, supervisors, and professionals in the maritime field, who not only counsel during the course and the development of bachelor's/diploma projects but also participate in organizing and implementing practice, conducting study projects, and involving students in scientific projects.

The defense of the diploma project takes place orally, consisting of the presentation of the work's content, responses to questions from the commission members, the supervisor's feedback, and the reviewer's evaluation. The diploma projects/bachelor's theses are evaluated by a commission comprising a chairman, a secretary, and not less than three members. The chairman of the qualification commission is selected from leading specialists in the relevant direction of the maritime transport industry, while half of the commission members are highly qualified marine engineers and electro-technical officers. Commission members are informed and trained in evaluation methods and receive support to improve their evaluation skills.

Since the COVID-19 pandemic in 2020, LMA has been using the interactive e-learning platform omars.latja.lv for distance learning, which is based on the Moodle software. In this platform, instructors upload course materials and coordinate and evaluate assignment submissions. Conference platforms (such as Zoom or Microsoft Teams) are utilized in the provision of the study process, incorporating the use of video cameras and microphones to facilitate quality communication between instructors and students. The interactive e-learning environment and conference platforms are employed when it is necessary to organize the study process remotely. All academic units of LMA, in implementing distance learning, continuously work on improving the e-learning environment to ensure full accessibility of course content in the e-learning environment. LMA is continuously enhancing the interactive e-learning platform OMARS, with instructors developing new study materials and activities as needed and adjusting existing ones for remote work with students. Pedagogical methods and solutions are chosen appropriately to achieve the objectives of the study course and the acquisition of defined knowledge, skills, and competencies during the period of remote study, ensuring systematic and high-quality feedback for students on their learning process and performance, as well as necessary improvement.

Studies in English

On July 3, 2020, the Admission Regulations of LMA were amended concerning the requirements, criteria, and procedure for admission to study programs, where point 71 states that a foreigner must submit a document issued by an international testing institution within the last five years, certifying that the foreigner's language proficiency in the language of instruction of the respective study program is at least at the B2 level. This document is not required if the foreigner has obtained secondary or higher education in the language of instruction of the respective study program, or if the student has received secondary education in the EU and EEA countries and has a foreign language assessment equivalent to at least the B2 level. Since November 1, 2022, the admission of foreigners to study programs is carried out in accordance with the decision of the RTU Senate session of October 25, 2021 (protocol No. 655) "On the Approval of the Admission Regulations for Foreign Students in the Study Programs and Program Parts Associated with the RTU International Cooperation and Foreign Students Department in 2022".

Foreign students are required to complete the study course "Latvian Language" in the amount of 2 ECTS credits. The teaching methods used in the implementation of the study program in English are identical to those used in the implementation of the study program in Latvian. Students are provided with information about additional resources where they can find the necessary information, and the study course materials are posted and updated in the electronic environment of the OMARS study platform.

3.2.4. If the study programme envisages an internship, describe the internship opportunities offered to students, provision and work organization, including whether the higher education institution/ college helps students to find an internship place. If the study programme is implemented in a foreign language, provide information on how internship opportunities are provided in a foreign language, including for foreign students. To provide analysis and evaluation of the connection of the tasks set for students during the internship included in the study programme with the learning outcomes of the study programme (if applicable).

The students are required to complete an internship of 40 (60 ECTS) credit points, which includes workshop practice, ship repair practice, and sea practice. According to the Maritime Certification Regulations and Directive 2022/993 of the European Parliament and the Council of June 8, 2022, on the minimum level of competency for seafarers and the 1978 International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW 1978), the candidate must have at least 12 months of comprehensive practice in approved mechanical and electrical workshops or equivalent practice or work that provides practical skills corresponding to the prescribed internship program or its part (hereinafter - workshop) and at sea, which is part of an accredited and Ministry of Transport certified professional education program. The execution of internship tasks is documented in the internship book and includes sea time - at least six months as a part of the engineering team on ships with a main engine power of 750 kW or greater, performing duties under the supervision of an electro-mechanic or senior engineer. Upon completion of the internship, students' performance is evaluated and approved by RTU LMA, and the application for obtaining a competency certificate is submitted to the SJSC "Latvian Maritime Administration." The content of the internship program[1] fully complies with the requirements specified in the program and professional standards, as it is built on the IMO (International

Maritime Organization) approved sample courses (IMO Model Course).
Before going to sea, students acquire technical skills by performing tasks in RTU LMA workshops. Before going to sea, students also complete the "Safety Basics Course" and obtain the Seafarer's book. Taking into account the specific nature, students set out to sea in the spring semester with a reserve for returning in September. The selection of student internship places begins already at the end of the autumn semester, as getting on a ship is unpredictable - boarding the ship can take place after a month due to unsuitable ports or other circumstances (e.g., COVID-19 in recent years). Students are given the opportunity to reach the minimum requirement of 6 months during the summer. The internship regulations include a provision that a student may fulfill 75% of the requirements compared to the sea time requirement for completing the program.
The demand for ship electro-mechanics specialists is high, and considering the good reputation of Latvian seafarers, students are provided with internship places on the best ships and conditions, and the demand from companies for interns is regularly not met. The largest providers of internships for Latvians are LLC "LSC" (https://lscgroup.lv/ (Available in Latvian and English)), LLC "LAPA," LLC "Well." At the initiative of students and in coordination with RTU LMA management, students have the opportunity to find internship places themselves, which they do through LinkedIn or the contacts of shipping companies on their websites. Before the internship, a representative of the professional education institution, a representative of the internship place, and the intern conclude a tripartite agreement on educational internship according to the Cabinet of Ministers Regulation No. 481 of August 29, 2023, "Procedures for Organizing Internships in Professional Education Programs."[2]
The internship place is also helped to be secured by the internship planner or the management of the Maritime Engineering Center. If additional assistance is needed, there is an opportunity to turn to the Career Support and Services Department, where a career consultant helps students in finding and addressing internship places and also promotes the development of career management skills through various events, which can ensure successful results in the internship process. Once a year, the Career Support and Services Department organizes the RTU Career Day, during which students have the opportunity to meet with company representatives and communicate about future possibilities in person or remotely. More about the event and past participants: https://www.rtu.lv/lv/studentuserviss/karjeras-centrs-ssc/karjeras-diena (Available in Latvian and English). In 2021, due to the pandemic, the event took place in a virtual environment.
An additional resource offered since 2015 is a website where companies are invited to post vacancies that are relevant to RTU students (https://ekarjera.rtu.lv/ (Available in Latvian and English)). Students can use their university login to access and keep track of internships and later job opportunities in their field.
Additional support for promoting practical skills is provided by the RTU Development Fund (https://www.rtu.lv/lv/attistibasfonds (Available in Latvian and English)). Throughout the year, several hundred competitions for promoting practical skills are offered, which are organized in collaboration with companies, and where students have the opportunity to acquire practical skills.
Each year, the university concludes cooperation agreements with companies and organizations (the contract template is included in Annex 37 of the Internal Regulatory Act list), agreeing on providing internship places for students.
Studies in English.

Considering the specificity of the maritime industry and the fact that the official working language in the maritime sector is English, all internships are conducted in English. The duration, types (workshop practice, sea practice, and ship repair practice), organization, and implementation procedures are identical to the program conducted in the state language. The goals and outcomes of internships are closely linked to the skills and competencies outlined in the professional standards and the STCW Convention.

The internship regulations/guidelines are attached in the annex.

1 Kuga_elektromehānika_juuras_prakses_graamata.pdf (lja.lv)
2 Cabinet of Ministers Regulation No. 481 of August 29, 2023, "Procedures for Organizing Internships in Professional Education Programs.". https://likumi.lv/ta/id/344976-prakses-organizesanaskartiba-profesionalas-izglitibas-programmas (Available only in Latvian)

3.2.5. Evaluation and description of the promotion opportunities and the promotion process provided to the students of the doctoral study programme (if applicable).

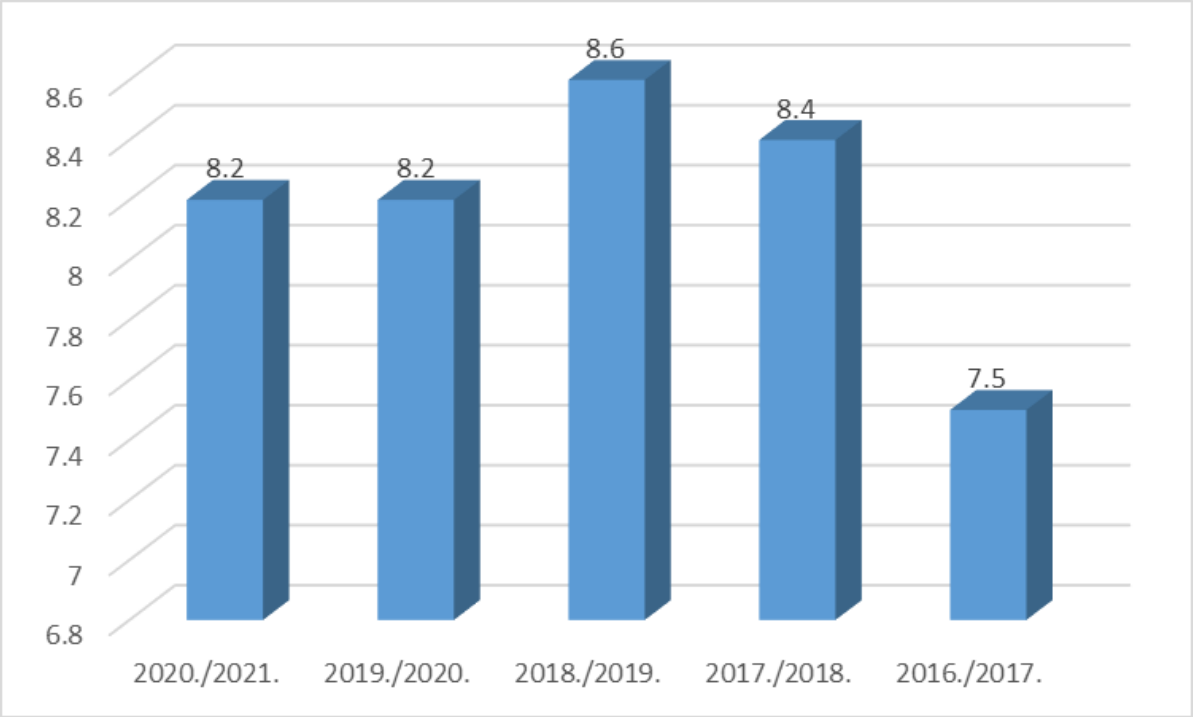
3.2.6. Analysis and assessment of the topics of the final theses of the students, their relevance in the respective field, including the labour market, and the marks of the final theses.

Final thesis topics are chosen in accordance with the current trends and significant market developments in the industry. The directions for final thesis topics include: ship auxiliary machinery and main engine automatic control systems; control and automation of ship cargo system distances; ship electrical equipment and its technical operation; high-voltage technology on ships; electric propulsion of ship mechanisms and ship electric propulsion used as a propulsion device (azipod, propulsion electric motors, bow thruster systems); improving energy efficiency, alternative energy sources, their use, and application on ships; programmable logic controllers (PLC); protection of ship electrical equipment; shore power connection; ship navigation equipment and communication technology; ship computer systems, computer networks, cybersecurity, and programming; specialized and sustainable equipment for ships. Often, topics are chosen in collaboration with industry partners and are developed under their guidance. Many of the best bachelor's theses of program students have been developed in collaboration with technical management of ships, industry companies, and organizations where students have completed internships or worked.

Examples of some final thesis topics from 2013 to 2022:

1. Development of a laboratory stand for synchronous generator synchronization and parallel operation.
2. Modernization of the electric propulsion of a specialized ship's elevator.
3. Development of a telegraph stand based on digital control.
4. Development of a three-mode regulator trend for the ship's auxiliary boiler.
5. Development of a remote control computer system for controlling parameters of ship electric motors.
6. Development of a stand for remote fire detection system.
7. Development of a microprocessor system for controlling rotational frequencies and torque parameters of a ship's electric motor.
8. Automation of the energetic equipment of a ship's propeller generator based on PLC.
9. Optimization of the operation of a passenger ship's elevator equipment.
10. Development of a stand for modeling azimuth-type ship electropropulsion systems.
11. Development of a cooling control and management system for a diesel engine.
12. Development of an electronic speed regulator circuit.
13. Development of a control block for a fuel preparation system.
14. Adaptive electric propulsion development for a Suezmax tanker's outboard water cooling system.
15. Modification of the ship's machinery telegraph air ventilation system.
16. Diagnosis and troubleshooting of ship compressors.
17. Automation of the ship's compressed air system.
18. Development of a vibroacoustic diagnostic measurement system for an electric motor.
19. Modernization of the ship's incinerator system using PLC.
20. Integration of ballast water treatment system power supply into the ship's electrical distribution system and operational analysis.

The quality of students' final theses in the study program is evaluated based on the grades received during the defense of the diploma project. During the state examination "Diploma Project" review period, fluctuations in the average grade are observed ranging from 7.5 to 8.6, as shown in the diagram below. In the academic year 2018/2019, the average grade reached the highest level, followed by a slight decline in the subsequent years, but still maintaining a high rating, indicating the quality of students' diploma projects and improved research, as well as information analysis skills.



3.3. Resources and Provision of the Study Programme

3.3.1. Assessment of the compliance of the resources and provision (study provision, scientific support (if applicable), informative provision (including libraries), material and technical provision, and financial provision) with the conditions for the implementation of the study programme and the learning outcomes to be achieved by providing the respective examples.

According to the Cabinet of Ministers' Order No. 492 "On the Reorganization of the Latvian Maritime Academy" dated July 6, 2022, as of November 1, 2022, the Latvian Maritime Academy became a structural unit of Riga Technical University (RTU). The implementation of the program also had access to RTU's equipment and resources, which are mainly concentrated in the RTU "Kipsala Campus," currently housing 54 lecture rooms, 187 laboratories, 19 specialized training rooms, 10 computer labs, 12 workshops, and several nationally recognized research centers. The student campus also includes a student service hotel with 950 beds and a special block for individuals with specific needs to ensure favorable and comfortable living conditions.
In the RTU Latvian Maritime Academy, located at 12 Flotes Street, the library of the RTU LMA Study Center provides access to previous years' student theses/projects, teaching materials prepared by LMA faculty, and other types of technical support materials. The results of the 2021/2022 Student Survey indicate that a portion of students (approximately 57%) believe that they were able to obtain the necessary study books from the library. However, students are still dissatisfied with the insufficient availability of newer literature resources in their professional field. Students expressed a desire for a larger quantity of professional literature to be available not only for reading within the library but also for loaning to take home. Additionally, students would like to have more e-books, which are currently available by integrating with RTU's digital platforms.
Due to the measures taken in response to COVID-19 to mitigate potential risks and the declaration of a state of emergency, the LMA library continued its operations with significant restrictions. Users had the opportunity to remotely request necessary study materials, which were prepared and provided to users in an epidemiologically safe manner.
Students and faculty involved in studies and research have access to subscribed

databases in the RTU LMA library:
• EBSCO: access to full-text and review databases in the humanities, social sciences, and exact sciences. Collection: National package - AcademicSearchComplete.
• EBSCO: INSPEC: access to full-text database in the exact sciences.
• KR - CON:2: access to a subscription-based specialized maritime regulatory document database.
• International Maritime Organization (IMO): Current document database IMO doc.
For distance learning, LJA utilizes the interactive e-learning environment platform omars.latja.lv, based on the Moodle software framework. In emergency situations, all necessary study materials, including course descriptions, are accessible on the platform https://omars.latja.lv, which is regularly updated to ensure convenient access for both teachers and students.

Within the premises of the LJA Maritime Engineering Center – in the educational building and mechanical workshops – several specialized laboratories have been established.

The Engine Room Simulator Laboratory currently has more than 80 licenses, encompassing both engine room simulators (Medium Speed Engine Room Simulator MED3D, Medium Speed Engine Room Simulator MER3D/MEC3D, Low Speed Engine Room Simulator LER3D, Gas Turbine Simulator, Low Speed Engine Room Simulator W-Xpert (FPP/CPP ver.) - Electronic Control ME, Medium Speed Engine Room Simulator PSV3D, High Voltage Diesel Electric Engine Room Simulator HV-DE3D; LNG Diesel Electric Engine Room Simulator LNG-DE3D, Low Speed Engine Room Simulator RT-flex50DF, Medium Speed Engine Room Simulator Reefer Version Reefer3D, Low Speed Engine Room Simulator X92) and computer-based training software, available to students and academy personnel in a 24/7 mode. Two computer classrooms are used on-site. Additionally, students have access to the laboratory for dual-fuel engines and liquefied cargo simulators, established in 2022.

The Maritime Engineering Center at Flotes Street 12 has several specialized laboratories:
Electromechanical workshop: equipped for distribution cabinet, electric motor, generator, and power electronics repairs and diagnostics using soldering and assembly equipment, as well as electrical measuring devices including multimeters, megohmmeters, and oscilloscopes.
Ship control systems laboratory: equipped with modern pneumatics and hydraulics stands, programmable logic controllers, analog control system training stands, and ship propeller simulation equipment, allowing students to learn theoretical knowledge and practically apply it.
Electronics and electrical engineering laboratory: fully equipped with all necessary measuring and diagnostic instruments, as well as soldering equipment and magnifying glasses. This laboratory enables students to learn the fundamentals of electrical engineering and electronics using training kits from Lukas Nulle and K&H, as well as ARDUINO, ESP32, and PIC training platforms.
Electric machines laboratory: equipped for students to practically learn electromechanical converters and their operating principles.
High-voltage equipment laboratory: fully equipped with high-voltage switchgear and all necessary safety equipment. This laboratory provides students with the opportunity to learn safety measures while working with high-voltage switchgear, ensuring they receive the necessary theoretical and practical training.
The LJA RTU Maritime Engineering Center's mechanical workshop, located at 12 Fleet Street k-9, covering an area of 585 square meters, is utilized for achieving the competency outcomes of the STCW Code Standard A-III/6 in the function of "Maintenance and repair at the operational level" It serves as a facility for both practical training and research work for students, as well as for scientific investigations.
In the electromechanical workshop, there is an opportunity to perform the repair and diagnostics of distribution cabinets, electric motors, generators, and power electronics. This is achieved through the use of soldering and assembly equipment, as well as electrical measuring devices and instruments, including multimeters, megohmmeters, and oscilloscopes.The workshops are equipped to perform mechanism disassembly, defect identification, repair, and assembly. They are equipped with a 3-ton capacity portal crane, 3-phase and 1-phase power connections for connecting powerful electrical equipment, metal milling machines and lathes, various hand tools, hydraulic press, and welding station.
In addition to the workshops, there is a 600-square-meter warehouse where equipment and mechanisms are stored, and spare parts are manufactured and restored, including sandblasting and washing equipment. Non-destructive testing equipment is also available.
For students' development of repair skills, they have access to the RTU LMA lifeboat and diesel engine stand (KAMAZ engine).
To achieve the competency results of practical skills according to the STCW code standards A-III/6 in the function of "Controlling the operation of the ship and care for persons on board at operational level" the infrastructure and equipment of the RTU LMA Training Center are used, which comply with the requirements of the Maritime

Administration of Latvia.
Furthermore, due to the fact that program graduates continue their studies in master's and doctoral programs in other RTU structural units, and RTU faculty members teach in programs implemented by RTU LMA, a cooperation agreement has been reached to collaborate on scientific research and interdisciplinary projects, as well as to provide study process support with the Faculty of Electrical and Environmental Engineering (Industrial Electronics and Electrical Engineering Institute), Faculty of Mechanical Engineering, Transport, and Aeronautics (MMI Thermal Power Systems Department, Aeronautics Institute), Faculty of Materials Science and Applied Chemistry (Polymer Materials Technology Department).
Moreover, RTU EVIF IEEI offers the following laboratories:

- Power Electronics Study Laboratory;
- Electric Drive Study and Research Laboratory;
- Production Process Automation Study and Research Laboratory;
- Computer Control Study and Research Laboratory;
- Microelectronics and Sensor Study and Research Laboratory;
- Energy Efficiency Study and Research Laboratory;
- Electronic Equipment Study Laboratory;
- Electrical Engineering Fundamentals Study Laboratory;
- Electrical and Electronic Engineering Study Laboratory;
- Power Electronics Converter Study and Research Laboratory;
- Industrial DC Power Supply Systems Laboratory (AREUS Demo Lab);
- Student Creative Laboratory.

These laboratories have completely new infrastructure, including furniture, power distribution and supply, tables, projectors, and other necessary equipment. Additionally, specialized equipment has been acquired for the educational process, such as oscilloscopes (Rigol DS1052D - 10 pieces; Rigol DS4012 - 2 pieces), current measurement probes (Rigol RP1001C - 7 pieces), differential probes (Rigol RP1025D - 2 pieces), multimeters (U1233A - 16 pieces), solar energy meter (SOLAR-100), power analyzers (CIR-E3 - 14 pieces), power supply units (EX752M - PSU, 8 pieces), power supply units (QL355TP - PSU, PROG, TRIPLE, 35V, 5A, 5V, 1A, 2 pieces), power supply units (TTI-CPX400S - PSU, 2 pieces), power supply units (EA-PS 2042-20B - PSU), autotransformer (Velleman SR-1000), battery screwdriver/drill (Festool), portable optical parameter meter (Konica Minolta LS-110). New stands have been created for student practical work, such as for microelectronics and electronic devices learning and drive systems in the "elevator drive" stand.
Within the FP7 project AREUS, a unique laboratory has been created - a 600 V DC power supply system with an industrial 21 kW robot KUKA Quantec Prime, 55 kW active rectifier, two drive stands capable of emulating any robot's power consumption, supercapacitor and lithium-ion energy storage systems, and other equipment. The IEEI also has a compact solar energy storage system with lithium-ion batteries and charge level control; local interconnected autonomous power supply systems with a 3.6 kW wind generator and 6.6 kW solar panels, inverters for feeding power back into the grid or storing energy from a lithium-ion accumulator. Additionally, programmable DC power sources that can simulate solar panels or hydrogen systems with power of 2 · 15 kW, 2 · 5 kW, 2 · 3 kW, a fuel cell research kit Ballard Nexa 2 • 1.2 kW, and 8 kW.
Furthermore, for industrial process research, the faculty has FESTO mini factory MPS and FMS complex, FESTO Compact-Workstation compact water level control workstation, EMCO Concept Turn 105 / EMCO Concept Mill 105 equipment.
For signal measurement, there are available digital oscilloscope YOKOGAWA DLM6054-F-HE-L16/P4, oscilloscopes (Rigol DS1052D - 10 pieces; Rigol DS4012 - 2 pieces), digital oscilloscope TEXTRONIX, Fluke, Rigol, and others. In 2017, a fine BNC type oscilloscope current probe Ultra mini CWT015 was purchased, which can measure current flowing through transistor legs.
For lighting parameter measurements, there is a spectrometer Avantes, solar energy meter (SOLAR-100), portable optical parameter meter (Konica Minolta LS-110), infrared temperature meter Raynger ST60 ProPlus.
The training of robotic systems is also carried out using the industrial KUKA Agilus with KRC4 controller, virtual programming software KUKA SIM, Mitsubishi robot, and Festo Robotino mobile platforms.
Energy efficiency parameters are determined using power analyzers (CIR-E3 - 14

pieces), power analyzer set N4L PPA5530-3 Phase (5gb), network analyzers AR5 and AR5L, Fluke network analyzers, and other devices.
Various converters are developed using adjustable AC and DC power supplies, as well as other power sources: diesel generator SDMO DX 6000TE, solar panels, wind generator, hydrogen fuel cells, power supply units (EX752M - PSU, 8 pieces), high-voltage laboratory power supply unit (EA-PSI 9360-120 3U), high-voltage electronic load (EA-ELR 9150-30 3U), electronic load for DC Electro Automatic EA-EL3400-2, high-voltage laboratory power supply unit (EA-PS 8032-10 T).
The development platform for electrical technology management systems includes dSPACE, Matlab/Simulink R14 modeling software, PSIM Professional 8.0 simulation software, Synopsys Analog Simulation and Modeling Synopsys Advanced TCAD individual license, OrCAD PCB Design University Edition license, PSIM-JMAG software, and more.
For PCB prototype development, LPKF ProtoMat S64 PCB prototyping equipment, LPKF ContacRS PCB metalization equipment, HAWK 3D axis Microscope, automatic multi-layer PCB press (for forming 4-8 layer boards) LPKF Multi Press, and an electric coil (choke) tinning station Jovil Manufacturing SMC-2 with additional equipment are used.
In 2017, with the financial support of AS Latvenergo, the equipment was expanded in the Latvenergo student creative laboratory, acquiring a programmable 6 kW three-phase AC power supply unit Elektro-Automatik EA-ACP3P 520-16.8-6000-20U f45-450.
In 2017, the laboratory also acquired the "Intelligent network, industrial robotics, human and environmental impact" research equipment, which consists of a physical motion simulator system (based on an industrial robot manipulator base with a lifting capacity starting from 500 kg), Robot manipulator hanging cabin (with integrated video projection equipment and control devices, which can be connected to the system's simulation computer using data exchange protocols (CAN, Ethercat, etc.)), and physical power grid emulator with integrated HIL system and electrical parameter measurement equipment (system power 200 kW, at least 6 (with the possibility to expand to 12) freely programmable channels for power flow control both as a source and as a load, with integrated software support for electrical grid, storage, drive, and solar panel simulation).

The Faculty of Mechanical Engineering, Transport, and Aeronautics (MTAF) at the Aeronautics and Environmental Engineering Institute (AERTI) offers 2 computer classrooms with a total of 60 workstations. The following laboratories are available:

- Experimental Materials Laboratory,
- Module Manufacturing Laboratory/Workshop,
- Electronics and Electrical Engineering Fundamentals Laboratory,
- Digital Technology and Electronic Instruments Laboratory, Non-destructive Testing Laboratory,
- Gas Turbine Engine Laboratory,
- Composite Materials Manufacturing Workshop.

The MTAF Thermal Power Systems Department (MMI) provides laboratories with the following equipment:
Thermal Engineering Measurement and Automation Laboratory with multifunctional teaching stands for various study courses and the development of professional and scientific research skills in technical thermodynamics, hydrodynamics, gas dynamics, heat exchange, thermal engineering measurements, and other thematic areas. These facilities enable more than 40 different laboratory works, including:

- Pump station with built-in control,
- Heat exchanger research stand GUNT WL110,
- Refrigeration and component training stand GUNT ET 900,
- Temperature measurement stand GUNT WL202,
- Air conditioning, refrigeration, and heat pump laboratory stand Edibon THIBAR22C,
- Heat transfer laboratory stand P.A.Hilton HC655A,

Heating system laboratory with room heating system elements, regulators, and measuring devices, Thermal engineering and systems workshop, as well as specialized software KAN-therm.

3.3.2. Assessment of the study provision and scientific base support, including the resources provided within the framework of cooperation with other science institutes and higher education institutions (applicable to doctoral study programmes) (if applicable).

3.3.3. Indicate data on the available funding for the corresponding study programme, its funding sources and their use for the development of the study programme. Provide information on the costs per one student within this study programme, indicating the items included in the cost calculation and the percentage distribution of funding between the specified items. The minimum number of students in the study programme in order to ensure the profitability of the study programme (indicating separately the information on each language, type and form of the study programme implementation).

RTU LMA's funding from the state budget is allocated for the list of study programs and corresponds to the number of students, providing funding for the study base, including funds for utilities, taxes, infrastructure maintenance, procurement of inventory and equipment, and personnel salaries, as well as funding for scientific activities. The number of study places is allocated through negotiations with the Ministry of Education and Science. The amount of funding for the study base is determined based on the state-determined number of study places at RTU, as well as the state-determined costs of the study place base and coefficients for the study costs in the education thematic areas.
The funding for the study program “Marine transports-Marine Electrical Automation” consists of:
- Grant or core budget funding (state budget funding for student training)
- Fee-paying student funding (both full-time on-site and part-time off-site fee-paying student training, as well as fees for retaking exams);
- Performance funding (funding for scientific support)
- Funding for research infrastructure.

Analyzing the overall funding of the study program, in the case of core budget and local fee-paying students, long-term funding has been and is determined based on the principles set by the state. The determination of the funding amount considers both the coefficients of study costs in thematic areas and the values of study cost coefficients corresponding to the level of the study program, as well as the number of students in the study program and the study courses implemented therein. As mentioned earlier, using the study cost coefficients in education thematic areas, it is possible to determine the necessary funding amount for the implementation of a specific study program and study course.
The funding allocated from the state budget for the implementation of the study program per student is in 2022 - 2771.19 EUR, in 2023 - 3596.47 EUR. RTU LMA agreed with the MoES to increase the budget funding per student by reducing the number of budget places. Compared to 2015, the number of budget places decreased from 77 to 50 in 2023.
In addition to the state budget-funded study places, the study program's funding also includes tuition fees from individuals or legal entities. The funding from fee-paying students is used for the renewal of material and technical resources, attracting higher-level specialists to ensure the study process, etc.
The tuition fee per student for the study program "Marine transports-Marine Electrical Automation" is 3,570 EUR per year.
The tuition fee calculation includes the following items:

- Remuneration – 80.48% ;
- Training, work, and business trips, service trips – 0.27%;
- Service fees – 12.44%;
- Acquisition of inventories, materials, energy resources, goods, office supplies, and inventory – 3.18%;
- Real estate tax – 0.15%;
- Capital formation – 2.23%;
- Deductions for sports and culture – 0.26%;
- Deductions for research activities – 0.99%.

The minimum number of students to ensure the profitability of the study program is 15 students.
RTU LMA units are motivated to attract additional external funding, for example, through projects. This provides additional opportunities for the unit to cover its expenses, ensure necessary development, and receive additional funding.

3.4. Teaching Staff

3.4.1. Assessment of the compliance of the qualification of the teaching staff members (academic staff members, visiting professors, visiting associate professors, visiting docents, visiting lecturers, and visiting assistants) involved in the implementation of the study programme with the conditions for the implementation of the study programme and the provisions set out in the respective regulatory enactments. Provide information on how the qualification of the teaching staff members contributes to the achievement of the learning outcomes.

The implementation of the study program will be ensured by the academic staff of RTU LMA - professors and lecturers with a doctoral degree and master's degree, each of whom is an expert in their field.
If necessary, the study program plans to attract lecturers from the Lithuanian Maritime Academy, as well as invite industry professionals to deliver on-site and distance lectures and practical/laboratory classes.
Specialists and working seafarers from the Latvian maritime industry are also involved. This approach applies to all subjects, allowing students to familiarize themselves with the specifics of maritime work and choose their internships in a timely manner. Guest lecturers have a scientific degree in engineering and work experience on ships or in the maritime industry.
In accordance with the objectives of the study program, the primary criteria for selecting teaching staff are: (a) knowledge of the latest technologies and participation in scientific and research projects in their respective fields, (b) pedagogical skills relevant to contemporary trends in the respective field, and (c) experience in delivering courses to international students in English.
To ensure the quality of the study content, the teaching staff involved in the program regularly enhance their professional and academic knowledge through methodological seminars, conferences (national and international), as well as scientific and research work. They participate in various scientific and methodological projects, as well as qualification enhancement seminars and courses.
The teaching staff actively utilizes the opportunities of international mobility programs within ERASMUS+.
Mobility of teaching staff, international scientific collaboration within projects, and publications ensure changes in the program content and the use of teaching methods in line with the latest global trends, thereby helping to achieve the defined study outcomes and goals.
The teaching staff involved in the implementation of the study program are provided with regular opportunities for the improvement of their methodological and didactic skills. LMA staff actively participate in training courses organized by RTU LMA Study Center, as well as within the European Union's Operational Program "Growth and Employment" 8.2.2 Specific Support Objective "Strengthening the Academic Staff of Higher Education Institutions in Strategic Specialization Areas" within the SAM project. Thanks to the interest and responsiveness of the employees, many staff members - a total of 53 LMA employees - have undergone qualification training. Various competence-building activities have been implemented:
Internship at the company SIA "LSCM", courses in "Project Management," "Internship in English Language Teaching," Basic Safety Course, Expanded Firefighting Training, Operation of Life-Saving Appliances (excluding fast rescue boats), ISO 9001:2015 Internal Auditor Training for Quality Management Systems, Leadership and Team Building Skills in Maritime, Ship Bridge Resource Management, Cybersecurity, Online Course Development and Digitalization of Course Content, Training on Eco-innovation, Green Jobs, and Green Public Procurement in Institutional Management Processes, Quality Management of Studies in the European Higher Education Area, Financial Management. Financial Sustainability of Higher Education Institutions, Communication and Collaboration in Digital Communication Management, Organization of Teamwork in Remote and On-Site Settings, Digital Tools for Remote Work Teams, Training on CAD Technology Tools for Shipbuilding – SolidWorks.

3.4.2. Analysis and assessment of the changes to the composition of the teaching staff over the reporting period and their impact on the study quality.

The program involves both academic faculty and experienced professionals with maritime and relevant engineering expertise. Student surveys consistently show high ratings for the faculty. The table below provides information on changes in the faculty composition based on occupied positions. The quantitative number of desired involved teaching staff is variable.

	Total	Academic Position Count					Academic staff without elected position (visiting professors, visiting lecturers)	Total
		Prof.	Asoc.prof.	Docenti	Lektori	Asist.		
2014/2015.	16	4	0	5	5	2	7	23
2015/2016.	12	3	0	5	4	0	12	24
2016/2017.	12	3	0	5	4	0	14	26
2017/2018.	12	3	0	5	4	0	14	26
2018/2019.	12	3	1	4	4	0	14	26
2019/2020.	18	4	3	4	5	2	14	33
2020/2021.	17	3	1	1	10	2	5	22
2021/2022.	16	3	0	3	7	3	5	21

As seen in the table, the total number of teaching staff involved in the study program has decreased since the academic year 2019/2020. Ensuring the generational turnover of teaching staff for long-term development is challenging due to financial considerations. The remuneration in higher education is generally not competitive with the salaries received by industry experts in the private sector. Consequently, graduates of study programs and industry professionals are not particularly inclined to replace or combine shipboard work with shore-based employment. Although the low salary level in higher education complicates the opportunities to attract new teaching staff for independent work at LJA, auditors have repeatedly pointed out that the provision of teaching staff is at a very good level to promote the quality and sustainability of the study program. Especially motivated practicing mariners teach specific courses in their free time from their main jobs. However, this poses challenges in the planning process of courses, as it is not always known in advance when a particular instructor will be available for work at LMA.
The teaching staff involved in the program participate in academic and scientific conferences and prepare scientific publications.

3.4.3. Information on the number of the scientific publications of the academic staff members, involved in the implementation of doctoral study programme, as published during the reporting period by listing the most significant publications published in Scopus or WoS CC indexed journals. As for the social sciences, humanitarian sciences, and the science of art, the scientific publications published in ERIH+ indexed journals or peer-reviewed monographs may be additionally specified. Information on the teaching staff included in the database of experts of the Latvian Council of Science in the relevant field of science (total number, name of the lecturer, field of science in which the teaching staff has the status of an expert and expiration date of the Latvian Council of Science expert) (if applicable).

3.4.4. Information on the participation of the academic staff, involved in the implementation of the doctoral study programme, in scientific projects as project managers or prime contractors/ subproject managers/ leading researchers by specifying the name of the relevant project, as well as the source and the amount of the funding. Provide information on the reporting period (if applicable).

3.4.5. Assessment of the cooperation between the teaching staff members by specifying the mechanisms used to promote the cooperation and ensure the interrelation between the study programme and study courses/ modules. Specify also the proportion of the number of the students and the teaching staff within the study programme (at the moment of the submission of the Self-Assessment Report).

To ensure the coherence of the study course content, an annual review of the program's study courses is conducted, along with seminars where faculty members involved in the program acquaint colleagues with course topics, teaching methods, and discuss improvements to enhance the program's content quality and relevance to current industry trends. During the COVID-19 pandemic, the usual practice has been reduced, and faculty communication was facilitated through platforms like WhatsApp, Microsoft Teams, and Zoom.
Informal faculty meetings are organized gatherings where current issues are discussed in an informal atmosphere. If a formal decision is required to address a specific issue (e.g., updating internal regulations, setting restrictions, etc.), the relevant department heads are informed, and the matter is included in department meetings.
The continuous improvement of study courses is based on suggestions from both students and faculty members, as well as input from members of the state examination commission.
With the aim of involving new faculty members and industry professionals in the teaching process and regularly updating the study course content, RTU LMA plans to initiate a pedagogue-mentor movement. This movement allows colleagues to share experiences and mentor prospective faculty members who wish to join the RTU LMA community.
Analyzing the student-to-faculty ratio within the study program at the time of self-assessment report submission, the program maintains a target of 1 faculty member for every 7 students and 1 industry specialist for every 21 students.

Annexes

III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		
Sample of the diploma and its supplement to be issued for completing the study programme	KEA-bak-diploms&pielikumsv2ENG.zip	KEAdiploms&pielikumsv2LV.zip
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)		
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)		
Statistics on the students in the reporting period	5.pielikums JT-KEA.xlsx	5.pielikums JT-KEA.xlsx
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard	P06_3.2.1_UCE0_42525_AtbilstibaValstsStandartam_ProfBak_LV_Jūras transports - kuģa elektroautomātika_ENGv2.docx	P06_3.2.1_UCE0_42525_AtbilstibaValstsStandartam_ProfBak_LV_Jūras transports - kuģa elektroautomātika_LVv2.docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)	P07_3.2.1._KEA_AtbProfStand_ENGv2.docx	P07_3.2.1._KEA_AtbProfStand_LVv2.docx
Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)	Compliance with the specific regulatory framework of the relevant industry v2.docx	Atbilstība atbilstošās nozares specifiskajam normatīvajam regulējumam v2.docx
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme	Kartējums_M305_Bak-KEA ENG v2.xlsx	Kartējums_M305_Bak-KEA v2.xlsx
The curriculum of the study programme (for each type and form of the implementation of the study programme)	JT-KEA-BSc-E305_red9-pamatplansv2ENG.zip	JT-KEA-BSc-E305N-plansv2LV.zip
Descriptions of the study courses/ modules	KEA(42525)-BAK-v2-SKA_EN.zip	KEA(42525)-BAK-v2-SKA_LV.zip
Description of the organisation of the internship of the students (if applicable)	PRAKSES_NOLIKUMS ENG.docx	PRAKSES_NOLIKUMS.docx
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)		
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)		