Annex No. 1

NATIONAL CENTER FOR EDUCATIONAL QUALITY ENHANCEMENT

Accreditation Expert Group Report on Higher Education Programme

Aeronautical Engineering, Bachelor's Programme

LEPL - Georgian Technical University

Evaluation Dates 18-19 May 2023

Report Submission Date 29 July 2023

Tbilisi

Contents

Information about a Higher Education Institution [1]

Name of Institution Indicating its Organizational Legal Form	Georgian Technical University Legal Entity of Public Law
Identification Code of Institution	211349192
Type of the Institution	University

Expert Panel Members

Chair (Name, Surname, HEI/Organisation, Country)	David Kennedy, Cardiff University, United Kingdom
Member (Name, Surname, HEI/Organisation, Country)	Mamuka Benashvili, Agricultural University of Georgia, Georgia
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Member (Name, Surname, HEI/Organisation, Country)	Vaja Kelikhashvili, Georgian Aviation University, Georgia

[1] In the case of joint education programme: Please indicate the HEIs that carry out the programme. The indication of an identification code and type of institution is not obligatory if a HEI is recognised in accordance with the legislation of a foreign country.

I. Information on the education programme

Name of Higher Education Programme (in Georgian)	საავიაციო ინჟინერია
Name of Higher Education Programme (in English)	Aeronautical Engineering
Level of Higher Education	Bachelor
Qualification to be Awarded[2]	Bachelor of Engineering in Aeronautical Engineering
Name and Code of the Detailed Field	Motor vehicles, ships and aircraft 0716
Indication of the right to provide the teaching of subject/subjects/group of subjects of the relevant cycle of the general education[3]	-
Language of Instruction	Georgian
Number of ECTS credits	240
Programme Status (Accredited/ Non-accredited/ Conditionally accredited/new/International accreditation) Indicating Relevant Decision (number, date)	Conditionally accredited 11.02.2022 No. 156610
Additional requirements for the programme admission (in the case of an art-creative and/or sports educational programme, passing a creative tour/internal competition, or in the case of another programme, specific requirements for admission to the programme/implementation of the programme)	-

[2] In case of implementing a joint higher education programme with a higher education institution recognized in accordance with the legislation of a foreign country, if the title of the qualification to be awarded differs, it shall be indicated separately for each institution.

[3] In case of Integrated Bachelor's-Master's Teacher Training Educational Programme and Teacher Training Educational Programme

II. Accreditation Report Executive Summary

- **General Information on Education Programme[4]**

With origins in institutions dating back to 1922, Georgian Technical University was established in Tbilisi in 1990. The University has 13 faculties and approximately 20000 students.

The Faculty of Transportation and Mechanical Engineering runs 2 Doctoral Education Programmes, 5 Master's Programmes and 10 Bachelor's Programmes, as well as a number of Vocational Programmes. To complement the large Bachelor's Programme in Mechanical Engineering, a number of smaller programmes have been established, including that in Aeronautical Engineering, which admitted its first students in 2021.

Georgian Technical University had previously offered an educational programme in Aircraft Construction, but this was transferred to another university in the 1990s. The Bachelor's programme in Aeronautical Engineering has been developed in response to the needs of the Georgian aviation industry, with a mission to provide highly qualified graduates who will fill the skills gap in an ageing workforce. Specializing in the engineering skills required for the design and construction of aircraft, the programme should be seen as distinct from mainstream Mechanical Engineering and also from general Aviation Engineering programmes offered elsewhere.

To date only 3 students have enrolled on the programme and have not yet completed it. Thus, it is not yet possible to judge whether it is succeeding in its mission to provide graduates for industry, and the low numbers have precluded the use of student survey data. However, both the Self-Evaluation Report and this Expert Group Report have examined the planning, development and quality improvement processes for the programme, taking account of its placement within a Faculty offering a portfolio of well established larger programmes.

The programme received conditional accreditation in 2022 with 31 recommendations for quality improvement.

- **Overview of the Accreditation Site Visit**

[4] When providing general information related to the programme, it is appropriate to also present the quantitative data analysis of the educational programme.

The Expert Group visited Georgian Technical University on 18-19 May 2023 and conducted interviews with university management, faculty members, students, graduates and employers. The group members also visited the library, IT facilities, and a range of laboratories both across the university and in industrial locations.

The Expert Group is grateful for the welcome and support of all who took part in the meetings, including:
– The Deputy Rector, GTU
– The Head of the Quality Assurance Service, GTU
– The Head of the Department of Management of Educational Processes, GTU
– The Acting Head of the Financial Department, GTU
– The Dean of the Faculty of Transportation and Mechanical Engineering
– The Head of the Department of Mechanical Engineering and Industrial Technologies
– The Head of the Aeronautical Engineering Programme
– Members of the Self-Evaluation Team
– Academic and invited staff, employers, students and graduates from related programmes
– Librarians, laboratory managers, and staff at TAM Management LLC manufacturing base
– Accreditation and translation staff of the Higher Education Assurance Department, NCEQE

- **Brief Overview of Education Programme Compliance with the Standards**

In the opinion of the Expert Group, the programme achieves full or substantial compliance with all the required standards and sub-standards.

The programme has clear objectives and learning outcomes which are related to them and are consistent with the mission of the university. Each course includes direct evaluation of learning outcomes, but the methods for indirect evaluation need to be more clearly defined with appropriate benchmarks. The programme has been structured according to industrial needs and international benchmarks, and the level is appropriate for a Bachelor's degree. Some minor amendments are needed to the syllabus.

Students are admitted in line with national regulations, but numbers are low and there is a need for more active recruitment. The methods for teaching, learning and student evaluation are in line with modern practices, and practical skills are developed well through laboratories and industrial experience.

Georgian Technical University has strong mechanisms for student support. Students are encouraged to participate in scientific conferences, but more opportunities are needed for them to engage in programme development, self-evaluation and quality improvement.

The Faculty of Transportation and Mechanical Engineering has experienced staff, many of whom are active in research. Invited staff teach some of the specialist courses, and there will be a need for faculty recruitments to ensure the sustainability of the programme. There is a robust system for staff appraisal. The Faculty provides students with exceptional access to laboratories and industrial facilities. The programme's budget is approved by the university, but is constrained by the low level of income per student.

There is evidence of strong collaboration between the Faculty and University's Quality Assurance teams, for both annual reviews and the preparation of the Self-Evaluation report. International experts have been engaged for external benchmarking of the programme.

- Recommendations
  - 1. The Aeronautical Engineering programme should identify the concrete indirect methods for assessment of programme learning outcomes and their respective benchmarks.
  - 2. The Aeronautical Engineering programme should rewrite its syllabi relating to composite materials, to distinguish between topics in material science and the products used in aircraft construction.
  - 3. The Aeronautical Engineering programme should rename the course "Basics of Electrical Devices in Aeronautical Engineering" to "Basics of Electrical Devices" to reflect the content of the course.
  - 4. The Aeronautical Engineering programme should be actively promoted to potential applicants, for example through school visits by faculty and employers, emphasizing its differentiation from Mechanical Engineering and more general Aviation Engineering programmes.
  - 5. The laboratory and practical methods relevant to the Aeronautical Engineering program should be written and performed in the assessment section and syllabi.
  - 6. The Aeronautical Engineering programme should increase the role of students in the self-evaluation group and raise awareness about the quality improvement process.
  - 7. As the Aeronautical Engineering programme matures, the Faculty of Transportation and Mechanical Engineering should recruit specialist staff to manage and deliver the programme, taking ownership and long-term responsibility for its success.
  - 8. The Aeronautical Engineering programme should increase the involvement of students in programme development.

- **Suggestions for Programme Development**
  - 1. The Aeronautical Engineering programme might consider giving the students more opportunities for hands-on experience in the laboratory exercises.
  - 2. The Aeronautical Engineering programme might consider allowing more consideration of students' interests in the lecture process and timetabling.
  - 3. The Aeronautical Engineering programme might consider negotiating with economic agents and employers to allow employed students to keep up with the learning process and attend lectures.
  - 4. The Aeronautical Engineering programme might consider raising its research profile by increased publication in international journals and conferences.
- **Brief Overview of the Best Practices (if applicable)[5]**
  - 1. The Aeronautical Engineering programme is commended for the quality of the laboratory facilities that have recently been introduced, noting that further developments are planned.
  - 2. The Aeronautical Engineering programme is commended for the high involvement of employers in programme development and delivery.
- **Information on Sharing or Not Sharing the Argumentative Position of the HEI**

The Expert Group shares the argumentative position of Georgian Technical University as stated in their letter dated 27 July 2023.

- **In case of re-accreditation, it is important to provide a brief overview of the achievements and/or the progress (if applicable)**

The programme received conditional accreditation in 2022 with 31 recommendations for quality improvement. Since then significant changes have been made, as outlined in section 4 of the Self-Evaluation Report where the bullet points indicate progress against the recommendations.

From the evidence supplied to the Expert Group, the majority of the recommendations have now been satisfied. However attention is still required to the following issues.

[5] A practice that is exceptionally effective and that can serve as a benchmark or example for other educational programme/programmes.

19. It is necessary to introduce effective mechanisms for informing students about the rules in force in the institution (informational meetings, trainings and/or electronic communication, etc.).

23. It is recommended to add to the material and technical resources of the university the necessary laboratory facilities for the study of magnetic and X-ray control methods of non-destructive control.

25. It is recommended that the demonstration material used in the laboratory of interchangeability and technical measurements be in the language of instruction.

26. It is recommended that the basic literature used in the training courses be based on the latest achievements of international importance in the field.

27. The expenses for the development of the academic and guest personnel and the material and technical resources of the program should be written in detail.

30. The use of all the mechanisms necessary for the evaluation and development of the program, which the university itself establishes and is considered significant for the evaluation and development of the program (including, for confirmation of the possibility of achieving results at the level of the program as a whole and each of its components, target indicators, learning outcomes, evaluation methods , taking into account the interrelationship between the provision of resources and other aspects, the complexity of the assessment, etc.).

Recommendations 19 and 27 relate to the provision of information. With regard to recommendations 23, 25 and 26, the Group notes the recent upgrading of laboratory facilities and an ongoing schedule for further developments which is subject to the availability of funding from the university. It is therefore expected that recommendation 30 can be satisfied as the programme matures and student numbers increase to a level where statistical analysis becomes meaningful.

III. Compliance of the Programme with Accreditation Standards

1. Educational Programme Objectives, Learning Outcomes and their Compliance with the Programme

A programme has clearly established objectives and learning outcomes, which are logically connected to each other. Programme objectives are consistent with the mission, objectives and strategic plan of the HEI. Programme learning outcomes are assessed on a regular basis to improve the programme. The content and consistent structure of the programme ensure the achievement of the set goals and expected learning outcomes.

1.1 Programme Objectives

Programme objectives consider the specificity of the field of study, level and educational programme, and define the set of knowledge, skills and competences a programme aims to develop in graduate students. They also illustrate the contribution of the programme to the development of the field and society.

Summary and Analysis of the Education Programme's Compliance with the Requirements of the Component of the Standard

The stated goals of the educational programme take into account the features of the field of study and the level of the programme. The purpose of the programme is to prepare, in accordance with the requirements of the labour market and the trends in the development of the field of aeronautical engineering. During the visit the Expert Group met with some of the employers and gathered sufficient evidence that they were involved in study programme elaboration at every stage. This is particularly importance as it provides coherence to modern labour market demands

Interviews during the visit confirmed that the Bachelor's educational programme takes into account the modern challenges of the development of the field, the demands of the labour market and the trends of the international market. In particular, the programme has been designed and implemented in close collaboration with the Georgian aeronautical industry, while benchmarking with international universities has ensured that the combination and content of the courses provided by the programme reflect the requirements of the engineering field and the development of society.

The educational programme has been designed around the knowledge, skills and competencies it prepares for the graduates and the contribution it makes to the development of the field and society. Its mission reflects that of the Georgian Technical University, "to

create such an academic environment that will give an individual the opportunity to become a highly qualified staff, to grow up as an independent person, a full-fledged member of the free and democratic world, and to contribute as much as possible to the social and academic self-development and self-realization of each member of the University, which is a necessary condition for the existence of a modern free, democratic society." It is in accordance with the status, goals, tasks and main directions of the activity described in the regulations of the Georgian Technical University and the Faculty of Transportation and Mechanical Engineering, which provides for the training of specialists with the appropriate level of European education and qualifications and the creation of competitive scientific and technical products.

The Bachelor's educational programme is posted on the website of the Faculty of Transportation and Mechanical Engineering, which ensures its publicity and accessibility.

Evidences/Indicators

- Mission of LEPL Georgian Technical University http://gtu.ge/AboutStu/Mission.php;
- Strategic Development Plan of LEPL Georgian Technical University 2018-2024 https://gtu.ge/AboutStu/strategic-plan.php;
- Statute of the Faculty of Transportation and Mechanical Engineering https://gtu.ge/Stmm/Pdf/FAKULTETIS%20DEBULEBA+.pdf;
- Mission of the Faculty of Transportation and Mechanical Engineering https://gtu.ge/Stmm/;
- Bachelor's educational programme "Aeronautical Engineering";
- Feedback from employers;
- Labour market analysis;
- Website of the Faculty of Transportation and Mechanical Engineering https://gtu.ge/Stmm/
- Interviews with administration of the University, self-evaluation group, employers.

Recommendations:

- None

Suggestions for the Programme Development

- None

Evaluation

Component	Complies with requirements	Substantially complies with requirements	Partially complies with requirements	Does not comply with requirements
1.1 Programme Objectives	X	☐	☐	☐

1.2 Programme Learning Outcomes

➢The learning outcomes of the programme are logically related to the programme objectives and the specifics of the study field.

➢ Programme learning outcomes describe knowledge, skills, and/or the responsibility and autonomy that students gain upon completion of the programme.

Summary and Analysis of the Education Programme's Compliance with the Requirements of the Component of the Standard

Based on the interviews the Expert Group found that preparation of the programme and achieving of the results is a collaborative process in which the Programme Head, the University Quality Assurance Service and the programme implementers all participate.

The learning outcomes of the "Aeronautical Engineering" Bachelor's educational programme are designed in accordance with the "National Qualifications Framework and Learning Fields Classifier" approved by Order of the Minister of Education, Science, Culture and Sport of Georgia in 2019 (order N69/n) Minister of Education, Science, Culture and Sports of Georgia "On the approval of the National Qualifications Framework and the classifier of study areas".

Discussions with the head of the programme confirmed that its learning outcomes are logically related to the objectives of the programme and provide the opportunity to acquire appropriate knowledge, develop skills, and develop responsibility and autonomy. The programme has ten learning outcomes, as stated in the Self Evaluation Report:

Describes the theories and principles of general technical and engineering sciences based on aspects of the latest knowledge;
Explains the principles and theories of design, construction and manufacturing of aircraft;
Selects modern engineering technologies to perform design and manufacturing works in accordance with the instructions;

Carries out engineering project works according to pre-defined guidelines;
Participates in the technological processes of aircraft manufacturing in compliance with safety, ecological and economic requirements;
Analyzes the problems arising in the design and manufacturing processes of aircraft;
Demonstrates effective teamwork and cooperation skills in practice, in a multidisciplinary environment;
Presents opinions, presentations, written and graphic information with specialists and non-specialists using modern communication technologies;
Realizes professional and ethical responsibility when making decisions;
Plans for continuing professional development the need to update knowledge and continue learning.

All ten learning outcomes are in close correlation with programme objectives. The programme has a "curriculum map", a logical framework that clearly demonstrates each learning objective n connection to programme objectives.

Evidences/Indicators

- Evaluation mechanisms of the learning outcomes;
- Analysis of the labour market and employers' requirements;
- Feedback from potential employers about the evaluation of the programme.

Recommendations:

- None

Suggestions for Programme Development

- None

Evaluation

Component	Complies with requirements	Substantially complies with requirements	Partially complies with requirements	Does not comply with requirements
1.2 Programme Learning Outcomes	X	☐	☐	☐

1.3 Evaluation Mechanism of the Programme Learning Outcomes

- Evaluation mechanisms of the programme learning outcomes are defined; the programme learning outcomes evaluation cycle consists of defining, collecting and analyzing data necessary to measure learning outcomes;
- Programme learning outcomes assessment results are utilized for the improvement of the programme.

Summary and Analysis of the Education Programme's Compliance with the Requirements of the Component of the Standard

The "Aeronautical Engineering" Bachelor's educational programme has a defined mechanism for evaluating learning outcomes. The process includes determining, collecting and analyzing the data needed to measure learning outcomes.

Based on the methodology for evaluating the programme learning outcomes, the Expert Group found that assessment of learning outcomes is done transparently and takes into account the specifics of the field, and includes appropriate forms and methods of assessment, through which it is determined to what extent the graduates have achieved the learning outcomes envisaged by the programme. The programme learning outcomes evaluation has not been carried out yet, due to the fact that the programme has not been implemented for the full cycle. The head of the programme, relevant academic and invited staff, as well as field specialists participate in this process and are aware of the process and mechanisms of learning outcomes evaluation. The head of the quality assurance service of the faculty is also involved in the process, and, if necessary, presents to the faculty council.

Based on the methodology of programme learning outcomes assessment of GTU, direct and indirect assessment methods are used in the evaluation of learning outcomes of the educational programme. Direct assessment is provided in the study course programmes (syllabi). The direct assessment method checks whether the student has achieved the learning outcome. Indirect assessment is carried out based on evaluation and analysis of survey results of students, employers, academic staff and graduates.

Based on the analysis of the programme learning outcomes evaluation plan developed for the Bachelor's programme in Aeronautical Engineering, the direct evaluation methods, the benchmarks for their assessment and the plan for the evaluation of programme learning outcomes are well developed.

However, there are some areas of improvement for the mechanism of programme learning outcome assessment. Namely, the concrete indirect methods of assessing the programme

learning outcomes are not defined, neither are the benchmarks for their attainment. The issue was discussed during interview, and the model used for programme learning outcomes for ABET accreditation was named as the reason behind this approach. However, as the development for benchmarks and defining concrete tools for programme learning outcomes assessment is one of the requirements of the accreditation standards, and is beneficial for the process of evaluation as a whole, it is important to develop the concrete tools and benchmarks for indirect evaluation mechanisms as well.

The analysis of the evaluation, based on the methodology, is used for adjustments to the programme content, learning outcomes, and evaluation system to improve the programme. As mentioned, the programme has not yet been implemented for the full cycle, to ensure the evaluation of the programme learning outcomes' attainment and usage of results for the programme development. However, the general approaches and practices, as well as interview results lead to the assumption that the results of the assessment will be utilized for programme development.

During the formation of learning outcomes, in the process of modifying the programme, the recommendations of the academic staff, students, graduates, specialists in the relevant field, and employers were taken into account.

The programme staff receives support (e.g. training and development) in developing the skills necessary for the programme learning outcomes assessment planning and implementation and based on the interviews, the staff possesses information on the mechanisms for evaluating programme learning outcomes.

Evidences/Indicators

- The mechanism for programme learning outcomes assessment;
- The programme learning outcomes assessment plan;
- SER;
- Interview results.

Recommendations:

- 1. The Aeronautical Engineering programme should identify the concrete indirect methods for assessment of programme learning outcomes and their respective benchmarks.

Suggestions for the Programme Development

- None

Evaluation

Component	Complies with requirements	Substantially complies with requirements	Partially complies with requirements	Does not comply with requirements
1.3 Evaluation Mechanism of the Programme Learning Outcomes	☐	X	☐	☐

1.4. Structure and Content of Education Programme

- The Programme is designed according to HEI's methodology for planning, designing and developing of education programmes.
- The Programme structure is consistent and logical. The content and structure of the programme ensure the achievement of programme learning outcomes. The qualification to be granted is consistent with the content and learning outcomes of the programme.

Summary and Analysis of the Education Programme's Compliance with the Requirements of the Component of the Standard

The educational programme "Aeronautical Engineering" was created based on the experience of foreign universities and taking into account the requirements of the labour market. During the visit programme implementers presented about 50 various leading University programme analogues. Programme supervisors and implementing academic personnel demonstrated other university programme analysis and uniqueness of their programme.

The programme includes 240 credits, in accordance with the European Credit Transfer System (ECTS). The educational programme consists of educational courses (228 credits) and free components (12 credits) corresponding to the main field of study. 1 credit is equal to 25 academic hours, which includes both contact and independent work hours. The duration of the programme is 4 years (8 semesters), which ensures the achievement of the objectives of the programme and the results required for the basic qualifications at the level of the Bachelor's degree descriptor of the Higher Education Qualifications Framework. The

educational programme has been designed using the rule of "Planning, design, evaluation and development of educational programmes" operating in GTU. The Expert Group found that the courses are built in a logical sequence and taking into account the prerequisites.

Courses relevant to the major field of study ensure that the learning outcomes of the programme are achieved. The qualification to be awarded is appropriate to the content of the programme and the learning outcomes.

The learning outcomes of each educational course correspond to the sixth level of qualifications established by the National Qualifications Framework (corresponding to the Bachelor's level). The learning outcomes of the educational courses of the main field of study of the Bachelor's educational programme are consistent with the learning outcomes of the programme.

The programme is posted on the website of the faculty. Therefore, the information is public and available.

Evidences/Indicators

- Bachelor educational programme "Aeronautical Engineering";
- Educational course programmes (syllabi);
- Website of the faculty https://gtu.ge/Stmm/;
- The educational process at the Georgian Technical University https://gtu.ge/Study-Dep/Forms/Forms.php;
- Result of the interviews of employers and students.

Recommendations:

- None

Suggestions for the programme development

- None

Evaluation

Component	Complies with requirements	Substantially complies with requirements	Partially complies with requirements	Does not comply with requirements
1.4 Structure and Content of Educational Programme	X	☐	☐	☐

1.5. Academic Course/Subject

➢ The content of the academic course / subject and the number of credits ensure the achievement of the learning outcomes defined by this course / subject.

➢ The content and the learning outcomes of the academic course/subject of the main field of study ensure the achievement of the learning outcomes of the programme.

➢ The study materials indicated in the syllabus ensure the achievement of the learning outcomes of the programme.

Summary and Analysis of the Education Programme's Compliance with the Requirements of the Component of the Standard

The educational courses of the programme were found to be in full accordance with the Bachelor's degree programme requirements and learning outcomes. The learning outcomes of each study course correspond to the sixth level of qualifications established by the National Qualifications Framework (corresponding to the Bachelor's level).

From the interviews and documentation provided, the Expert group confirmed that the courses, content, and the number of credits of the main field of study of the "Aeronautical Engineering" Bachelor's educational programme ensure the achievement of the specified learning outcomes. The learning outcomes of the educational courses ensure that the learning outcomes of the programme are achieved.

The number of credits for the educational course is determined in accordance with the learning outcomes provided for the purpose of the educational course, the need for different teaching and learning methods, and the complexity and volume of the material to be mastered. The study material specified in the educational course programmes (syllabi) is based on current achievements in the field of aeronautical engineering, which ensures the achievement of the learning outcomes provided in the programme.

Forms, methods, and criteria for assessment of learning outcomes in educational course programmes (syllabi) are consistent with course content and learning outcomes.

The Expert Group reviewed study methodology, study resources and assessment methods. Their content largely complies with requirements, but they found some overlap in some of the syllabi. In particular, the syllabus relating to obtaining products made from composite materials contains topics on materials science that would better be presented in the material science syllabus.

The study course "Basics of Electrical Devices in Aeronautical Engineering" contextually is a classical subject of Electric Techniques, and the Expert Group believes it would be better if the course will be renamed accordingly.

Evidences/Indicators

- Bachelor's educational programme "Aeronautical Engineering";
- Programme Annex 1, 2 - Map of programme learning outcomes and programme goals and learning outcomes;
- Educational course programmes (syllabi);
- Evaluation mechanisms of the learning outcomes;
- Library of Georgian Technical University http://opac.gtu.ge/
- Result of Interviews of academic and invited staff.

Recommendations:

- 2. The Aeronautical Engineering programme should rewrite its syllabi relating to composite materials, to distinguish between topics in material science and the products used in aircraft construction.
- 3. The Aeronautical Engineering programme should rename the course "Basics of Electrical Devices in Aeronautical Engineering" to "Basics of Electrical Devices" to reflect the content of the course.

Suggestions for the programme development

- None

Evaluation

Component	Complies with requirements	Substantially complies with	Partially complies with	Does not comply with

		requirements	requirements	requirements
1.5. Academic Course/Subject	☐	X	☐	☐

Compliance of the Programme with the Standard

1. Educational programme objectives, learning outcomes and their compliance with the programme	Complies with requirements	☐
	Substantially complies with requirements	X
	Partially complies with requirements	☐
	Does not comply with requirements	☐

2. Methodology and Organisation of Teaching, Adequacy of Evaluation of Programme Mastering

Prerequisites for admission to the programme, teaching-learning methods and student assessment consider the specificity of the study field, level requirements, student needs, and ensure the achievement of the objectives and expected learning outcomes of the programme.

2.1 Programme Admission Preconditions

The HEI has relevant, transparent, fair, public and accessible programme admission preconditions and procedures that ensure the engagement of individuals with relevant knowledge and skills in the programme to achieve learning outcomes.

Summary and Analysis of the Education Programme's Compliance with the Requirements of the Component of the Standard

The Aeronautical Engineering programme has been established in response to demands from the Georgian aviation industry for highly qualified engineering graduates. The industry has an ageing workforce and reports a "lost generation" of professionals. A major employer, TAM Management LLC, has stated a requirement for 15-20 graduates per year to maintain sustainability.

In line with government policy, GTU allows admission to its Bachelor's programmes to holders of a state certificate confirming completion of general education (or an equivalent). The programme is open to all interested students and details are posted on the website of the Faculty of Transportation and Mechanical Engineering.

The programme objectives and syllabus were designed through extensive consultation with potential employers, and the target intake was set at 20 students per year. Since the programme opened in 2021 only 3 students have enrolled, although there is an increased number of applicants for admission in 2023.

While operating alongside much larger programmes in a well resourced Faculty, the viability of the Aeronautical Engineering programme depends on attracting sufficient numbers of students. The programme should therefore be actively promoted to potential applicants, for example through school visits by faculty and employers. This promotion should emphasize its differentiation from the Faculty's Mechanical Engineering programme and its specific engineering emphasis compared with more general Aviation Engineering programmes offered elsewhere.

Evidences/Indicators

- Order No. 133/N of the Minister of Education and Science of Georgia "Charter of the Legal Entity of Public Law – Georgian Technical University" 09.09.2013 https://gtu.ge/AboutStu/regulation.php
- Resolution No. 482 of the Academic Council of GTU "Instructions for formation and mobility of GTU student contingent" 17.06.2011 https://gtu.ge/Study-Dep/Files/Pdf/st_kion_mob_inst_91019_SD.pdf
- Resolution No. 01-05-04/18 of the Academic Council of GTU "Bachelor's Educational Programme – Aeronautical Engineering" 14.02.2023
- Websites of GTU https://gtu.ge/ and Faculty of Transportation and Mechanical Engineering https://gtu.ge/Stmm/
- Self-Evaluation Report
- Interviews with GTU administrative staff, Self-Evaluation team, Head of Programme and employers.

Recommendations:

- 4. The Aeronautical Engineering programme should be actively promoted to potential applicants, for example through school visits by faculty and employers, emphasizing its differentiation from Mechanical Engineering and more general Aviation Engineering programmes.

Suggestions for the programme development

- None

Evaluation

Component	Complies with requirements	Substantially complies with requirements	Partially complies with requirements	Does not comply with requirements
2.1 Programme Admission Preconditions	☐	X	☐	☐

2.2. The Development of Practical, Scientific/Research/Creative/Performing and Transferable Skills

Programme ensures the development of students' practical, scientific/research/creative/performing and transferable skills and/or their involvement in research projects, in accordance with the programme learning outcomes.

Summary and Analysis of the Education Programme's Compliance with the Requirements of the Component of the Standard

The Bachelor's educational program "Aeronautical Engineering" ensures the development of students' practical and research skills in accordance with the learning outcomes. For this purpose, the Technical University of Georgia has signed comprehensive agreements with the following enterprises: JSC "Tbilaviamshen", LLC "Tam-Management", JSC and "Aircraft Technologies" (Cyklon).

The Syllabus and Internship Report provided by the University is an overview of the work done by the student during the internship period. Also, if necessary, the student receives counseling from the head of practice.

Visits by the Expert Group to the facilities of the industrial partners indicated that the practical components are of high quality, allowing the students to develop the acquired theoretical knowledge in a practical environment.

Scientific and practical conferences and field seminars are held every year at the Georgian Technical University, in which students participate. Students can also contribute to research projects, although the current participation of Aeronautical Engineering students is low as the programme has not yet run through a full cycle.

Evidences/Indicators

- Annual open international scientific conference of students https://gtu.ge/Science/Conference/12432/;
- Georgian Technical University, Collections of theses of open international student conferences;
- GTU scientific conferences https://gtu.ge/Science/research/Scientific_conferences.php ;
- GTU journal "Transport and Mechanical Engineering" https://gtu.ge/Stmm/Faculties/jurnali_transporti_manqanatmshenebloba.php ;
- Rules for Conducting and Assessing Students' Practices of the Georgian Technical University- https://gtu.ge/Study-Dep/Forms/Forms.php ;
- Appropriate agreements with practice facilities.

Recommendations:

- None

Suggestions for the programme development

- None

Evaluation

Component	Complies with requirements	Substantially complies with requirements	Partially complies with requirements	Does not comply with requirements
2.2.The Development of practical, scientific/research/creative/performing and transferable skills	X	☐	☐	☐

2.3. Teaching and Learning Methods

The programme is implemented by use student-oriented teaching and learning methods. Teaching and learning methods correspond to the level of education, course/subject content, learning outcomes, and ensure their achievement.

Summary and Analysis of the Education Programme's Compliance with the Requirements of the Component of the Standard

Interviews and documentation provided to the Expert Group confirmed that the courses of the "Aeronautical Engineering" Bachelor's educational programme incorporate a variety of teaching methods, including lectures, seminars, practical classes, laboratory work, practice, independent work, consultation, and work on a Bachelor's thesis.

Depending on the specifics of a particular educational course, activities corresponding to teaching and learning methods are used, including: discussion/debate; collaborative work; case study; making demonstration; inductive; deductive; analysis; synthesis; verbal / oral; written method; explanatory method and presentation.

Evidences/Indicators

- Bachelor's educational program "Aeronautical Engineering";
- Educational course program (syllabi);
- Interviews with GTU administrative staff, Self-Evaluation team, Head of Program and employers.
- Teaching-learning methods and relevant activities
- https://gtu.ge/quality/Files/Pdf/metodebi%20da%20aqtivobebi%20(1).pdf

Recommendations:

- None

Suggestions for the programme development

- None

Evaluation

Component	Complies with requirements	Substantially complies with requirements	Partially complies with requirements	Does not comply with requirements
2.3. Teaching and learning methods	X	☐	☐	☐

2.4. Student Evaluation

Student evaluation is conducted in accordance with the established procedures. It is transparent, reliable and complies with existing legislation.

Summary and Analysis of the Education Programme's Compliance with the Requirements of the Component of the Standard

Student evaluation is conducted in accordance with the established procedures. It is transparent, reliable and complies with existing legislation.

Within the framework of the "Aeronautical Engineering" educational program, the assessment of students is carried out in accordance with established procedures, is applied fairly to all students.

GTU evaluates students' knowledge on a 100-point scale which is established by national legislation and is consistent with the Bologna process. Along with this, the programme part of the evaluation of the level of achievement of the student's learning results in each component consists of a mid-term evaluation and a final exam. Mid-term assessment in turn includes the ongoing activity and the mid-semester exam. It is important to note that each

form of assessment includes an assessment component/components that include assessment method/methods, and the assessment method/methods are measured by assessment criteria.

Georgian Technical University has an adequate, transparent and fair evaluation system of study results in accordance with the legislation. The evaluation system is given in the study course programmes (syllabi). The assessment criteria are transparent and accessible to students, as evidenced by the direct undergraduate educational program "Aeronautical Engineering", as well as the syllabi of the study courses and the resolution of the Academic Council of GTU, which refers to "Instructions for managing the educational process".

The practical component of the programme is organized and planned in accordance with the learning outcomes of the programme, as evidenced by the educational programme syllabuses and the "Rules for conducting and evaluating the practice of students of the Georgian Technical University", however, based on the process of the interviewers, it should be noted that it is important to give students the opportunity to conduct the laboratory exercises on the university campus using their own hands to directly implement the practical components. Along with this, it is important to add and strengthen the laboratory components corresponding to the specialty in the university part for the development of the "Aeronautical Engineering" educational program.

Evidences/Indicators

- Bachelor's educational programme "Aeronautical Engineering";
- Results obtained from the interviews;
- "Instructions for managing the educational process" at the Georgian Technical University approved by Resolution 2691 of the Academic Council of GTU on December 27, 2017 https://gtu.ge/Study-Dep/Forms/Forms.php;
- Monitoring system of academic performance of students of Georgian Technical University https://leqtori.gtu.ge/2021_2022/I/B/info;

Recommendations:

- 5. The laboratory and practical methods relevant to the Aeronautical Engineering program should be written and performed in the assessment section and syllabi.

Suggestions for the programme development

- 1. The Aeronautical Engineering programme might consider giving the students more opportunities for hands-on experience in the laboratory exercises.

Evaluation

Component	Complies with requirements	Substantially complies with requirements	Partially complies with requirements	Does not comply with requirements
2.4. Student evaluation	☐	X	☐	☐

Compliance with the programme standards

2. Methodology and Organisation of Teaching, Adequacy of Evaluation of Programme Mastering	Complies with requirements	☐
	Substantially complies with requirements	X
	Partly complies with requirements	☐
	Does not comply with requirements	☐

3. Student Achievements, Individual Work with Them

The programme ensures the creation of a student-centered environment by providing students with relevant services; promotes maximum student awareness, implements a

variety of activities and facilitates student involvement in local and/or international projects; proper quality of scientific guidance is provided for master's and doctoral students.

3.1 Student Consulting and Support Services

Students receive consultation and support regarding the planning of learning process, improvement of academic achievement, and career development from the people involved in the programme and/or structural units of the HEI. A student has an opportunity to have a diverse learning process and receive relevant information and recommendations from those involved in the programme.

Summary and Analysis of the Education Programme's Compliance with the Requirements of the Component of the Standard

At the Georgian Technical University, there are electronic services for informing students, which allow the student to get to know the results of their evaluations in a timely manner, to establish communication with the teachers of the training courses through electronic messages, to see the timetables of academic groups and teachers, the workload of auditoria and laboratories. However, based on the results of the interviews, it is necessary for the university to take practical steps in terms of time distribution of the lecture process so that the timetables of the learning process should be adjusted to the student's interests.

Students have the opportunity to receive information about the current processes and news in the University (including administrative issues, social assistance, recreation services, various local and international projects and events, etc.).

It is important to positively note that in the budget of the educational program, 25,000 GEL is allocated annually for the support of student activities. Students together with professors participate in international and local conferences. The university has documented and procedurally outlined the ways of supporting student scientific research initiatives. However, taking into account the results of the interviews, it should be noted that the university should continue to provide adequate funding and publicity so that student scientific research initiatives are more widely supported.

All students and academic staff have a university email. During the educational process, the students can receive the necessary information from any of their lecturers through email or written correspondence. The lecturer's contact information is indicated in the program (syllabus) of each study course.

To ensure the effectiveness of evaluation of educational programs and educational process in GTU, faculty commissions consisting of students and academic staff have been created. In order to improve academic achievements, a survey of students is conducted. However, as

revealed in the interviews, it is necessary to raise the awareness of students about the self-evaluation process and to involve them more.

The university has agreements/memorandums signed with employers, which contain information about the number of students, as well as the purpose and duration of internships. However, in addition to internships, where students are in employment, it is important for the university to actively cooperate with the employing companies, and for the employer to support the students as much as possible, so that they do not fall behind in the educational process and are able to actively participate in the lecture process.

Evidences/Indicators

- Order No. 133/N of the Minister of Education and Science of Georgia "Charter of the Legal Entity of Public Law – Georgian Technical University", dated September 9, 2013 https://gtu.ge/AboutStu/Thesis.php;
- Results obtained from the interviews;
- System of monitoring the academic performance of GTU students https://leqtori.gtu.ge/2019_2020/II/B/info;
- Rules for financing student projects https://gtu.ge/pdf/brdzanebebi/brz_37_2012_danarti.PDF;
- Student innovative projects http://ertad.gtu.ge/projects/;
- Student Service Center http://ertad.gtu.ge/;
- Website of the Faculty of Transportation and Mechanical Engineering https://gtu.ge/Stmm/.

Recommendations:

- 6. The Aeronautical Engineering programme should increase the role of students in the self-evaluation group and raise awareness about the quality improvement process.

Suggestions for Programme Development

- 2. The Aeronautical Engineering programme might consider allowing more consideration of students' interests in the lecture process and timetabling.
- 3. The Aeronautical Engineering programme might consider negotiating with economic agents and employers to allow employed students to keep up with the learning process and attend lectures.

Evaluation

Component	Complies with requirements	Substantially complies with	Partially complies with	Does not comply with

		requirements	requirements	requirements
3.1 Student Consulting and Support Services	☐	X	☐	☐

3.2. Master's and Doctoral Student Supervision

- A scientific supervisor provides proper support to master's and doctoral students to perform the scientific-research component successfully.
- Within master's and doctoral programmes, ration of students and supervisors enables to perform scientific supervision properly.

Not applicable

Compliance with the programme standards

3. Students Achievements, Individual Work with them	Complies with requirements	☐
	Substantially complies with requirements	X
	Partly complies with requirements	☐
	Does not comply with requirements	☐

4. Providing Teaching Resources

Human, material, information and financial resources of educational programme ensure sustainable, stable, efficient and effective functioning of the programme and the achievement of the defined objectives.

4.1 Human Resources

➢ Programme staff consists of qualified persons, who have necessary competences in order to help students to achieve the programme learning outcomes.

➢ The number and workload of programme academic/scientific and invited staff ensures the sustainable running of the educational process and also, proper execution of their research/creative/performance activities and other assigned duties. Quantitative indicators related to academic/scientific/invited staff ensure programme sustainability.

➢ The Head of the Programme possesses necessary knowledge and experience required for programme elaboration, and also the appropriate competences in the field of study of the programme. He/she is personally involved in programme implementation.

➢ Programme students are provided with an adequate number of administrative and support staff of appropriate competence.

Summary and Analysis of the Education Programme's Compliance with the Requirements of the Component of the Standard

The Aeronautical Engineering programme is managed within the Faculty of Transportation and Mechanical Engineering, a well established unit of GTU which also delivers much larger programmes in Mechanical Engineering and related fields. In the early stages of the Aeronautical Engineering programme many courses are common with these other programmes and are taught by highly qualified faculty staff with many years of experience, including professors, associate professors and assistant professors. Indeed, no fewer than 43 different teachers are engaged in the delivery of the programme, including those from outside the Faculty who teach the preparatory courses in year 1.

The later stages of the programme include specialist courses, and it is the view of the Expert Group that further such courses should be introduced in order to emphasize the distinctive character of the programme and the needs of graduates and employers. As the first cohort of students has yet to reach these stages, the impact on staff resources and workloads has yet to be seen. Although some staff, including the Programme Head, have taught on an earlier GTU programme focused on aircraft construction, there are courses on this new programme which have not previously been offered at GTU. No new staff have been recruited to teach specifically on the Aeronautical Engineering programme, and in time expertise will be lost through retirements. However there is a good availability of invited staff, including GTU graduates and industry professionals, and it is planned to make use of this resource in the future delivery of the programme. Interviews with the current invited staff demonstrated their competence, enthusiasm and encouragement for the success of the programme. While reliance on invited staff is a sensible interim solution, the Expert Group recommends that as the programme matures it should be delivered primarily by specialist in-house staff who will take ownership and long-term responsibility for its success. This will be a driver for Faculty recruitment.

Staff are recruited to grades consistent with their qualifications, in compliance with the Law of Georgia and the Charter of GTU. Many academic and invited staff are active in research,

as evidenced by their contributions to academic journals and conferences. Workloads are reviewed each semester and administrative staff support the teaching of the programme.

Number of the staff involved in the programme (including academic, scientific, and invited staff)	Number of Programme Staff	Including the staff with sectorial expertise[6]	Including the staff holding PhD degree in the sectorial direction[7]	Among them, the affiliated staff
Total number of academic staff	**38**	**19**	**14**	**38**
- Professor	26	14	14	26
- Associate Professor	11	4	-	11
- Assistant-Professor	1	1	-	1
- Assistant	-	-	-	-
Visiting Staff	3	3	3	_
Scientific Staff	2	2	-	_

Evidences/Indicators

- Law of Georgia "On Higher Education"
- Order No. 133/N of the Minister of Education and Science of Georgia "Charter of the Legal Entity of Public Law – Georgian Technical University" 09.09.2013 https://gtu.ge/AboutStu/regulation.php
- Regulations of the Faculty of Transportation and Mechanical Engineering https://gtu.ge/Stmm
- CVs, diplomas and publication lists of academic and invited staff
- Self-Evaluation Report
- Interviews with academic and invited staff

Recommendations:

- 7. As the Aeronautical Engineering programme matures, the Faculty of Transportation and Mechanical Engineering should recruit specialist staff to manage and deliver the programme, taking ownership and long-term responsibility for its success.

[6] Staff implementing the relevant components of the main field of study

[7] Staff with relevant doctoral degrees implementing the components of the main field of study

Suggestions for Programme Development

- None

Evaluation

Component	Complies with requirements	Substantially complies with requirements	Partially complies with requirements	Does not comply with requirements
4.1 Human Resources	☐	X	☐	☐

4.2 Qualification of Supervisors of Master's and Doctoral Students

The Master's and Doctoral students have qualified supervisor/supervisors and, if necessary, co-supervisor/co-supervisors who have relevant scientific-research experience in the field of research.

Not applicable

4.3 Professional Development of Academic, Scientific and Invited Staff

➢ The HEI conducts the evaluation of programme staff and analyses evaluation results on a regular basis.
➢ The HEI fosters professional development of the academic, scientific and invited staff. Moreover, it fosters their scientific and research work.

Summary and Analysis of the Education Programme's Compliance with the Requirements of the Component of the Standard

The performance of academic and invited staff is evaluated each semester by an appraisal conducted by the Faculty Commission. The appraisal includes checks on course content and delivery, and is supplemented by the results of student surveys. Data from the appraisal is used in the re-hiring process for invited staff, and also to drive the introduction of modern methodologies for learning and teaching. Where necessary, staff training opportunities are identified and carried out by GTU's Professional Development Center. Staff are also

encouraged to attend seminars, professional events and meetings organized by aviation companies.

Affiliated staff are expected to engage in scientific, research and international activities, and this is emphasized in GTU's Strategic Development Plan and Human Resources Management Policy. Workloads are calibrated to allow such activities, and successful achievements identified through the appraisal process can lead to salary increments and promotion to a higher job level.

Staff CVs indicate extensive involvement in conferences, seminars, workshops, exhibitions and training events, as well as the publication of monographs, textbooks and research papers. The majority of this involvement is at local or national level, including in publications and conferences organized by the Faculty of Transportation and Mechanical Engineering which provide opportunities for students to present their scientific work. Relatively little work is submitted to international journals and conferences, and this should be more widely encouraged in order to raise the Faculty's research profile.

Evidences/Indicators

- GTU's Strategic Development Plan and Human Resources Management Policy
- Order of the Rector of GTU "On the establishment of faculty commissions for the evaluation of educational programmes"
- The procedure for granting salary supplement (bonus) to academic and invited professors and teaching staff
- CVs and publication lists of academic and invited staff
- Self-Evaluation Report
- Interviews with academic and invited staff

Recommendations:

- None

Suggestions for the programme development

- 4. The Aeronautical Engineering programme might consider raising its research profile by increased publication in international journals and conferences.

Evaluation

Component	Complies with requirements	Substantially complies with requirements	Partially complies with requirements	Does not comply with requirements

4.3 Professional development of academic, scientific and invited staff	X	☐	☐	☐

4.4. Material Resources

Programme is provided by necessary infrastructure, information resources relevant to the field of study and technical equipment required for achieving programme learning outcomes.

Summary and Analysis of the Education Programme's Compliance with the Requirements of the Component of the Standard

The Aeronautical Engineering programme is delivered primarily by the Faculty of Transportation and Mechanical Engineering, housed in Building 1 of GTU. Here there are suitable classrooms, laboratories and computer facilities.

The laboratories include traditional facilities for material and structural testing (shared with the Faculty of Civil Engineering), mechanical and electrical engineering, as well as dedicated aeronautical laboratories demonstrating aircraft construction, engines, instrumentation and aerodynamics. Some rooms have recently been equipped to serve as hybrid classrooms and small scale laboratories, with larger scale experiments being observed on video. Additional physics and chemistry laboratories are available in nearby buildings. However laboratories are not yet available to support all parts of the programme, and an Action Plan has been agreed to address this issue during the period 2022-26, subject to funding being available from the University.

IT facilities available to students include a very large computer room and a dedicated engineering graphics suite. Laboratory work is supplemented by computer simulations.

The University Library houses all textbooks associated with the programme, many in electronic form which are therefore available to students via the internet as well as in the library itself. Students and staff also have access to a range of scientific databases and online journals.

As well as the University's own facilities, sponsorship from aviation companies also allows students unique access to industrial scale facilities for aircraft construction and maintenance. Their industrial practice course includes regular visits to these facilities for classroom sessions and practical experience in real-life projects. They also have access to workshop facilities at GTU's vocational training center.

Evidences/Indicators

- Central Library of GTU https://gtu.ge/Library/
- Library system "KOHA" http://opac.gtu.ge
- Self-evaluation report
- Visits to laboratories, computer facilities and library
- Visits to TAM Management LLC manufacturing base and GTU workshops

Recommendations:

- None

Suggestions for the programme development

- None

Best practice

- 1. The Aeronautical Engineering programme is commended for the quality of the laboratory facilities that have recently been introduced, noting that further developments are planned.

Evaluation

Component	Complies with requirements	Substantially complies with requirements	Partially complies with requirements	Does not comply with requirements
4.4 Material Resources	X	☐	☐	☐

4.5 Programme/Faculty/School Budget and Programme Financial Sustainability

The allocation of financial resources stipulated in the programme/faculty/school budget is economically feasible and corresponds to the programme needs.

Summary and Analysis of the Education Programme's Compliance with the Requirements of the Component of the Standard

The budget of the Faculty of Transportation and Mechanical Engineering is an integral part of the budget of the Georgian Technical University, which is approved by the representative

council of the University. The budget is however severely constrained by the low level of income per enrolled student, which is set by the Georgian Government. Economies of scale serve to mitigate this effect where facilities are shared with other programmes, but the specialist Aeronautical Engineering courses and facilities will only be sustainable in the long term if student numbers are increased substantially.

Additional funding from the University has enabled an action plan (2022-2026) to be drawn up for the improvement and development of the material and technical base of the program, including the development of new laboratories.

The budget of the Bachelor's educational program "Aeronautical Engineering" has already been implemented for 2022-2023. GTU has purchased computers, measuring tools and models for aerodynamics laboratory.

Evidences/Indicators

- Budget of Georgian Technical University https://gtu.ge/AboutStu/stu-budget.php ;
- Budget of the Faculty of Transport Systems and Mechanics Engineering of GTU https://gtu.ge/Stmm/ ;
- Educational program budget.
- Action plan for the development of the material and technical base of the educational programme "Aeronautical Engineering" (2022-2026)
- Material-technical resource.

Recommendations:

- None

Suggestions for the programme development

- None

Evaluation

Component	Complies with requirements	Substantially complies with requirements	Partially complies with requirements	Does not comply with requirements
4.5. Programme/ Faculty/School Budget and Programme	X	☐	☐	☐

Financial Sustainability

Compliance with the programme standard

4. Providing Teaching Resources	Complies with requirements	X
	Substantially complies with requirements	☐
	Partly complies with requirements	☐
	Does not comply with requirements	☐

5. Teaching Quality Enhancement Opportunities

In order to enhance teaching quality, programme utilises internal and external quality assurance services and also, periodically conducts programme monitoring and programme review. Relevant data is collected, analysed and utilized for informed decision making and programme development.

5.1 Internal Quality Evaluation

Programme staff collaborates with internal quality assurance department(s)/staff available at the HEI when planning the process of programme quality assurance, developing assessment instruments, and implementing assessment process. Programme staff utilizes quality assurance results for programme improvement.

Summary and Analysis of the Education Programme's Compliance with the Requirements of the Component of the Standard

The programme quality assurance is based on the principle “Plan, Do, Check, Act”. Internal quality assurance processes are carried out by the quality assurance service, which is represented at faculty and central levels, with the quality assurance service of the university coordinating the activities of the quality assurance service of the faculty. The evaluation of the programmes at GTU is carried out based on a predefined timeline, developed tools and mechanisms for evaluation. The programme has been conditionally accredited for little more than a year, so the internal quality assurance PDCA cycle cannot be logically finalized. However, the QA tools relevant for the programme were used to evaluate the programme (e.g., employers and student survey, benchmarking), and the established practices, processes and tools within the faculty and university are sufficient to conclude that the programme evaluation is based on the PDCA cycle and will be evaluated and improved continually.

The self-evaluation report of the Bachelor’s programme “Aeronautical Engineering” was prepared by the working group, which, together with the representative of the dean’s office of the faculty, included the academic staff implementing the programme, the head of the quality assurance service of the faculty, employers, and student. The modification of the programme was also carried out collaboratively.

The interview results show sufficient involvement of the group members in the self-evaluation process. However, some members, like students, lacked knowledge about the process and further work for improving the involvement of students in the development of the programme is suggested. Nevertheless, one of the strengths of the programme is the high level of involvement of employers in the programme initiation and development.

The cooperation of the programme staff and QA office was also evident and, based on the interview results, it can be concluded that the programme staff and QA office collaborate when planning the process of programme quality assurance, developing assessment instruments and implementing assessment process.

Evidences/Indicators

- Self-evaluation report;
- Interview results;
- Minutes of the meetings of the SET;
- Results of the implementation of QA mechanisms;
- Internal mechanisms of quality assurance approved by the resolution No. 01-05-04/108 of the Academic Council of GTU on April 17, 2018.

Recommendations:

- 8. The Aeronautical Engineering programme should increase the involvement of students in programme development.

Suggestions for the programme development

- None

Evaluation

Component	Complies with requirements	Substantially complies with requirements	Partially complies with requirements	Does not comply with requirements
5.1 Internal quality evaluation	☐	X	☐	☐

5.2 External Quality Evaluation

Programme utilises the results of external quality assurance on a regular basis.

Summary and Analysis of the Education Programme's Compliance with the Requirements of the Component of the Standard

The programme utilizes the results of external quality assurance on a regular basis. The programme has been conditionally accredited and the updated programme reflects the recommendations received during the initial accreditation.

Apart from the external quality evaluations carried out by the LEPL – National Center for Educational Quality Enhancement, the programme utilizes external evaluation carried out by international and local peers.

The external evaluation of the programme was carried out by specialists from Georgia and abroad, both from the field of academia and from the aeronautical industry.

- Director of the Air Transport Department of the Faculty of Transport and Aeronautical Engineering of the Silesian University of Technology, Professor Jaroslav Kozuba (Poland),

- Head of Product Innovation Group of "AeroTEC" Company (USA);

- Chief Aviation Engineer of the Aviation and Air Defense Command of the Defense Forces of Georgia;

- President of the International Society of Alexander Kartveli;

- Technical director of aviation equipment technical service enterprise "GTS Aviation" LLC.

The reviews received for the programme were positive, and the suggestions received were taken into account during modification of the programme.

Evidences/Indicators

- Reports of external peer evaluation;
- SER;
- Programme and Syllabi.

Recommendations:

- None

Suggestions for the programme development

- None

Evaluation

Component	Complies with requirements	Substantially complies with requirements	Partially complies with requirements	Does not comply with requirements
5.2. External Quality Evaluation	X	☐	☐	☐

5.3 Programme Monitoring and Periodic Review

Programme monitoring and periodic evaluation is conducted with the involvement of academic, scientific, invited, administrative, supporting staff, students, graduates, employers and other stakeholders through systematic data collection, study and analysis. Evaluation results are applied for the programme improvement.

Summary and Analysis of the Education Programme's Compliance with the Requirements of the Component of the Standard

GTU has developed the rules and relevant tools for continuous evaluation of the educational programmes, which envisages involvement of all parties. The faculty QA service analyzes the evaluation results, reviews and the educational programmes and gives recommendations for improvement.

Student surveys are carried out systematically, per semester, to evaluate the learning courses, evaluation being carried out electronically. For the aims of evaluating the Bachelor's programme "Aeronautical Engineering", the faculty QA service also organized and analyzed surveys of employers and a student. Even though the number of students enrolled on the programme is not sufficient for the quantitative research tools, the fact that the evaluation was conducted, points to the assumption mentioned above under sub-standard 5.1 that the programme will be continuously evaluated with the existing QA mechanisms. However, in-depth interviews with the programme student would be much more informative and beneficial overall.

Benchmarking was also carried out by the group, and according to the analysis, the structure of similar programmes of 45 institutions worldwide, were analyzed. The benchmarking, according to the interviews, was used to develop the structure of the programme. The Self-Evaluation Report does not include detailed analysis of these benchmarked programmes, but an analysis map of their characteristics was provided as evidence during the visit.

The internal QA mechanisms developed for the evaluation of educational programmes envisage classroom observations as well.

Improvements and changes to the programme were mostly based on the recommendations of the accreditation experts and peer evaluators. However, as mentioned earlier, benchmarking was also used during the development of the programme structure. The high involvement of the employers in the programme development and the close links with the industry can be viewed as the strength of the programme.

Based on the abovementioned, there are relevant regulations, processes and tools in place to carry out periodic evaluation and improvement of the Bachelor's programme "Aeronautic Engineering". Even though the programme is almost new and the period of programme

implementation is not sufficient to discuss the improvements of the programme based on internal QA mechanisms implementation, the implementation of internal QA mechanisms for evaluation of the programme is evident.

Evidences/Indicators

- SER;
- Analysis of internal and external QA evaluation;
- Questionnaires;
- Results of student and employer survey;
- Benchmarking report;
- Interview results;
- Recommendation letters from employers;
- Internal mechanisms of quality assurance approved by the resolution No. 01-05-04/108 of the Academic Council of GTU on April 17, 2018.

Recommendations:

- None

Suggestions for the programme development

- None

Best practice

2. The Aeronautical Engineering programme is commended for the high involvement of employers in programme development and delivery.

Evaluation

Please, evaluate the compliance of the programme with the component

Component	Complies with requirements	Substantially complies with requirements	Partially complies with requirements	Does not comply with requirements
5.3. Programme monitoring and periodic review	X	☐	☐	☐

Compliance with the programme standards

5. Teaching Quality Enhancement Opportunities	Complies with requirements	X
	Substantially complies with requirements	☐
	Partially complies with requirements	☐
	Does not comply with requirements	☐

Attached documentation (if applicable): -

Name of the Higher Education Institution: LEPL - Georgian Technical University

Name of Higher Education Programme, Level: Aeronautical Engineering, Bachelor's Program

Compliance with the Programme Standards

Evaluation / Standards	Complies with requirements	Substantially complies with requirements	Partially complies with requirements	Does not comply with requirements
1. Education Programme Objectives, Learning Outcomes and their Compliance with the Programme	☐	X	☐	☐
2. Teaching Methodology and Organisation, Adequacy Evaluation of Programme Mastering	☐	X	☐	☐
3. Student Achievements, Individual Work with them	☐	X	☐	☐
4. Providing Teaching Resources	X	☐	☐	☐

5. Teaching Quality Enhancement Opportunities	X	☐	☐	☐

Signatures:

Chair of Accreditation Expert Panel
David Kennedy

Signature

Accreditation Expert Panel Members
Mamuka Benashvili
Signature Mamuka Benashvili

Giorgi Meladze
Signature Giorgi Meladze

Tinatin Gabrichidze

Signature 

Vaja Kelikhashvili

Signature