Expert group joint opinion

Evaluation Procedure: Assessment of Study Field

Higher Education Institution: Riga Aeronautical Institute

Study field: Information Technology, Computer Hardware, Electronics, Telecommunications, Computer Management, and Computer Science

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Summary Assessment of the Study Field

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Assessment opinion is based on self-assessment report, documentation submitted by Riga Aeronautical Institute (RAI) and assessment visit and interviews. There was a chance to meet with RAI management representatives, employers, alumni and students. Currently, RAI fills the niche study field of aviation electronics equipment service, which is the only programme of its kind in Latvia.

The committee appreciates the welcoming atmosphere and willingness to improve the programme, infrastructure and existing procedures.

The overall impression

The committee has, in general, a positive impression of the organization of the studies, management of both RAI and the study programme. The presented documentation covers the requirements, along with specific procedures relevant to the aviation industry. This positive impression is strengthened considering the relatively small number of students in the programme, which has pushed the management to look for additional income sources and provide life-long learning courses and recertification courses for the industry. Since the RAI and the study programme management offer studies in a niche field of aviation electronics, the committee has noticed the clear need for the field professionals now and in the near future.

Positive aspects

Going through the discussions and site inspection (remote), the committee would like to emphasize the relatively well-equipped laboratories, classrooms, library and the building in general. Along with the highly motivated and enthusiastic faculty member, the developed infrastructure provides a strong motivation for students and professionals.

The committee has a joint opinion on a strong synergy of aviation industry requirements and certifications within the RAI, which is an attractor for potential students and potentially ensures a high quality of the studies.

The existing quality assurance practices of daily operations and regular certification of aviation-specific operations have improved overall quality management and RAI policies.

As the excellent practice is internal staff development courses and training that has taken part during recent years.

The committee noticed an excellent practice of providing extra services for student and staff convenience, including an in-house medical care centre, well-equipped dormitories with a pool and sauna.

Gaps and space for improvements

As with any study process, the committee has noticed some aspects that would provide additional value if some particular improvements. Among them, the number of students is one of the most critical challenges of the RAI and the study field being assessed. One of the particular actions that should be taken, the committee sees potential in better developed future development plans and the stay programme's marketing strategy.

The committee also noticed some inconsistencies in the study content like using software packages like technical drawing, PCB design, electronics simulation and related. Another essential thing is the consistency of study material in terms of the used language, where sometimes a mixed material is proposed (Russian, Latvian, English).

The committee suggests opening electronic libraries like IEEE (IEEE - The world's largest technical professional organization for the advancement of technology, https://www.ieee.org/) to both students and faculty members to diminish the study material inconsistencies' effects. It would foster

the overall scientific activity of the RAI.

Along with the mentioned above, the committee also suggests introducing automated tools for plagiarism check and control, enabling both an increase of quality and saving precious time of faculty members.

1. Management of the Study Field

Analysis

During the assessment procedure, the committee has approached by studying the provided self-assessment report and matched it too, what has been observed during the discussions with RAI administration, staff, students, industry and alumni representatives. The main studies documents were - strategy of the study field, the RAI strategy, statistics report of the previous periods, notes for improvements from the previous accreditation period, and the related documents that complement or are referred by the mentioned ones.

The committee, through interviews and discussions, was looking for evidence that the development plans and strategy are well-understood by all management, staff, students, and industry to verify the overall management. The main topics discussed and verified by the committee:

- Is the study field development plan communicated to the staff in the form of common actions or documents?
- How is the represented industry involved in planning and any dedicated action taken to increase their involvement?
- To what extent the development plan corresponds to the vision of the industry?
- How are the decisions made about the development of the study field?
- What actions have been taken or planned to increase the study field's visibility and increase students' overall number?
- What actions have been made to take an advantage of national or regional collaboration?
- How the funding is ensured?

Each of the main topics was discussed and cross-checked through all other discussions to match the declaration to RAI's actual practice.

Analysis by criteria:

1) The aims of the study field are defined clearly and are part of the study direction strategy. Since the direction and enclosed study programmes are developed in response to the RAI to the industry demand, both programme and direction correspond to the current trends – compact and very focused studies.

2) The administration structure of the study field is clearly and functionally organized, is tailored to the size of the programme within the field, fully compliant with the best practices of higher education institutions and Latvian higher education normative regulations.

3) The current admission and previous achievement recognition procedures correspond to the current best practices in Latvia, which are based on the contents and working hours examination (expressed in ECTs or equivalents). The committee's opinion is based on the evidence of the international students only since there is no experience in the admission of other students where the recognitions procedure should be applied.

4) Unfortunately, the principles of academic honour are implemented and maintained relying on students self-declarations only (in the final thesis case) and lecturers notes during other examinations. Therefore the particular tools are not used, which is a significant drawback of the process.

5) There is full compliance with public advertisements and particular formal procedures. Information about processes and studies is available, easily accessible and in sufficiently comprehensible form.

Information regarding study field and programme is available on the website in all languages in which programme is implemented.

Conclusions. Strengths and weaknesses

The overall impression is positive and provides a strong ground for a solid integration of the study direction managements supported by an internal quality management system and additional separate operations-baed quality management (required in aviation).

Strengths:
1. Since the study field and a particular programme is representing a particular and narrow field of education, it very well documented and supported by solid quality assurance policy.
2. The management of the study programme is well-integrated, which enables a short communication path for any managerial actions to be taken.
3. Because of the study field's specifics, the development goals and plans are grounded in industry development trends.
4. The actual information regarding study organization, planning, study materials and content is available online, showing a healthy attitude to current and possible future challenges.
5. The current communication and support practice for the students is open and even personal, which is the positive aspect of a small number of students.

Weaknesses:
1. While there exist a student code of honour and students are required to sign it, particular technical tools to check the possible signs of plagiarism are no present.

2. Efficiency of the Internal Quality Assurance System

Analysis

The core of the applied analysis method is formed by two main steps: analysis of the self-assessment report and analysis of the staff's interviews, which provides means for correspondence check of the declaration and practice. According to the provided documentation, the quality assurance policy is based on two pillars:
- A general quality assurance systems - addresses everyday study and study organization process;
- Operations specific quality assurance system - addresses professional courses and procedures regulated by the application domains - aviation.
Both quality assurance systems co-exist and complement each other, which results in more robust and more reliable quality management in general.
The quality assurance system possessed both - procedures and results processing that respond to actions or situations that compromise set objectives or quality assurance goals. Several feedback mechanisms include regular questionnaires, internal and external audits, and verbal feedback collection directly from staff, students, or industry. The Operations specific quality assurance procedures are strengthened by attracting domain experts (legal requirement) present at the interview process and supporting the thesis mentioned above.
During the discussions with RAI staff, the committee noticed that staff representatives are well informed about the quality procedures, documentation, reporting mechanisms, and set goals and outputs due to regular meetings daily.
To the best of the committee's knowledge, the reported and documented quality assurance system

combined with the operations specific procedures corresponds to the best practices.

Analysis by criteria:

1) The developed and maintained quality assurance system is robust and complies with the best practices. It corresponds to continuous development and good performance.

2) The feedback mechanisms are well-established and well-functioning, they are logical, and all the stakeholders are involved in generations of the feedback. The feedback is organised through several media including questionnaires, personal discussions (the study direction is rather small, therefore everyone can be involved directly in the process) or consultations with the industry. An excellent example is born of the study programme itself, which was initiated by the industry indicating both involvement and interest;

However, besides a very well established QA system in general some weak points have been notices as well. One of them is the involvement of graduates and alumni in the direction of quality assurance procedures, which was affirmed by the interview alumni.

3) The implementation of the quality assurance system ensures regular and systematic statistics analysis. The acquired feedback is evaluated and processed by the direction director or vice-rector for studies of the institution. Since the direction in terms of student number is relatively small it seems to the expert as a logical approach to the system. Another involved party is the quality system controller, which is not a widely used position in other HEI, however, in RAI it a relevant and needed position due to the operations-specific quality assurance system.

4) The HEI has enclosed the ESG requirements and principles in its quality assurance systems regarding measures and procedures. The expert admitted that the most challenging ESG requirements are teaching staff recruitment procedures, which currently are not well documented along with the staff promotion procedures.

Conclusions. Strengths and weaknesses

As outlined in the analysis part, the overall set of procedures, approach, and documentation and the operations-specific procedures form a solid backbone of the RAI's quality assurance approach.

Strengths:

1. Corresponds to all of the criteria regarding quality assurance requirements and practices.

2. The quality assurance system is composed of two mutually complementary parts - general Quality assurance system and operations specificē, which provides additional robustness to the system and procedures.

Weaknesses:

1. There are no significant weaknesses, but the committee sees a future threat. Due to a small number of students, the general quality assurance system will become a formal mechanism while the operations-specific one will provide ground commercial for certification courses.

2. Not all stakeholders have their voices represented in the overall QA system, for instance, graduates and alumni.

3. Resources and Provision of the Study Field

Analysis

The assessment method estimates the needed resources for the high-quality education process and matches the reported resources available. The resources, in general, encompass several ingredients: teaching staff and its attraction policy, equipment and its renewal policies, infrastructure and its renewal approach, the financial flow that enables to maintain the mentioned ingredients.

During the assessment, besides the self-assessment report, an online site visit (due to covid19

restrictions) was provided and the responsible personnel's discussions and comments.

The committee was supported by online questions and answers session to provide the needed additional information. The online site visit was composed of building inspection, premises and laboratory show-up, library visit, discussions on the missing information.

The committee was positively impressed by the condition of the premises and well-maintained dormitories, which are complemented by an in-house medical centre, recreation centre and other facilities that are unusually in Latvia and provide additional services for the students. The committee found that the laboratories are equipped well enough but are focused on a relatively small number of students using them.

It is evident and obvious to the committee that the HEI has provided a significant investment into the infrastructure and equipment, allocating its own budget and attracting ERDF co-funded projects.

While there are no documented procedures or budget allocation methods that would enable a transparent investment policy, the higher management ensures constantly available funding for the study process, infrastructure development and maintenance. Unfortunately, the studies within the field mainly are funded by the income from commercial certification courses for the aviation domain operations. These circumstances create a certain tension on budgets and sustainability.

However, due to internal budget splits the HEI demonstrates capabilities to attract and motivate highly skilled professionals from the domain (the committee had a chance to interview one of them). It has to be emphasized that all of the met faculty are highly motivated and show enthusiasm when looking into the future developments of the HEI.

Analysis by criteria:

1) While the HEI has internal budget allocation procedures for investments and development, they are not documented and are not transparent.

2) HEI has ensured a well-developed infrastructure and equipment, enabling both motivations for students and faculty and future savings on maintenance; The committee noticed that most of the essential electronics testing/training equipment (voltmeters, power meters, etc…) are slightly outdated. In most industrial applications, programmable, computer controllable oscilloscopes, multimeters, power supplies, function generators are used as baseline equipment.

The current study approach does not employ the full strength of CAD and simulation systems in electronics, enabling higher training quality and better scalability. Things like PCB design software tools are not used at all, which is a distinct shortcoming.

3) The workload of the teaching staff is well-planned and balanced. The highly skilled team mainly works on operation-specific subjects. The main drawback is mobility, which is not employed at its full potential both for students and the staff. However, to some extent, the international staff members compensate for the drawbacks of mobility and enable to enrich the internal environment and practices.

4) The internal communication with students allows them to identify their needs and respond to them appropriately, which was evident for the committee after discussions with students. Therefore, while there are no dedicated regulations of procedures, the internal practice allows meeting the requirements of the criterion.

Conclusions. Strengths and weaknesses

The overall impression of the infrastructure, lab equipment, faculty motivation and enthusiasm of the faculty and the provided services to students is very positive.

Strengths:
1. Highly motivated and enthusiastic faculty.
2. Internal funding distribution approach that enables to attract young faculty members along with the highly skilled domain professionals (for operations specific education).

3. Well-developed infrastructure and equipment enabling both motivations for students and faculty along with future savings on maintenance.

Weaknesses:
1. Current equipment is planned for low-intensity student flow, which might cause additional tension on the budgets when the student flow intensity increases (which is an ultimate objective).
2. The current study approach does not employ the full strength of CAD and simulation systems in electronics, enabling higher training quality and better scalability. Things like PCB design software tools are not used at all, which is a distinct shortcoming.
3. Existing lab equipment is mostly training rather than scientific, which limits its use for scientific research in RAI.
4. Some of the tools are located in non-fitting fashions, for instance, metalworking tools near PCB soldering tools, which limits the use of both at the same time.

4. Scientific Research and Artistic Creation

Analysis

The analysis relies on several information sources:
- Self-assessment report representing a list of critical publications, staff CVs providing information on research activities and main results, development plan and the strategy;
- Online discussions with staff and administration allowing to understand better the current scientific research activities, projects and main research directions;
- Public databases (IEEE, SCOPUS, WebOfScience, Google Scholar, ResearchGate), which enable to examine the staff research activities and the main contributions on an international scale;

The analysis allowed the committee to see that the RAI represents an aviation engineering field and the related areas (aviation electronics in this case) that are relevant in scientifically promising since Latvia has grown as an essential regional player in civil aviation and autonomous aviation represented by several reliable companies (AirBaltic, UAVFactory, Atlas and others). The industry represents both "Classical" aviation and innovative fields of modern aviation, which allows forecasting the field's overall growth. Thereby, the committee sees at least several essential players from the industry, including Riga Technical university, Ventspils university college, Transport and communications institute, and several governmental institutions like Civil aviation control centre and others. Altogether, the Latvian scientific research landscape's mentioned organisation forms a solid ecosystem enabling research and commercialisation.
The committee recognises the overall potential of the research concerning the robust ecosystem of the field.

Analysis by criteria:
1) Unfortunately, the committee did not found strong evidence of active participation of the RAI's staff in scientific research or collaborative actions as a systematic endeavour and part of the staff development. The reported contributions are somewhat sporadic and represent individual contributions instead of a common direction. The expert did not find evidence of having strong scientific leaders (professors or lead researchers), which would both guide and develop the relevant research field. Thereby instead of having research groups of mixed staff - lead researchers, researchers, technicians, etc... RAI has several authorities that publish their research without clear research direction. It seems that each publication comes as a separate research report instead of a consecutive or additive research result.
2) Interviews with students and alumni showed that scientific research's student involvement is currently not present (probably due to the Covid restrictions). However, students reported that, in

general, they are informed about some research activities in HEI.

3) Apart from educational collaboration, international scientific cooperation is of low intensity and does not provide evidence for a systematic approach. Key Performance Indicator (KPI) values to measure the alignment between the actual scientific developments versus the expected ones need to be better defined with the use of specific qualitative and quantitative criteria. Scientific publications could be a representative tool in this direction.

4) The committee did not find evidence for Support or motivation mechanisms for staff involvement in scientific research. However, specific scientific activities are required for the elected personnel, which somewhat provides a motivating tool.

5) Student involvement in scientific research is not evident, and therefore, the mechanisms are not well established.

6) The most exciting tool used for studies is the e-learning software complex enabling a decent way to communicate remotely with students, teachers and the administration. The tool provides rich feedback for the administration and teachers enabling continuous developments and monitoring.

Conclusions. Strengths and weaknesses

The main conclusion is that in general, the scientific activity is rather of low intensity, which reflects in the reported contributions, representing rather sporadic research and publications.

Strengths:

1. A solid ecosystem representing all the necessary ingredients for good applied research and commercialization.

2. The enthusiasm and professionalism of the staff is a good credit to be used for research.

3. Students that are rather open to being involved in scientific activities.

4. A good time for studies in autonomous flying systems, their control and swarming and particular applications.

Weaknesses:

1. Rather low intensity and low interest of the staff doing scientific research. The committee sees that science is not a part of the current development plans and strategy, which due to internal funding distribution, slows down potential contributions.

2. Rather weak collaboration with industry and other academic players for scientific research, which is essential due to the limited staff capacities.

3. A rather weak communication of potential research ideas among staff and students, which limits their involvement and interest in the research.

5. Cooperation and Internationalisation

Analysis

The analysis of cooperation and internationalization is based mainly on scientific research contributions, agreements of collaboration and shared experience during the online discussions with the staff and students.

The committee has encountered several collaboration agreements with the local industry and other academic bodies, which shows a rather good understanding of the advantages of active cooperation. Since the HEI provides operations-specific certification courses, which are recognized on an international scale, there are several very good examples of collaboration, including international teaching professionals' attraction, international auditing activities, internal training on pedagogical methods, and their applications (organized in cooperation with Daugavpils University). Internationally recognized certification of the operations-specific courses provides a good

background for attracting both students and staff;

The potential of ERASMUS and regional is under-used and potentially could provide a great opportunity for the RAIS future developments. One such programme that could make a perfect fit in HEI's priorities is "EACEA Education, Audiovisual and Culture Executive Agency ERASMUS+ KA2 – Cooperation for innovation and the exchange of good practices – Capacity Building in the field of Higher Education."

An awarding strategy could be considered as a tool to improve scientific cooperation and internationalization in general. For instance, HEI will award academic staff who successfully manage to establish cooperation at different scales (with academia, industry, EU co-funding projects, etc) and attract funding. Scientific publications could be another means of research excellence.

Analysis by the criteria:

1) For the committee, it is rather evident that the HEI has a strong backbone on collaborative actions in general, based on its experience in being constantly assessed and certified in operations-specific domains. It involves not only formal communication but collaboration with international teaching staff as well. An excellent example of cooperation with industry is the study program itself, which represents the study direction being assessed. It is established due to a joint initiative between RAI and the corresponding sector. However, internationalization in the scientific context is not developed well, while having excellent potential in cooperating with HEI's counterparts in Estonia, Finlands and other regional players.

2) The study direction is developed within a highly regulated domain – aviation engineering rich of different formal requirements, including requirements for the staff. The HEI has developed an efficient mechanism to attract international staff members, which allows further development and quality assurance. The interviewed international staff representative emphasized that the most motivating reasons for joining the RAI team are its devotion to aviation and a particular type of aircraft. So, it seems to the experts that the internal climate is based on a common enthusiasm, which is the most important motivator. Thereby the attracted staff members are loyal and see the cooperation as a long-term endeavour.

3) The HEI ensures regular training of the staff, which is evident through reports and discussions, where several last training exercises were reported and analyzed. Most of the training is devoted to English and pedagogical methods, which corresponds to the common practice in Latvia. Unfortunately the experts noted rather weak English skills of several administrative and teaching staff representatives, which might be a limiting factor for international collaboration in general.

4) The joint programmes criterion is not applicable here since the study direction has a single programme developed completely by the HEI.

Conclusions. Strengths and weaknesses

In general, RAI has a good collaboration experience and potential in future as well. The relative number of international students is the same as the local ones; international teachers, assessments, and certifications form a well established global cooperation landscape.

Strengths:

1. An existing collaboration with local and foreign academics and professional bodies is vell established.

2. Ability to attract international students shows good potential in the near future.

Weaknesses:

1. The low-intensity scientific research limits current and future internationalization development.

2. The overall international cooperation is not systematic.

3. Staff's English skills are limited, especially for the most experienced employees, which limits its mobility and openness for collaboration.

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

Analysis

In the previous assessment procedure, a recommendation of 13 items was given to the HEI. HEI's report on implementing the recommendations are shown in the submitted self-evaluation report (Appendix 10).

The committee, in its analysis, primarily relies on the submitted self-evaluation report (Appendix 10), which formally encompasses both the suggestions for improvements and the achieved results by the HEI. Analysis of study course content related to recommendation implementation was not checked in study course materials itself, as only course descriptions were provided in the self-evaluation report and appendices.

Some of the recommendations and implementation details were discussed during the online meeting with the program's management and the RAI's administration.

Analysis of the implementation of the previously given recommendations:

"1. To increase the load of the course of Mathematics to at least 9 CP and the load of the course of Physics to 6 CP. (Implemented)"

In the appendixes "Study courses of the study program and their load.pdf", "EIA201_Higher mathematics.pdf", "EIA205_Physics.pdf", the amount of CP for the study programs are for Physics = 6 CP, for Higher Mathematics – 9 CP; thus we approve the implementation of the recommendation.

"2. Study courses include the following topics: 1) Industrial electronics and automation (sensors, actuators, programmable logic controllers and their programming); 2) Current electronic equipment production technologies; 3) Embedded control systems, their programming; 4) The impact of the environment on the operation of electronic equipment; 5) Electromagnetic compatibility; 6) Electrical safety. (Implemented)"

Cross-referencing with study course descriptions shows that: Item 2-1 is implemented (EIA208 Electronics), Item 2-2 is implemented (EIA208 Electronics and EIA320 The Basics of Robotics), Item 2-3 is partially implemented (EIA320 The Basics of Robotics), Item 2-4 is implemented (EIA105 Environmental and human protection), for Item 2-5 committee could not find implementation in "EIA214 transmission, reception and processing of radio signals" study course description, for Item 2-6 committee could not find implementation in "EIA302 Power Supply Equipment" study course description.

Thus, the committee finds that this recommendation is implemented partially.

"3. The course "Programming" should include learning a lower-level programming language, preferably C/C++. (Implemented)"

Although Appendix 10 claims, "The course includes learning programming language C / C ++.", the committee checked that provided study course description for the course "EIA213 Programming" does not list C/C++ or any other low-level programming language. The question of this recommendation's implementation was raised explicitly during the online meeting with the director of the study field and study programme "Electronic equipment maintenance" Mr Reiskarts, where he verbally stated that C/C++ is taught in the "EIA213 Programming study course."

Thus, the committee finds that this recommendation is implemented and suggests improving the Programming course description.

"4. The course "Construction and maintenance of computer networks" should include laboratory work with the installation of structured cabling systems. (Implemented)"
Study course description of "EIA319 Computer Networks Structure and their Maintenance" contains a laboratory work "Technical task 1". Committee understands that the recommendation is implemented in this lab work.

"5. The course "Electronics" should be supplemented with topics on multi-transition semiconductor elements. (Implemented)"
The committee sees topics in "EIA208 Electronics" related to multi-transition semiconductor elements (e.g. 3rd topic – "Transistors, structure and functioning, curves and parameters. Bipolar transistors and field transistors, their use") and approves the implementation of the recommendation.

"6. It must be ensured that the topics related to the database management system Access do not overlap in the courses "Computer Training" and "Programming". (Implemented)"
Cross-referencing the study courses "EIA213 Programming" and "EIA404 Information Technology", it seems that database topics do not overlap. Note that the committee could not find a study course with the title "Computer Training", but based on the context, "EIA404 Information Technology" seemed to be referenced in the previous recommendation. Thus, this item is implemented.

"7. It is necessary to balance the study load by semesters (20 CP per semester). (Implemented)"
Implementation verified by checking Appendix 15, which shows 20 CP per semester for full-time studies.

"8. It is necessary to publish normative study documents on the RAI website, which contain information on: - the procedure for providing answers to the reviewed students' applications; - matriculation and ex-matriculation; - study examinations; - for elaboration and defence of study papers; - study process; - methodological instructions for professional practical training. (Implemented)"
Documents regarding proposed topics can be found in http://rai.lv/lv/doc. Thus committee thinks this recommendation is implemented.

"9. Make the descriptions of study courses available in both languages in which the study program will be implemented (in Latvian and Russian). (Implemented)"
The committee was provided with study course descriptions in Latvian and in English.

"10. To stimulate teachers to engage in science and to publish in international peer-reviewed printed sources. (Implemented)"
As stated in Appendix 10 and confirmed during meetings – "A staff motivation system for supporting scientific and methodological work has been introduced. Every two years, RAI holds an international scientific conference with the active participation of RAI staff." thus situation should improve. The committee finds this recommendation implemented.

"11. Applicants must indicate that the training is bilingual in Latvian and Russian at the time of admission. (Implemented)"
The committee finds this recommendation to be implemented, as "On the RAI webpage there are Admission Regulations in the study programs of RAI for the current academic year published (http://rai.lv/lv/doc).".

"12. To work on the modernization of the material and technical base of laboratories. (Partially

implemented)"

The committee was introduced with current infrastructure, and some improvements were presented, e.g. Helicopter Mi2 to be used during the study process. Additionally, Appendix 10 states that cooperation agreements are concluded with RTU and Ventspils University college on joint use of laboratories and equipment. However, it was not clarified if the contracts have already been exercised or are still just on the paper. Nevertheless, the committee agrees with Appendix 10 that this recommendation is only partially implemented.

"13. It would be necessary to develop single-phase and three-phase AC circuit and low-voltage network (computer networks, access and fire safety systems, sensor networks, etc.) assembly training laboratory equipment. (Implemented)"

The committee can not verify that this recommendation has been implemented, as it was not possible to find a "three-phase laboratory work" mentioned in provided study course descriptions.

Some particular topics on the committee's opinion were not matching the actual documentation presented. This issue was discussed during the online meeting with the administration.

Conclusions. Strengths and weaknesses

Most of the required improvements were implemented and reported, including subject descriptions, distribution of credit points, and the emphasis of the common engineering background subjects like Mathematics and Physics.

Excluding some minor issues, the recommendations are considered, and the study programme has been improved according to them. There are no significant weaknesses currently; however, the committee suggests employing modern CAD tools and simulation tools into the curricula more heavily.

7. Assessment of the Requirements for the Study Field

1. Pursuant to Section 5, Paragraph 21 of the Law on Institutions of Higher Education, the higher education institution/ college shall ensure continuous improvement, development, and efficient performance of the study direction whilst implementing their internal quality assurance systems:

   Assessment of compliance: Partially compliant

   Justification: While the internal quality procedures and staff development are very well established, the main concern is about the direction's sustainability due to a small number of students, which creates middle and long term challenges. The current internal resources distribution, infrastructure and other needed compounds are available and well established in terms of usage. Still, in the longer-term, the limited student numbers also limit available resources. Therefore, the study field currently depends on operations-specific commercial courses that defocus the staff and create risks since it is out of the RAI's reach.

2. 1.1. The higher education institution/ college has established a policy and procedures for assuring the quality of higher education.

   Assessment of compliance: Fully compliant

   Justification: RAI has established and maintains a solid quality assurance system, mainly driven by aviation domain-specific requirements.
   The quality assurance system is well documented, communicated, and understood daily by all involved parties - administration, staff, students, and collaborators.

3. 1.2. A mechanism for the development 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.

   Assessment of compliance: Fully compliant

Justification: As part of the quality assurance, RAI has developed an internal information flow on the bases of regular assessments, interviews, and personal discussions with the involved parties - students, industry and teaching staff. The study programme's overall management is based on industry demand, which has resulted in the development of the programme being assessed.
While the supervision is rather compact, it corresponds to the best practices of duty separation, feedback collection and constant development.

4   1.3. 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.

Assessment of compliance: Fully compliant

Justification: The study program forming the study direction description, goals and subjects forming the program is defined in terms of particular learning outcomes.
The assessment methods comply with the current best practices and include different teaching and assessment methods, thereby contributing to reaching the defined learning outcomes.
All of the expected outcomes, assessment methods and requirements are available for students, administration and other involved parties.
The committee's only issue is the lack of a formal plagiarism control mechanism or tool, relying only on students declaration and teachers manual check.

5   1.4. Internal procedures and mechanisms for assuring the qualifications of the academic staff and the work quality have been developed.

Assessment of compliance: Fully compliant

Justification: The current procedures are fully complying with regulations, which applies to the staff qualification. Besides the formal requirements, the RAI has operations-specific requirements that help to develop staff through internationalization and domain-specific certification. Otherwise, election and nomination procedures reflect the current practice in Latvia. The minor suggestion is to improve the qualification requirements by adding extra requirements for scientific research to foster the staff and RAI's development in relevant scientific fields.

6   1.5. 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.

Assessment of compliance: Partially compliant

Justification: RAI' has not defined a particular set of measured KPI in terms of education; however, it has KPIs in terms of institutional operations to accommodate a quality assurance system's common requirements.
The staff's feedback, students, and industry are being tracked by different means, including anonymous reports and personal discussions, discussions with the internship providers (mostly local aviation industry companies and electronics companies).
According to the student's reports, their opinion is taken into consideration, and they feel heard. Unfortunately, graduates' particular career is not tracked, which is a significant indicator of the study programme's success rate. The committee also found that students are weakly cooperating with each other (currently mainly due to Covid restrictions), which reflects in lack of information and lack of students comune development playing an important role for motivation, word spreading and quality-related information flows.

7   1.6. The higher education institution/ college shall ensure continuous improvement, development, and efficient performance of the study direction whilst implementing their quality assurance systems.

Assessment of compliance: Fully compliant

Justification: The internal quality procedures and staff development are very well established, current investments int infrastructure, equipment and future plans show a good vision and continuation of the development.

The study direction is new and consists of a single study programme, therefore depends on it and reflects the overall condition of the study programme alone. As mentioned under other points, the internal quality assurance system is well established and requires constant improvements which are mainly led by the industry requirements

8 R2 - The cooperation with different organisations from Latvia and abroad implemented within the study direction ensures the achievement of the aims of the study direction.

Assessment of compliance: Fully compliant

Justification: RAI is rather active in cooperating with the relevant industry and other educational institutions in Latvia. The cooperation is based on meeting aviation industry requirements, which allows involving international teaching staff, ensuring content correspondence to international regulations, and using them to improve the study process and the content in general.

A constant international certification pushed the RAI to comply with the requirements and adopt the latest teaching methods and materials.

The study content is up-to-date and uses the latest online teaching methods, along with the supporting tools.

9 R3 - Compliance of scientific research and artistic creation with the development level thereof (if applicable).

Assessment of compliance: Partially compliant

Justification: The reported scientific contributions and activities are rather low in their intensity, reflecting in a small number of publications in relevant fields of research like electronics, computer science and related.

While professional studies do not require a major scientific impact in general for long-term development, the involved staff must be active in research.

While scientific research corresponds to the requirements, it is rather weak on a Latvian science landscape. A minor suggestion is to develop motivational actions for staff to be involved in research and for students to be interested in being part of the research teams.

The scientific research and internationalization level is rather lows except international students accepted and staff members of particular problem dmains.

10 R4 - Elimination of the shortcomings and deficiencies identified during the previous assessment of the study direction, if it has been conducted, or the implementation of the provided recommendations.

Assessment of compliance: Partially compliant

Justification: In general, the recommendations are satisfied with some exceptions reported in the criteria analysis. For some recommendations like c/c++ programming, there is no clear evidence that the recommendation has been met.

8. Recommendations for the Study Field

Short-term recommendations

1. Increase the use of CAD and simulation systems to diversify the teaching methods and enrich students experience and skills.
2. Introduce plagiarism control tools (software) along with checking procedures for plagiarism in the final thesis and other important deliverables.
3. Separate working spaces in laboratories that are not fitting together - like metal works with PCB works.

4. Introduce English courses for the staff to foster internationalization and open collaboration opportunities.

5. Develop a marketing strategy and plan to attract more students both locally and abroad.

6. Implement all of the recommendations from the previous accreditation procedure.

Long-term recommendations

1. Develop a staff development plan and KPI system, which requires scientific research contributions and internationalization of the staff.

2. Become a part of professional organizations like Letera, enabling to collaborate on the bases of contract research.

3. Establish an open student lab for scientific activities or prototyping to foster product-oriented thinking.

4. Development of module on Cyber-security: Aviation is a very demanding business sector in terms of safety and availability of service. Based on EU and EASA regulations, availability must be 99,99999 and this is directly linked to hardware reliability levels. H/W availability is properly addressed in the present Study Field. On the other hand, safety is even more critical and is directly linked to a number of factors, with cybersecurity being the key one. A specific module on "Cybersecurity" would strengthen HEI's curriculum.

II. "Electronic equipment maintenance" ASSESSMENT

II. "Electronic equipment maintenance" ASSESSMENT

1. Indicators Describing the Study Programme

Analysis

The committee its analysis grounds on the self-assessment report provided by the HEI, its internal information systems (as far ad provided access to), where the findings were cross-checked with information reported during the discussions with staff, students and alumni.
Regarding current formal requirements, the study programme corresponds to them with some minor deviations due to the implementation's historical dimension. The provided degree, name, diploma and other r requirements are met. In contrast, correspondence to a professional standard is not satisfied completely, avoiding important topics on development and design of electronic equipment and a weak reflection of modern programming fundamentals trends. Programming fundamentals were point by the previous assessment committee, and the suggestion is still not met yet. Another deviation from the professional and academic education requirements is student involvement in scientific work and exposure to scientific methods like experimental research or research-based development. These requirements are relatively new and might be missed by the HEI but still essential for ensuring education quality. Other formal requirements are met.
The experts noticed that the programme is implemented in Latvian, Russian and English, however, after discussions with the programme's management was clarified that Russian is not planned to continue with - only English and Latvian. Therefore the aspects related to Russian implementation is being ignored by the experts during the evaluation procedure.

According to the self-evaluation report: "The study program has been developed under the Cabinet

of Ministers Regulations No. 512 of 26 August 2014 "Regulations on the state standard of the second level professional higher education" (Appendix 12), the Electronics Engineer Professional Standard (Appendix 13), the Cabinet of Ministers Regulations No. 795 of 11 December 2015 "Regulations for Licensing of Study Programs", as well as the Law on Higher Education Institutions and the Constitution of RAI (Latv. - Satversme). As a result of licensing of study programs, three experts evaluated it and gave a positive opinion."

Analysis by criteria:

1) Name "Electronic equipment maintenance." – name represents and strongly correlates to the actual content of the provided subjects as well as with the provided degree and qualification. Some minor deviations are analyses with the study direction section, which provide evidence for the variations.

2) The professional qualification "Electronics engineer" and degree of bachelor of science (professional) corresponds to the professional standard and reflects the current needs and trends in electronics engineering except the deviations mentioned above.

3) Programme aims and learning outcomes – defined in appendix 14, correspond to the reported and required by the professional standards with the exception of student scientific experience and design of electronic equipment.

Conclusions by specifying the strengths and weaknesses

The study programme formal indicators and their reflection in existing documentation correspond to the existing regulations with some minor deviations outlined in the analysis section. The name of the study program, the issued degree and professional qualification, the study program aims and goals, outcomes to be achieved, and admission requirements are interrelated and mutually complementary.

Strengths:

1. Due to the internal quality assessment system, the documentation is in good shape and quality corresponding to the current regulations with some minor deviations mentioned in the study field assessment.

Weaknesses:

1. The main drawback is missing correspondence to some of the professional standard requirements - development and design of electronic equipment. The current subject and syllabuses do not provide evidence on student involvement in scientific research (which was confirmed by the students and alumni), as well as they do not provide skills and knowledge on the design of electronics equipment, which is part of the professional standard requirements.

2. The Content of Studies and Implementation Thereof

Analysis

As the primary information source, the committee used the provided self-assessment report, which provides the subject syllabus, curricula, lecture schedules, and general programme description in terms of goals, outcomes developments plans.

To the best of the committee's knowledge, the studies and their organization comply with the existing regulations, including a professional standard for the given domain - electronics engineer with the following exceptions:

1) it does not cover the development and design of electronic equipment;

2) study programme does not address student involvement in scientific research.

As part of the regular and operations-specific quality assurance, RAI has implemented well-documented procedures, which are communicated, implemented and understood by the staff. Daily, RAI processes different channels of feedback, including regular reports, surveys, and face-to-face discussions.

Since the programme has a relatively small number of students, they have very tailored and personal attention. The online discussions suggest that programme management, in general, communicates with students on programme development, and students feel to be heard by the administration that results in programme updates. The same applies to industry cooperation, which involves programme management by providing valuable feedback and providing an essential internship infrastructure.

Due to professional studies specifics, internships are required on a certain intensity and volume, which the involved industrial partners mainly provide, likes AriBaltic and others. Unfortunately, the link between students and industry sometimes is lost due to the small number of students applying for positions in companies represented by the programme's industry partners.

Currently, mobility is missing since students are not well informed about mobility programmes available in Latvia - for instance, Erasmus. The committee has an opportunity to discuss this issue with current students, but they cannot apply for mobility now due to Covid19 restrictions. The committee did not have a chance to discuss mobility with students forms later courses; therefore, the listed indications are only partially supported by the evidence.

Analysis by criteria:

1) The formal descriptions of the courses and outcomes are fully compliant with the requirements, while contentwise, some of the professional standard requirements are not met. As mentioned above, the design development of electronic equipment is not covered. The committee found that c/c++ is also lacking in the implementation of the programme. Unfortunately, the subject landscape does not cover student involvement in scientific activities, which is a requirement by the standard. In that, respected industry trends are met partially.

Internship/traineeship is implemented in Latvian or English (Russian is discontinued) depending on a particular company. The interviewed companies confirmed both languages. AirBaltic representatives emphasized internal communication in English, which makes it evident that English is really available for the international students.

2) Due to the small number of students, they experience personal attention, and therefore, the process itself is rather student-centric. The evaluation methods internship organization and achievement assessment methods aim to achieve the study programme's goals and objectives. Unfortunately, due to a lack of plagiarism identification tools, some of the methods applied might be ineffective.

3) The programme integrated into a common quality assurance system, ensuring circulation and proper use of feedback, including surveys.

4) Unfortunately, students are not informed about mobility opportunities, and therefore the student mobility is lacking.

Conclusions by specifying the strengths and weaknesses

Committee concludes that RAI complies with the existing regulations and good practices in Latvia. The current quality assurance systems provide a significant favourable influence on the overall documentation flow and internal procedures. Some mobility aspect currently is not addressed for different reasons and opportunity communication issues.

Strengths:
1. Existing quality assurance and practices allows complying with regulations and good practices in

Latvia;

2. Internal practices are involving for students, staff and industry, where all parties are well informed about their roles and duties;

3. The industry's excellent and welcoming attitude - internship providers for both internships and positions for graduates, which facilitate meeting the study goals and learning outcomes.

Weaknesses:

1. Mobility opportunities are not well communicated for the local students, which somewhat limit their internationalization;

2. Most of the learning outcomes and programme's goals are met through study content except the development and design of electronic equipment;

3. The study programme does not address student involvement in scientific research.

3. Resources and Provision of the Study Programme

Analysis

The analysis's main information sources encompass self-assessment report, online discussions, and online visit/tour around the facilities, classes, and library.

The committee finds the provisions available on a reasonably high level and quality, including recently renovated building and dormitories, in-house medical treatment centre, recreation facilities, beautiful auditoriums and library. There are agreements with external libraries providing additional information sources on the latest scientific publications, handbooks and other needed written materials.

The examined practical exercises premises, laboratories and equipment correspond to the study goals and needed outcomes with some minor drawbacks like CAD and simulations software or equipment that cannot be used simultaneously (metalworking and PCB working equipment). To address study needs for measuring equipment, labs are supplied with the necessary basic instruments and tools.

Since the HEI's scientific activity is rather low-intensity, the lab equipment and facilities strictly reflect education and training needs.

In terms of literature available, the committee noticed that for some course thought in Latvian or English, the only available / suggested literature is Russian, which does not correspond to either of languages.

Conclusions by specifying the strengths and weaknesses

The available facilities, equipment, and other materials reflect the HEI's current needs and form a solid foundation for the studies and training process in the institution. The quality of and capacities of the provided provisions are at a high level and provides a very motivating working environment for students and staff.

Strengths:

1. High-quality facilities and equipment provide a solid basis for studies and make the working environment;

2. Facilities provide different extra-services for the staff and students, which are unusual in Latvia;

3. Study and training needs are fully met.

Weaknesses:

1. Current provisions are focused on studies and training, leaving scientific research aside, which leads to potential sustainability threats for the future;

2. Although the current provisions are in good condition and quality, the lab equipment is ensured for a relatively small number of students, limiting future growth to implement a good student attraction strategy.

4. Teaching Staff

Analysis

The analysis is based on several information sources, including a self-assessment report, including scientific publications summary, CVs and subject syllabuses. A separate discussion was used during the online meeting to clarify some particular aspects of scientific activities and collaborative activities in the RAI. The scientific output quality is matched to the best practices in HEI represented by the committee's members as well as to the general international approach, which suggests a good coverage of fundamental and applied research, commercialization actions, participating in national and international research projects reflecting a certain income, and scientific reporting in terms of public events (conferences), scientific publications, participation in exhibitions and other activities that increases the overall impact of the HEI.

At the moment, qualification, compliance procedures and operations-specific requirements foster the attraction of young professionals and professionals from abroad. This provides a very positive development vector for the HEI. However, the committee sees that the collaboration and common research potential is not employed in a full spectrum limited to training and everyday education activities. Therefore the overall scientific output is relatively low and does not reflect the potential of the domain represented by the HEI. Unfortunately, most of the presented publications are from aviation or humanities, which are related but not directly to the study programme and study field. The illustrated publications' citation rates are relatively low, mainly due to the regional impact of the journals of conferences where the publications are presented.

A positive aspect is a cooperation agreement with other HEs in Latvia like Ventspils University College, potentially providing the needed boost in scientific research development soon.

Another important limiting factor is weakly exposed access to international research databases like SCOPUS, IEEE, ACM, and others that could provide additional development potential for the staff and bring them to the research's frontiers in particular domains.

Analysis by criteria:

1) Both local and international staff members support the study programme in terms of maintaining high motivation and enthusiasm. Since the programme is oriented to a relatively narrow and heavily regulated domain – aviation, the selection of staff members is well-established and outcomes/regulations oriented. They require a specific international certification in order to be allowed to teach appropriate subjects and provide training. Therefore those positions have clear and strict requirements.

Other staff members that focus on general subjects follow the general selection, which is based on management decision and CV/experience analysis as well as election procedure.

2) Formally the requirements are met and correspond to the current regulations and they met both learning outcomes and program goals.

3) There is a slight miss-alignment of research outcome and the programme's learning outcomes. Most of the publications are devoted to the aviation industry or humanities, while the programme is positioned in engineering and electronics. One of the limiting factors identified is lack of access to international scientific resources like research publications libraries.

4) There are both formal cooperation agreements and actual practice in place representing cooperation with other HEIs in Latvia.

5) The experts did not find clear evidence on formal mechanism facilitating internal collaboration like a particular bonus or other motivation mechanisms. As mentioned in the study field evaluation

and internal motivation mechanism might be a point of future development facilitating internal collaboration, enrichment and development.

Conclusions by specifying the strengths and weaknesses

The teaching staff's overall quality and professionalism are on a good level since it has been motivated by internal quality assurance system, international requirements for the operation-specific training, and the international environment in general n the HEI.

Strengths :
1. A good cooperation network and ecosystem composed of industry, international regulatory organizations and national scale academic partners;
2. There is tradition on publishing and research in the aviation domain, which is rather dynamically evolving at the moment and potentially provide a good backbone for future development;
3. A rather strong motivation for doing things better.

Weaknesses:
1. Rather low scientific activity in engineering while humanities are represented on a good level;
2. Internal daily work is not focused on research, but on the training and education instead, which limits professional development of the staff concerning scientific research;
3. The international cooperation and project involvement is not reflecting the potential of the domain, which results in low research intensity;
4. Limited availability of scientific resources like public databases and journals.

5. Assessment of the Compliance of the Study Programme "Electronic equipment maintenance"

Requirements

1 1. The sample of the diploma to be issued for the acquisition of the study programme complies with the procedure by which state-recognised documents of higher education are issued.
   Assessment of compliance: Partially compliant
   Justification: The sample of the diploma (Appendix no. 17) partly complies with the procedure by which state-recognised documents of higher education are issued. The first page with Coat of arms of Republic of Latvia is missing (Cabinet Regulation No. 202 "Procedures for Issuing State-Recognized Higher Education Documents" appendix no. 1)

2 2. Documents confirming that the higher education institution/ college will provide the students with the options to continue the acquisition of education in another study programme or at another higher education institution/ college (a contract with another accredited higher education institution/ college), in case the implementation of the study programme is discontinued.
   Assessment of compliance: Fully compliant
   Justification: Agreement to Cooperation Agreement from 29th May 2015 between Riga Aeronautical Institute and Ventspils University of Applied Sciences (Appendix no. 19)

3 3. Document confirming that the higher education institution/ college guarantees to the students a compensation for losses if the study programme is not accredited or the licence of the study programme is revoked due to the actions of the higher education institution/ college (actions or failure to act) and the student does not wish to continue the studies in another study programme.
   Assessment of compliance: Fully compliant
   Justification: The guarantee for compensation for student's losses are included in the Study agreement (Appendix no. 23) paragraph 3.10.

4 4. The teaching staff members involved in the implementation of the study programme are proficient in the official language in accordance with the regulations on the level of the official language knowledge and the procedures for testing official language proficiency for performing professional duties and office duties.

Assessment of compliance: Partially compliant

Justification: Going through the teaching staff members CV - Aleksandrs Fatijevskis fully (in the CV every position of language knowledge is B2), Dmitrijs Ulanovs and Konstantīns Savenkovs partly (one position is B2) - do not comply on the level of the official language knowledge (Cabinet Regulation No. 733 Regulations Regarding the Extent of the Knowledge of the Official Language, the Procedures for Examining the Proficiency in the Official Language and the State Fee for Examining the Proficiency in the Official Language (appendix no. 1. For academic staff Latvian language knowledge needs to be C1))

5 5. The teaching staff members to be involved in the implementation of the study programme have at least B2-level knowledge of a related foreign language, if the study programme or any part thereof is to be implemented in a foreign language.

Assessment of compliance: Partially compliant

Justification: Going through the teaching staff members CV -Vjačeslavs Orehovs, Konstantīns Savenkovs, Asnāte Venckava, Dmitrijs Ulanovs, Ināra Brante, Igors Petuhovs - do not have the needed B2-level knowledge in English.

6 6. At least five teaching staff members with a doctoral degree are among the academic staff of an academic doctoral study programme, at least three of which are experts approved by the Latvian Science Council in the respective field of science. At least five teaching staff members with a doctoral degree are among the academic staff of a professional doctoral study programme in arts.

Assessment of compliance: Not relevant

Justification: Not relevant.

7 7. The academic staff of the academic study programme complies with the requirements set forth in Section 55, Paragraph one, Clause 3 of the Law on Institutions of Higher Education.

Assessment of compliance: Not relevant

Justification: Not relevant.

8 8. The sample of the study agreement complies with the mandatory provisions to be included in the study agreement.

Assessment of compliance: Partially compliant

Justification: In the study agreement (Appendix no. 23) is no mention that the RAI will provide students with an opportunity to study in a licensed and accredited study programme. (Cabinet Regulation No. 70 "Mandatory provisions to be included in the study agreement" section 5.1.)

9 9. The descriptions of the study courses and the study materials have been prepared in all languages in which the study programme is implemented, and they comply with the requirements set forth in Section 56.1, Paragraph two and Section 56.2, Paragraph two of the Law on Institutions of Higher Education.

Assessment of compliance: Fully compliant

Justification: The descriptions of the study courses (Appendix no. 16) are available in English and Latvian. Study course descriptions ir Russian added in the part: Study Program "Electronic equipment maintenance" (42523)/ Other annexes/ HEI other annexes. Russian is discontinued and will be no longer implemented, thereby it corresponds to the current situation. The all given descriptions comply with the law.

10 10. The study programme complies with the valid professional standard or the requirements for the professional qualification (if there is no professional standard required for the relevant occupation) provided that the completion of the study programme leads to a professional qualification.

Assessment of compliance: Partially compliant

Justification: The study content provides most of the skills and knowledge required except CAD and PCB design skills, required but not present in the current curricula.
The study programme does not ensure scientific research skills to research-based development required by the professional programme framework and professional standard.

11 11. Academic study programmes provided for less than 250 full-time students may be implemented and less than five professors and associated professors of the higher education institution may be involved in the implementation of the mandatory and limited elective part of these study programmes provided that the relevant opinion of the Council for Higher Education has been received in accordance with Section 55, Paragraph two of the Law on Institutions of Higher Education.

Assessment of compliance: Not relevant

Justification: Not relevant

12 12. The study programme complies with the State Academic Education Standard or the Professional Higher Education Standard.

Assessment of compliance: Fully compliant

Justification: The study programme complies with the Cabinet of Ministers Regulations No 512 of August, 26, 2014 "Regulations on the state standard of second level professional higher education" (Appendix no. 12)

13 13. The joint study programmes comply with the requirements prescribed in Section 551, Paragraphs one, two, and seven of the Law on Institutions of Higher Education (if applicable).

Assessment of compliance: Not relevant

Justification:

14 14. Each member of the academic staff has either publications published in reviewed editions within the last six years, including international editions (if they have worked for a shorter period of time, the number of publications shall be in proportion to the work period), or artistic creation achievements (for instance, exhibitions, films, theatre performances, and concert activity), or a five-year practical work experience (except for the experience in the implementation of the study programme) in accordance with the Law on Institutions of Higher Education.

Assessment of compliance: Partially compliant

Justification: Most of the teaching staff members have some kind of publications or the needed experience, except for Anna Tiļļa. Neither in her CV, nor in the provided teaching staff member publication list (appendix no. 5).
The particular employee has more than 5-year experience, however, it does not comply with the current common practice in Latvian HEIs.

15 P5 - Overall rating

Assessment of compliance: Partially compliant

Justification: The majority of the requirements are met with minor violations, including CAD and PCB design requirements, minor deviations from the curricula and the actual content provided to students.

Requirements (R6-R8)

1 R6 - The compliance of the 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 ensuring the achievement of the learning outcomes.

Assessment of compliance: Fully compliant

Justification: The available provision is fully compliant with the study programme's specifics, domain, and industry requirements except for minor issues like CAD and simulation software used in hands-on lab activities and slightly outdated measuring equipment.
The provided services, facilities, and dormitories are at higher development levels than in most HEI in Latvia. Special attention should be put on medical treatment and recreation facilities available for students and staff.

2 R7 - The compliance of the qualification of the academic staff members, visiting professors, visiting associate professors, visiting docents, visiting lecturers, and visiting assistants with the conditions for the implementation of the study programme and the provisions set out in the respective regulatory enactments.
Assessment of compliance: Fully compliant

Justification: The majority of the staff is local teachers, while foreign trainers are attracted to operations-specific teaching and training activities. Since the HEI represented education market segment is a niche and provides different certification services in the aviation domain, the overall environments are rather international with regulars visits of international auditing commissions onsite.

3 R8 - The study programme leading to the master or doctoral degree is based on the advances and findings in the relevant field of science or artistic creation.
Assessment of compliance: Not relevant
Justification:

Conclusions by specifying the strengths and weaknesses

The study programme, in general, corresponds to the practice and regulations in Latvia. HEI provides very well equipped laboratories, dormitories, library, classrooms and lab equipment, which facilitate and motivate studying there.
Currently, the faculty complies with the regulations providing the necessary qualification, skills and motivations to implement the study programme and ensure learning outcomes. With the existing tight bindings to the industry through operations-specific courses and appropriate quality assurance systems, the HEI provides a well structured and well-documented environment for the local and foreign staff.

Strengths:
1. A well-developed studying environment with additional facilities and services, which are highly motivating for the staff and students;
2. Well equipped laboratories and additional facilities like a library;
3. Rather good international environment due to foreign trainers in operation-specific training courses;
4. Strong contacts with industry providing a healthy development ecosystem.

Weaknesses:
1. Low-intensity scientific activities and weakly used internationalization opportunities through ERASMUS mobility program, industry and academia led research projects or cooperation projects with local or foreign partners;
2. The existing equipment is focused on serving rather small student groups, which might limit HEI development in the near future;
3. The research strategy or clear vision is missing, which limits the development in terms of improving visibility and attracting external scientific funding;
4. Some minor gaps in terms of used software has been identified;
5. Study content has to reflect all required skills and competencies including scientific research and development and design of electronic equipment;

6. The main concerns are related to the small number of students and the lack of a clear marketing strategy to increase the student flow;

7. Study course descriptions should be provided in languages that are used in the study process.

Evaluation of the study programme "Electronic equipment maintenance"

Evaluation of the study programme:

Good

6. Recommendations for the Study Programme "Electronic equipment maintenance"

Short-term recommendations

1. The RAI should elaborate on developing a clear student attraction plan enabling to widen the student flow and ensure funding flow for the development.
2. Some missing software and tools should be provided to ensure conveying skills of CAD-based design and simualtion.
3. RAI should provide internal or external English courses to facilitate the internationalization of the RAI through widening staff abilities to communicate on the international scientific and industrial platforms.
4. Check and improve language skill requirements fo the staff members.
5. Elaborate and implement a plan on extending the existing laboratory equipment to facilitate both scientific activity and hands-on experience on modern measuring equipment.
6. Adjust the diploma design to comply with the existing regulations.

Long-term recommendations

1. The RAI should emphasize scientific research through internal staff development processes and promotion practices enabling long-term staff development.
2. RAI should become a part of national industry communities like Letera to widen the impact and collaboration opportunities.
3. Improve the study content to involve students in scientific research as well as ensure delivering skills and competencies in the design and development of electronic equipment.

III. Assessment of the Requirements for the Study Field and the Relevant Study Programmes

III. Assessment of the Requirements for the Study Field and the Relevant Study Programmes

Assessment of the Requirements for the Study Field

Requirements	Requirement Evaluation			Comment
Pursuant to Section 5, Paragraph 21 of the Law on Institutions of Higher Education, the higher education institution/ college shall ensure continuous improvement, development, and efficient performance of the study direction whilst implementing their internal quality assurance systems:		Partially compliant		While the internal quality procedures and staff development are very well established, the main concern is about the direction's sustainability due to a small number of students, which creates middle and long term challenges. The current internal resources distribution, infrastructure and other needed compounds are available and well established in terms of usage. Still, in the longer-term, the limited student numbers also limit available resources. Therefore, the study field currently depends on operations-specific commercial courses that defocus the staff and create risks since it is out of the RAI's reach.
R2 - The cooperation with different organisations from Latvia and abroad implemented within the study direction ensures the achievement of the aims of the study direction.	Fully compliant			RAI is rather active in cooperating with the relevant industry and other educational institutions in Latvia. The cooperation is based on meeting aviation industry requirements, which allows involving international teaching staff, ensuring content correspondence to international regulations, and using them to improve the study process and the content in general. A constant international certification pushed the RAI to comply with the requirements and adopt the latest teaching methods and materials. The study content is up-to-date and uses the latest online teaching methods, along with the supporting tools.

Requirements	Requirement Evaluation			Comment
R3 - Compliance of scientific research and artistic creation with the development level thereof (if applicable).		Partially compliant		The reported scientific contributions and activities are rather low in their intensity, reflecting in a small number of publications in relevant fields of research like electronics, computer science and related. While professional studies do not require a major scientific impact in general for long-term development, the involved staff must be active in research. While scientific research corresponds to the requirements, it is rather weak on a Latvian science landscape. A minor suggestion is to develop motivational actions for staff to be involved in research and for students to be interested in being part of the research teams. The scientific research and internationalization level is rather lows except international students accepted and staff members of particular problem dmains.
R4 - Elimination of the shortcomings and deficiencies identified during the previous assessment of the study direction, if it has been conducted, or the implementation of the provided recommendations.		Partially compliant		In general, the recommendations are satisfied with some exceptions reported in the criteria analysis. For some recommendations like c/c++ programming, there is no clear evidence that the recommendation has been met.

Assessment of the Requirements for the Relevant Study Programmes of the Study Field

No.	Study programme	R5	R6	R7	R8	Evaluation of the study programme (excellent, good, average, poor)

No.	Study programme	R5	R6	R7	R8	Evaluation of the study programme (excellent, good, average, poor)
1	Electronic equipment maintenance (42523)	Partially compliant	Fully compliant	Fully compliant	Not relevant	Good

The Dissenting Opinions of the Experts

None