განათლების ხარისხის განვითარების ეროვნული ცენტრი
NATIONAL CENTER FOR EDUCATIONAL QUALITY ENHANCEMENT

Accreditation Expert Group Report on Higher Education Programme

Higher Education Programme Name: Doctoral Program of Military Engineering

HEI's Name: Georgian Technical University

Date (s) of Evaluation: 31.01.2019

Report Submission Date: 07.03.2019

Tbilisi
2019

HEI's Information Profile

Name of Institution Indicating its Organizational Legal Form	Georgian Technical University
HEI's Identification Code	211349192
Type of Institution	University

Higher Education Programme Information Profile

Name of the Programme	**Doctoral Program of Military Engineering**
Level of Education	**Doctorate**
Qualification Granted Indicating Qualification Code	1114
Language of Instruction	Georgian
Number of Credits	180
Programme Status (Authorized/ Accredited/New)	Accredited

Expert Panel Members

Chair (Name, Surname, University/organization/Country)	Prof. Jean Marsia – Royal Military School Brussels, Belgium.
Member (Name, Surname, University/organization/Country)	Prof. Andro Maisuradze Georgian Aviation University
Member (Name, Surname, University/organization/Country)	Mr. Nika Tikanashvili Georgian Aviation University

Accreditation Report Executive Summary

- **General information on the education programme**

Mastery of the military-engineering discipline is very important for Georgia to increase the combat capabilities of its own armed forces and face the difficult geopolitical conditions of the country which needs therefore high qualified specialists.

For this purpose, successfully is implemented and conducted the Doctorate Educational Program "Military Engineering", which consists of 180 credits - 60 credits per academic year and 30 credits in the semester; The student's annual workload may exceed 60 credits, but not more than 75 (ECTS) credit or less than 60 credits. The learning is component - 60 credits and research component- 120 credits.

The program is drawn on the basis of the ECTS system, 1 credit equals 25 hours, involving contract and independent work hours. The distribution of the credits is presented in the program curriculum

The learning component does not exceed 60 credits and consists of the following courses:

1. Scientific Communication Technology A - 4 credits;
2. Teaching Methods and Educational Management - 6 credits;
3. Structure, essence and research methods of military science - 5 credits;
4. Military terminology - 5 credits;
5. The course of construction art for military servicemen - 5 credits;
6. Defence environment and armed struggle - 5 credits;
7. Engineering preparation for the defence and military-engineering of combat activities and operations - 5 credits;
8. Thematic seminar-1 - 10 credits;
9. Thematic seminar-2 - 15 credits;

The research components of Doctoral Education Program are:
Colloquium -1 - 30 credits;
Colloquium -2 - 30 credits;
Preparation and defence of dissertation thesis - 60 credits.

- **Brief overview of the accreditation site-visit**

The accreditation site-visit consisted in several meetings with the university administration, the self-evaluation team, faculty members, the heads of the university and faculty quality assurance services, students, alumni and employers and in tour of department of library, classrooms, computer centre and laboratories.

- **Summary of education programme's compliance with the standards**

After the analysis of the compliance of the Doctoral Program of Military Engineering with Accreditation Standards, we conclude that all the points are compliant.

- **Summary of Recommendations:** N/A

- **Summary of Suggestions**

We suggest dual doctorates. They promote inter-university, civil-military and / or international cooperation. They are often better funded. They allow a diffusion of the thesis in two different publics. The jury is composed equally by the two institutions, with an external member, there is a defence in one institution and a presentation in the other.

About the Program admission precondition that states: "The applicant, who received education in any of the above foreign languages, is not required to submit a document certifying the knowledge of language", based on experiences in the Royal Military School in Brussels, where applicants having received education in a foreign language, but too short, were unable to master this language, we suggest to admit only courses of at least 120 ECTS. We suggest also, that the applicant who proves to have knowledge of courses 1 to 7 of the study component of the program may be exempted from the course and the corresponding exam in order to be able to devote himself to his research without loss of time. The list of the Employment Areas (p. 9 of the Doctoral program) should be non-limitative.

- **Summary of best practices (If Applicable):** N/A

- **In case of accredited programme, summary of significant accomplishments and/or progress (If Applicable)** N/A

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 institution. Programme learning outcomes are assessed on a regular basis in order to improve the programme.

1.1 Programme Objectives

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

Descriptive summary and analysis of compliance with standard requirements

The purpose of Doctorate Educational Program meets the mission, goals and strategies of the Georgian Technical University and the Faculty of Civil Engineering. It considers the demands of the labour market and society, as well as the tendencies of the international labour market and the needs of the national and international missions of the Georgian Armed Forces.

The program aims preparation of a military engineering qualified specialist and researcher, who possess knowledge of military science and its research methods.

The main goal of the program is to prepare a military engineer researcher. Therefore, the program is enhanced in the field of military engineering.

The educational program at the level of modern demands contributes to the development of military and engineering fields, construction of Georgian Armed Forces and the country's security.

The National Military Strategy of Georgia (global defence) determines the readiness of the country and the best armed forces for self-defence. In the defence and counter-attack operations, the solution to the task appointed, is to provide engineering technologies, defence engineering materials, and the most important - high-qualified military engineering specialists, in whose preparation the program "Military Engineering" is also participating.

Doctoral Education Program "Military Engineering" is public and available and shared by the people involved in the program.

Evidences/indicators

- LEPL Georgian Technical University Development Strategic Plan 2018-2024 yy. http://gtu.ge/pdf/Strategic_Plan_for_Development_of_gtu_2018-2024.pdf
- Doctorate Educational Program "Military Engineering" (Appendix 1) is approved by the Decree No. 01-05-04 / 155 of the Academic Council of Georgian Technical University, June 18, 2018
- Faculty's Strategic Plan (7 Years) and Faculty Action Plan (3 Years) https://goo.gl/Xzc56p
- National Military Strategy of Georgia (Appendix 10.3);
- Analysis of labour market and employers` demands (appendix 10.1);
- Briefing given by Professor, Major General Elguja Medzmariashivli on 31.01.2019.

Recommendations: N/A

Suggestions for programme development: In the spirit of the Bologna process and the Erasmus exchange program, Belgium encourages dual doctorates. They promote inter-university, civil-military and / or international cooperation. They are often better funded. They allow a diffusion of the thesis in two different publics. The jury is composed equally by the two institutions, with an external member, there is a defense in one institution and a presentation in the other.

Best Practices (if applicable): N/A

In case of accredited programme, significant accomplishments and/or progress: N/A

Evaluation

☒ Complies with requirements

☐ Substantially complies with requirements

☐ Partially complies with requirements

☐ Does not comply with requirements

1.2. Programme Learning Outcomes

- Programme learning outcomes describe knowledge, skills, and/or the sense of responsibility and autonomy, students gain upon completion of the programme;
- Programme learning outcomes assessment cycle consists of defining, collecting and analysing data;
- Programme learning outcomes assessment results are utilized for the improvement of the programme.

Descriptive summary and analysis of compliance with standard requirements

The outcome of Doctoral Education program is compliant with the National Qualification Framework;

Learning outcomes gives the relevant knowledge, skills and attitudes to the doctoral level of studies;

Map of Learning outcomes of curricula exist and shows that outcomes are reasonable, each learning component of the program includes the following outcomes: Knowledge and understanding, ability of applying the knowledge in practice, making judgment, communication skills, ability to learn, values;

One of the major indicators for estimation research component of student's success on the educational program are the following: The number of the articles published in the international peer reviewed and citied journals, prepared by the students with co-author of the scientific supervisor.

Evidences/indicators

- Order №120 / N of the Minister of Education and Science of 10 December 2010 on "Approval of the National Quality Framework" (http://gtu.ge/quality/Files/Pdf/120%20kv%20charcho%2026-12-17.pdf)
- Doctorate Educational Program "Military Engineering" (Appendix 1) is approved by the Decree No. 01-05-04 / 155 of the Academic Council of Georgian Technical University, June 18, 2018 (annex 1)
- Procedure for Planning, Development, Evaluation and Development of Educational Programs at Georgian Technical University approved by the Decree # 01-05-04 / 01 of the GTU, February 14, 2018 (annex 8)
- Electronic monitoring system for GTU students' academic performance; https://leqtori.gtu.ge/2017_2018/I/B/info
- o The GTU Academic Council Resolution № 98 from January 22, 20110 on approval of "Guidelines of study process management" (annex 16.4)
- Results of PhD students survey (annex 2.5)
- Results of Students Survey (annex 2.4) and (annex 2.2)
- Graduate Employment Index (annex 10.2)
- Results of survey for academic personnel (annex 2.3)
- Statistical Analysis of Employer Survey (annex 2.7)

• Protocols on the changes in the educational program (annex 2.6) • Evaluation mechanism of program learning outcomes (Annex 17); • Briefing given by Professor, Major General Elguja Medzmariashivli on 31.01.2019.
Recommendations: N/A
Suggestions for programme development: N/A
Best Practices (if applicable): N/A
In case of accredited programme, significant accomplishments and/or progress: N/A
Evaluation ☒ Complies with requirements ☐ Substantially complies with requirements ☐ Partially complies with requirements ☐ Does not comply with requirements

Programme's Compliance with Standard

Standard	Complies with Requirements	Substantially complies with requirements	Partially Complies with Requirements	Does not Comply with Requirements
Educational programme objectives, learning outcomes and their compliance with the programme	x			

2. Teaching methodology and organization, adequate evaluation of programme mastering

Programme admission preconditions, programme structure, content, teaching and learning methods, and student assessment ensure the achievement of programme objectives and intended learning outcomes.

2.1. Programme Admission Preconditions
Higher education institution has relevant, transparent, fair, public and accessible programme admission preconditions.
Descriptive summary and analysis of compliance with standard requirements The preconditions for admission to the program are transparent and ensure the inclusion of the individuals with respective knowledge, skills and aattitudes in the program that serves the achievement of the learning outcomes by the students. **The precondition for admission to the program is:** Master's degree or its equivalent in an engineering direction, Chief of Armed Forces and superior officers, as well as officers whose service functions include military engineering issues;

Considering: Existence of scientific publications; Participation in scientific conferences, other documents and materials related to educational / research activities (certificates, diplomas, patents, etc.).
Entrants must present a certificate attesting to the knowledge of either English, German, French or Russian at least the B2 level or undertake testing at GTU's computer centres in one of these foreign languages.
Entrants who have previously received education in any of these aforementioned languages do not need to provide a certifying document.
The relevancy of the candidate to the program is determined by the Temporary Faculty Commission in accordance with doctorate statues.
The results of the evaluation are public and are accessible to all interested persons. On the website of the Georgian Technical University - in the news section as well as on the Department of Education website - information about the processes and procedures for enrolment in educational programs can be found. The faculty website contains educational programs where any interested person has the opportunity to get acquainted with both the prerequisites of the program as well as its content.
The website of the Department of Teaching and Quality Assurance Service, as well as the Faculty's website provides contact information. Anyone has the opportunity to receive information and consultation on any issue via telephone and e-mail.

Evidences/indicators

- The decree # 133/n of the Georgian Education and Science Minister of September 9, 2013 on " The Legal Entity of Public Law -Georgian State University " http://gtu.ge/AboutStu/Thesis.php
- GTU Civil Engineering website http://construction.gtu.ge/
- The Regulations of the Universal Dissertation Board of the Technical University of Georgia approved by the decree # 01-05-04 / 110 of the May 10, 2018 Academic Council (annex 15)
- Doctorate Educational Program "Military Engineering" (Appendix 1) is approved by the Decree No. 01-05-04 / 155 of the Academic Council of Georgian Technical University, June 18, 2018 (annex 1)
- The GTU Academic Council Resolution №482 from June 17, 2011, on "Guidelines on the formation and mobility of student contingent". (annex 16.5)

Recommendations: N/A

Suggestions for programme development:

About the Program admission precondition that states: "The applicant, who received education in any of the above foreign languages, is not required to submit a document certifying the knowledge of language",
based on experiences in the Royal Military School in Brussels, where applicants having received education in a foreign language, but too short, were unable to master this language, we suggest to admit only courses of at least 120 ECTS.

Best Practices (if applicable): N/A

In case of accredited programme, significant accomplishments and/or progress: N/A

Evaluation

☒ Complies with requirements

☐ Substantially complies with requirements

☐ Partially complies with requirements

☐ Does not comply with requirements

2.2 Educational Programme Structure and Content

Programme is designed according to HEI's methodology for planning, designing and developing of educational programmes. Programme content takes programme admission preconditions and programme learning outcomes into account. Programme structure is consistent and logical. Programme content and structure ensure the achievement of programme learning outcomes. Qualification to be granted is consistent with programme content and learning outcomes.

Descriptive summary and analysis of compliance with standard requirements

The structure of the program is consistent and logical. The program content and structure ensure the achievement of the program's academic outcomes. Qualification to be granted is consistent with program content and academic outcomes. The content of the program, volume and complexity corresponds to the level of teaching; the content and structure of the program is in compliance with the qualifications awarded and provides the anticipated academic outcomes of the program; study and scientific-research components included in the program are consistently and logically sorted; the preconditions for admission to the next component are adequate; the program is constructed in accordance with the Georgian legislation and in accordance with the European Credit Transfer System;

The doctorate program includes 180 credits - 60 credits per academic year and 30 credits per semester; the program is drawn up with ECTS system, 1 credit is equal to 25 hours, which implies contact and independent work hours. The distribution of the credits is presented in the program curriculum

Academic study is semesterly; an academic year is comprised of two semesters. For every academic semester, 15 weeks are allocated for academic/learning purposes (lecture/auditorium study) and 4 weeks are allocated for sessions (midterm and final exams).

List of academic and research components

The PhD Program is comprised of 60 credits.

The educational component of the Doctoral Program aims to provide doctoral student with sectoral and methodological, facilitates Doctoral student in performing the dissertation work, preparing him/her for future pedagogical and scientific activities.

The academic component of the program contains nine academic courses and two thematic seminars:

1. Scientific Communication Technology A - 4 credits;
2. Teaching Methods and Educational Management - 6 credits;
3. Structure, essence and research methods of military science - 5 credits;
4. Military terminology - 5 credits;
5. The course of construction art for military servicemen - 5 credits;
6. Defence environment and armed struggle - 5 credits;
7. Engineering preparation for the defence and military-engineering of combat activities and operations - 5 credits;
8. Thematic seminar-1 - 10 credits;
9. Thematic seminar-2 - 15 credits;

The primary purpose of the thematic seminar(s) is to provide the doctorate student with: Knowledge based on novelties in the subject/discipline that pertains to their research; the ability to work through problematic issues, to make correct and effective decisions, the ability to use research and analytical approaches to problem-solving, critical thinking of topics and the use of innovative methods, as well as the ability to participate in thematic discussions.

The Doctoral Program's research component includes 120 credits.

The research component of Doctoral Educational Program aims to expand the practical skills of conducting independent scientific research, forming and developing professional research culture. The relevance of the Dissertation topic, novelty, the scientific level of the research, research outcomes and credibility, financial indicators (in case of existence), methods used (methodology), quality of dissertation design, etc.

The Doctoral Program's research component includes:

Colloquium -1 - 30 credits;

Colloquium -2 - 30 credits;

Preparation and defence of dissertation thesis - 60 credits.

The main objective of the colloquium is to systematize the doctoral student's knowledge, submit /present the research done, and demonstrate their creative thinking, the colloquium envisages the submission and presentation of material related to the dissertation topic/its parts the paper presented at the colloquium is a part of the dissertation

Dissertation closure and defence (dissertation thesis preparation and defence are the primary part of the research component. The completed dissertation shall be a result of a doctoral student's independent scientific-research work It shall reflect scientifically approved new outcomes and /or solve actual scientific problems of the theoretical/experimental research conducted the work should be a scientific innovation and contribute to the development of the field. The relevance of the Dissertation topic, novelty, the scientific level of the research, research outcomes and credibility, financial indicators (in case of existence), methods used (methodology), quality of dissertation design, etc. should be presented within.

The Quality Assurance Mechanism at GTU provide for the involvement of students, graduates, academic and administrative personnel, field specialists and other interested individuals in the process of evaluating educational programs. Hence, each of the participants involved in the preparation of accreditation of Doctorate Educational Program "Military Engineering" has been actively evaluating the educational program, the logic of admission and the transparency, learning outcomes, and its compliance with the qualifications awarded.

Evidences/indicators

- Doctorate Educational Program "Military Engineering" (Appendix 1) is approved by the Decree No. 01-05-04 / 155 of the Academic Council of Georgian Technical University, June 18, 2018 (annex 1)
- Procedure for Planning, Development, Evaluation and Development of Educational Programs at Georgian Technical University approved by the Decree # 01-05-04 / 01 of the GTU, February 14, 2018 (annex 16.4)
- Questionnaire (annex 2.8)
- Field Specialists reviews (annex 2.1)
- Results of PhD students survey (annex 2.5)
- Student Survey Results (annex 2.4) and Graduate Employment Index (annex 10.2)
- Results of survey for academic personnel (annex 2.3)
- Statistical Analysis of Employer Survey (annex 2.7)
- Protocols on the changes in the educational program (annex 2.6)

Recommendations: N/A

Suggestions for programme development: We suggest that the applicant who proves to have knowledge of courses 1 to 7 of the study component of the program may be exempted from the course and the corresponding exam in order to be able to devote himself to his research without loss of time.

Best Practices (if applicable): N/A

In case of accredited programme, significant accomplishments and/or progress: N/A

Evaluation

☒ Complies with requirements

☐ Substantially complies with requirements

☐ Partially complies with requirements

☐ Does not comply with requirements

2.3 Course

- Student learning outcomes of each compulsory course are in line with programme learning outcomes; Moreover, each course content and number of credits correspond to course learning outcomes;
- Teaching materials listed in syllabi are based on the core achievements in the field and ensure the achievement of intended programme learning outcomes.

Descriptive summary and analysis of compliance with standard requirements

The academic outcomes of each course correspond to the Program outcomes that is illustrated by the information on the academic outcomes map presented in the curriculum.

The anticipated academic outcomes of each course are consistent with the level of doctoral writing, and the results of the program are based on the results of each program course and the number of credits for each course is determined by the academic outcomes and the complexity and volume of the program.

Teaching materials listed in syllabi are based on the actual achievements in the field and ensure the achievement of the program intended academic outcomes.

The basic literature of academic courses provides the latest research in military engineering and ensures compliance with the modern requirements of the program.

Evidences/indicators

- Doctorate Educational Program "Military Engineering" (Appendix 1) is approved by the Decree No. 01-05-04 / 155 of the Academic Council of Georgian Technical University, June 18, 2018 (annex 1)
- Training course programs (syllabi) (Appendix 1)

Recommendations: N/A

Suggestions for programme development: N/A

Best Practices (if applicable): N/A

In case of accredited programme, significant accomplishments and/or progress: N/A

Evaluation

☒ Complies with requirements

☐ Substantially complies with requirements

☐ Partially complies with requirements

☐ Does not comply with requirements

2.4 The Development of practical, scientific/research/creative/performance and transferable skills

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

Descriptive summary and analysis of compliance with standard requirements

The research component on the PhD level is the leading component of the educational program. Thus, researches attract special attention at the third level of academic higher education- Doctoral program which is the most evident unit illustration the cohesion of teaching and research. In order to train highly qualified professionals, it is necessary to engage students in various activities. Among them, scientific-research activities occupy a special position. Achievement, by students, of the required level of the knowledge, skills and values relevant to respective stage of higher education, without their engagement in actual scientific-research and practical activities, is impossible.

The Doctoral Program "Military Engineering's" intended academic products ensure the development of scientific, research, creative and transferable skills and their involvement in research projects.

In the course of the practice and / or in the case of involvement in the research project, the student is supervised by the qualified person in the field who evaluates the student's activities.

During the preparation of Doctoral thesis the student has an academic / invited professor / associate professor who helps to enhance the practical skills of independent scientific research, forming and develop a professional research culture.

The University gives each doctorate the opportunity to be actively involved in the research and research activities involved in the university. At the University, international student scientific conferences are held annually, where doctorate students take part and a competent panel of jury reveal the winners. The thesis of the winner is published in the conference materials

At GTU, there are published several international scientific journals where doctoral students ' scientific articles and the results of the conducted research works are intensely published. In addition, the journal of the Georgian National Academy of Sciences "Military Science, Georgia" will be published in the nearest future where our doctorates' articles will be published.

Within the framework of the educational program, one of the graduates presented the Shota Rustaveli National Science Foundation's with a project on: "Early Warning of Air Attack, Information Space Systems and Opportunities for Use of Military Armed Forces of Georgia", which was rated by 94 points by the Competition Commission.

Number of involvements in scientific research activities and international events like a conferences, symposiums, workshops and grant projects giving the beneficiary of the program opportunities to enhance their qualification by sharing the international experience.

Evidences/indicators:

- Scientific activities of Doctoral Educational Program "Military Engineering" Graduates (annex 7)
- Graduate Ana Khatelashvili Grant (annex 7.2)

Recommendations: N/A

Suggestions for programme development: N/A

Best Practices (if applicable): N/A

In case of accredited programme, significant accomplishments and/or progress: N/A

Evaluation

☒ Complies with requirements

☐ Substantially complies with requirements

☐ Partially complies with requirements

☐ Does not comply with requirements

2.5 Teaching and learning methods

Program is implemented using student cantered teaching and learning (SCL) methods. Teaching and learning methods correspond to the level of education, course content, student learning outcomes and ensure their achievement.

Descriptive summary and analysis of compliance with standard requirements

A combination of teaching methods in the components of Doctoral Education program ensures the intended academic results of the program.
Workshops, seminars, independent work, consultation, and research activities connected to the dissertation comprise the academic and scientific components of the programs - studying methods, such as discussion / debates, cooperative learning; case studies, problem-based learning (PBL), written work, action-oriented, laboratory and practical activity, and other activities, as well as work, demonstration, explanation, verbal or oral medicine, deduction, induction, analysis, synthesis.

Evidences/indicators

- Doctorate Educational Program "Military Engineering" (Appendix 1) is approved by the Decree No. 01-05-04 / 155 of the Academic Council of Georgian Technical University, June 18, 2018 (annex 1)
- The Doctoral Program's academic and research component http://gtu.ge/Learning/pdf/doqtoranturis_danarti_3_06.2018.pdf
- Student survey results (annex 2.4)
- Results of survey for academic personnel (annex 2.) 3)
- GTU Quality Assurance Service Website (teaching-learning methods and relevant activities) *http://gtu.ge/quality/Forms-And-Recomendations/Recomendations.php*

Recommendations: N/A

Suggestions for programme development: N/A

Best Practices (if applicable): N/A

In case of accredited programme, significant accomplishments and/or progress: N/A

Evaluation

☒ Complies with requirements

☐ Substantially complies with requirements

☐ Partially complies with requirements

☐ Does not comply with requirements

2.6. Student Evaluation

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

Descriptive summary and analysis of compliance with standard requirements

At GTU, a fair and transparent assessment system is in place, which is relevant to the intended academic results and facilitates the improvement of the students' academic achievements in correspondence to the decree #3 of January 5, 2003, by the Education and Science Minister.

The Academic outcomes assessment system takes into consideration specifics of the field, and includes adequate assessment formats, components and methods, which enable identifying how well students have achieved learning outcomes attributed to the specific educational program;

While evaluating the students, the University uses transparent criteria The results are reflected in the electronic register ensuring the students informing of the result. The electronic register has an informative function, which makes it available for the student to contact with the teacher directly and get advice about the ways of improving the drawbacks, The student is informed about the active regulations in relation with the GTU evaluation system. Here also exists an effective system of evaluation.

The personnel who are responsible for the program implementing, periodically participate in the planned trainings on the modern methods of teaching and evaluating and get the relevant assistance. Each of them has a relevant certificate which is attached to their personal information.

Doctoral Education Program provides for periodic assessment of doctoral progress by a scientific supervisor. Dissertation closure and defense (dissertation thesis preparation and defense) is the primary part of the research component. The completed dissertation shall be a result of a doctoral student's independent scientific-research work It shall reflect scientifically approved new outcomes and /or solve actual scientific problems of the theoretical/experimental research conducted The work should be a scientific innovation and contribute to the development of the field. The relevance of the Dissertation topic, novelty, the scientific level of the research, research outcomes and credibility, financial indicators (in case of existence), methods used (methodology), quality of dissertation design, etc. should be presented within.

The Doctorate Dissertation Thesis defense can take place in front of a Dissertation Board (including 30% of the Dissertation Board) or University Dissertation Board, which is composed of 7-9 representatives of the relevant PhD program.

Evidences proves that doctoral education program provides for periodic assessment of doctoral progress.

Evidences/indicators

- Doctorate Educational Program "Military Engineering" (Appendix 1) is approved by the Decree No. 01-05-04 / 155 of the Academic Council of Georgian Technical University, June 18, 2018 (annex 1)
- The Regulations of the Universal Dissertation Board of the Technical University of Georgia approved by the decree # 01-05-04 / 110 of the May 10, 2018 Academic Council (annex 15)
- Results of Students Survey (Appendix 16.2);
- Student academic performance monitoring electronic portal https://leqtori.gtu.ge_

Recommendations: N/A

Suggestions for programme development: N/A

Best Practices (if applicable): N/A

In case of accredited programme, significant accomplishments and/or progress: N/A

Evaluation

☒ Complies with requirements

☐ Substantially complies with requirements

☐ Partially complies with requirements

☐ Does not comply with requirements

Programme's Compliance with Standard

Standard	Complies with Requirements	Substantially complies with requirements	Partially Complies with Requirements	Does not Comply with Requirements
Teaching methodology and organization, adequate evaluation of programme mastering	x			

3. Student achievements and individual work with them

HEI creates student-cantered environment by providing students with relevant services; programme staff ensures students' familiarity with the named services, organizes various events and fosters students' involvement in local and/or international projects.

3.1. Student support services
Students receive appropriate consultations and support regarding the planning of learning process, improvement of academic achievement, employment and professional development.
Descriptive summary and analysis of compliance with standard requirements At the Civil Engineering Faculty, students have the opportunity to stay updated, get advice and assistance from both- administrative and academic personnel as well as from tutors to determine their profile and career development, in relation to the requirements of the labour market, to improve the planning process and achievements. Students have an opportunity to participate in international mobility, projects, socials and conferences The information about advising is available on the Faculty website and the information boards located in public spaces in order to ensure the educational programs and learning process assessment efficiency, there has been established a Faculty commission including the students and the academic personnel For the purpose of improving the academic achievements students' survey is conducted, which is focused on the periodic evaluation of the educational programs structure, content and their compliance with the established standards of provision with appropriate human and material resources. The Georgian Technical University creates a database of student portfolios on the basis of the employers' requirements, which will enable the employer to receive information on the personal and professional skills of the future employee and get involved in further development of educational programs though the mechanisms engrained in the system. At the Technical University there are Electronic Information Services, which give students the opportunity to follow the results of the assessment, and to communicate with the course teacher via electric messages. Furthermore, to see the academic groups time table, the teacher's time-table, classrooms and laboratories loading. A student has a possibility to get information about the current processes and news (administrative issues, social assistance, leisure services, in the work. The University operates GTU-tables (electronic journal mobile app), which has: the capacity of the Interface language switch (Georgian, English, Russian); Finding a time table by the lecturer's name and surname, the time-table memorizing and receiving updates; setting the automatic reminder function of lecture scheduling; the possibility to display the time-table automatically to the authorized user, the questions attached to the survey. The Georgian technical University annually holds scientific-practical conferences, field seminars, where students actively participate.

The academic and invited personnel contract agreement stipulates time spent for consultations. Job descriptions of administrative and support staff, as well as the functions provided by the relevant service obligations also provide for students' counselling and support within competence.

Evidences/indicators

- Administrative and auxiliary personnel work descriptions (annex 9.1)
- Civil Engineering Faculty Statute https://goo.gl/dv3DSz
- Student academic performance monitoring electronic portal https://leqtori.gtu.ge_

Recommendations: N/A

Suggestions for programme development: N/A

Best Practices (if applicable): N/A

In case of accredited programme, significant accomplishments and/or progress: N/A

Evaluation

☒ Complies with requirements

☐ Substantially complies with requirements

☐ Partially complies with requirements

☐ Does not comply with requirements

3.2. Master's and Doctoral Student supervision

Master's and Doctoral students have qualified thesis supervisors.

Descriptive summary and analysis of compliance with standard requirements

The doctorate has a scientific supervisor and a specific research project that applies to the discipline's problems and modern scientific challenges. The Dissertation Board of the HEI includes the rights and responsibilities of the Head of the supervisors; the Individual Study and Research Plan of the Doctorate is created to deepen the knowledge received in the field and to implement a specific research project.

Each doctorate student augments their individual academic plans and research plans along with their scientific supervisors.

The supervisors - taking into consideration the peculiarities of the program and research topic - holds regular consultations, whose frequency corresponds to the program and research topic.

Requirements for scientific supervisors and qualifications proved by the CV's and relevant diplomas and certificates of the staff are compliance to each other. It is significant that most of the scientific supervisors are actively involved in the research activities of the field, are authors and co-authors of the scientific papers, publications and textbooks connected with the modern challenges area of doctoral educational program.

Their practical experience and in the real environment making their supervision with the students more fruitful.

The Regulations of the Universal Dissertation Board as one of the evidences shows that students have permanent possibilities to elect qualified scientific supervisor and gain new knowledge, skills, and attitudes.

Evidences/indicators

- The Regulations of the Universal Dissertation Board of the Technical University of Georgia approved by the decree # 01-05-04 / 110 of the May 10, 2018 Academic Council (Annex 15)

• Doctoral supervisors CV, qualification verifying documents, labour and affiliation agreements, list of scientific works (annex 3) • Results of Students Survey (Appendix 16.2); • Instructions for calculation and distribution of academic workload approved by the GTU #253 Decree dated May 14, 2010 (annex 16.1)
Recommendations: N/A
Suggestions for programme development: N/A
Best Practices (if applicable): N/A
In case of accredited programme, significant accomplishments and/or progress: N/A
Evaluation ☒ Complies with requirements ☐ Substantially complies with requirements ☐ Partially complies with requirements ☐ Does not comply with requirements

Programme's Compliance with Standard

Standard	Complies with Requirements	Substantially complies with requirements	Partially Complies with Requirements	Does not Comply with Requirements
Student achievements and individual work with them	x			

4. Providing teaching resources

Programme human, material, information and financial resources ensure programme sustainability, its effective and efficient functioning, and achievement of intended objectives.

4.1 Human Resources
➢ Programme staff consists of qualified people who have necessary competences in order to help students achieve 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. Balance between academic and invited staff ensures programme sustainability; ➢ The Head of the Programme possesses necessary knowledge and experience required for programme elaboration. He/she is personally involved in programme implementation;

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

Descriptive summary and analysis of compliance with standard requirements

The program is implemented by academic and invited personnel with appropriate qualification.

The academic staff is selected under the open competition rule, in accordance with "The Law of Georgia On Higher Education" and the Statute of the Georgian Technical University.

Academic personnel imply professors and associate professors (including 9 affiliated). Their qualifications follow legislation and standards defined by the internal regulations of the HEI. Academic, as well as invited personnel have appropriate competency, which is confirmed by scientific works published by them in the past 10 years. Textbooks, monographs, and scientific articles published in the reviewed journals, As well as participation in the local and international scientific conferences and workshops.

The program is also served by GTU's appropriate qualification holding administrative and auxiliary personnel. The support personnel are involved in the laboratory and practical activities.

It is important to be mentioned that the educational program head's theoretical and practical knowledge and experience, is proved by the participation in various high prestige international projects, published different scientific papers, monographs, textbooks and articles relevant to the challenges of the field. He is one of the main persons for successfully implementation of the program, he is leading the following study courses: Structure of military science, meaning and methods of research; military terminology, course of engineering art for military, defense environment and armed struggle, engineering preparedness of territory for defence and military-engineering maintenance of battle operations and activities. Through his direct supervision has been successfully completed several doctoral theses and his role is very positive as continuation of PhD student's supervision.

Evidences/indicators

- CV of the academic staff of the program, documents certifying qualification, labour and affirmation agreements, list of scientific papers (Appendix 3)
- Scientific achievements of academic personnel http://science.gtu.ge
- The Program Supervisor functions (Appendix 4)
- Methodology for determining the number of academic, scientific, and invited staff (Annex 6); Administrative and auxiliary personnel CV

Recommendations: N/A

Suggestions for programme development: N/A

Best Practices (if applicable): N/A

In case of accredited programme, significant accomplishments and/or progress: N/A

Evaluation

☒ Complies with requirements

☐ Substantially complies with requirements

☐ Partially complies with requirements

☐ Does not comply with requirements

4.2 Professional development of academic, scientific and invited staff

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

Descriptive summary and analysis of compliance with standard requirements

The university carries out the assessment and satisfaction of staff involved in the implementation of the program, regularly produces, analyses, and actively uses evaluations and research results, in order to facilitate the faculty of each academic, scientific and invited personnel in the effective implementation of their functions and professional development;

For academic, scientific and invited personnel there are created appropriate conditions for organizing scientific/research activities. There is a possibility to provide both material and financial resources.

In the purpose of the academic, scientific and invited personnel advancement, the Professional Development Centre has been established at the Georgian Technical University, where the program implementing academic personnel are trained in the following directions: Career planning; modern methodologies of studying and teaching; educational outcomes and their assessment.

The academic personnel of the Civil Engineering faculty have the relevant competence.

The lectures conducted by the Faculty of the Civil Engineering were examined by the Educational Assessment Faculty Commission, the individual and general condition was assessed, all of these made it clear that it was necessary to increase the qualifications in the modern teaching methods in accordance with new challenges in the educational space, part of the academic personnel needs to be upgraded to modern teaching methods in new educational challenges in the educational sphere, while the part of them allows the faculty to think about their promotion.

Study of the materials of the development of the Faculty of the Civil Engineering of Personnel showed that the majority of the program personnel (military engineering education program) have certificates and high index of participation in various courses in international and local conferences, symposiums and seminars.

Evidences/indicators

- CV of the academic staff of the program, documents certifying qualification, labour and affirmation agreements, list of scientific papers (Appendix 3)
- http://gtu.ge/quality/Files/Pdf/531%20shefaseba.pdf
- http://gtu.ge/quality/Files/Pdf/450cesi.pdf http://gtu.ge/quality/Files/Pdf/450cesi.pdf
- Web Page - "Professional Development Centre" (http://hpep.ge/ge/) http://hpep.ge/ge/
- Training programs used for staff retraining.

Recommendations: N/A

Suggestions for programme development: N/A

Best Practices (if applicable): N/A

In case of accredited programme, significant accomplishments and/or progress: N/A

Evaluation

☒ Complies with requirements

☐ Substantially complies with requirements

☐ Partially complies with requirements

☐ Does not comply with requirements

4.3. Material Resources

Programme is provided by necessary infrastructure and technical equipment required for achieving programme learning outcomes.

Descriptive summary and analysis of compliance with standard requirements

The Faculty infrastructure and technical equipment ensure achievement of the goals of the educational program and its outcomes. The library contains mandatory literature, defined by syllabus, including latest scientific periodicals.

The rule of using the library is provided on the library's website and around a visible location in the library.

Library resources, both paper-based and electronic, are diverse, constantly updated based on developments in the field, and ensure achievement of educational program learning outcomes and implementation of research/scientific work; Primary literature listed in the syllabus is available in the library of the institution; Books of the library are processed in accordance to the library regulations.

On the University website, the library of electronic literature, catalogue and electronic searching system is available for any user.

The program is provided with necessary material-technical resources.

Evidences/indicators

- Central Scientific Technical Library of GTU: http://gtu.ge/Library/
- The library of faculty: https://goo.gl/fsWZLk
- Documents certifying involvement in international electronic library database.

Recommendations: N/A

Suggestions for programme development: N/A

Best Practices (if applicable): N/A

In case of accredited programme, significant accomplishments and/or progress: N/A

Evaluation

☒ Complies with requirements

☐ Substantially complies with requirements

☐ Partially complies with requirements

☐ Does not comply with requirements

4.4. Programme/faculty/school budget and programme financial sustainability

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

Descriptive summary and analysis of compliance with standard requirements

According the analysis of the Annex 14, Engineering Faculty budget and program financial analysis of 2018-year, seems that total incomes of the faculty is 5 260 189 GEL, hence 1 377 400 GEL which is 26.2% of the faculty budget is defined for the development of the faculty.

The critical fact, that Doctoral Educational Program "Military Engineering" is strategically important for the defense and security of the country, also for the further development of the faculty and it's perspective educational programs and the previous successful experience proved by the alumni and employers surveys makes logically benefitable for the faculty board to support by necessary financial needs the implementation of this program, taking into the account that amount of money of financial analysis for the program implementation and its contribution in the faculty budget is very low.

Evidences/indicators • The faculty budget (Annex 14) • The program budget (Annex 14)
Recommendations: N/A
Suggestions for programme development: N/A
Best Practices (if applicable): N/A
In case of accredited programme, significant accomplishments and/or progress: N/A
Evaluation ☒ Complies with requirements ☐ Substantially complies with requirements ☐ Partially complies with requirements ☐ Does not comply with requirements

Programme's Compliance with Standard

Standard	Complies with Requirements	Substantially complies with requirements	Partially Complies with Requirements	Does not Comply with Requirements
Providing teaching resources	X			

5. Teaching quality enhancement opportunities

In order to enhance teaching quality, programme utilizes 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 on a regular basis.

5.1 Internal quality
Programme staff collaborates with internal quality assurance service(s) available at the higher education institution when planning the process of programme quality assurance, creating assessment instruments, and analysing assessment results. Programme staff utilizes quality assurance results for programme improvement.

Descriptive summary and analysis of compliance with standard requirements

The University's quality assurance system includes sequential processes aiming at elaborating recommendations for the improvement of the quality of educational programs, learning and teaching processes, scientific-research work and related other activities, as well as providing a continuous assessment of resources. It includes all of the components involved in the process of improvement of the quality of the University's operation. The system operates in the context of the University's mission, the strategic development plan, policy, legal and other types of obligations; also, it relies on those basic principles and standards which the University follows during its operation. It is an integral part of the basic components of the University's management process: planning, organization, stimulation and control.

GTU employs internal mechanisms for quality control, whose aim is the perpetual development of teaching quality, its monitoring, completeness, and the effective use of academic and material resources, which implies the periodic monitoring of the academic process, educational programs and all components therein. Implementation of continuous quality improvement mechanisms facilitates the current stage of teaching quality and determines the strategy for quality improvement at the next level. The activities of the Quality Assurance Service functioning at the Faculty of Transportation and Mechanical Engineering are coordinated by the University Quality Assurance Service.

A mechanism for the evaluation and improvement of education programs has been developed at the University. The evaluation is mainly done by surveying students, academic personnel, teachers and employers for which respective questionnaires have been developed. The questionnaire used by students to assess the educational program provides the opportunity for the students to record their viewpoints both on the learning process as well as on the contents of the educational program, human, material and information resources.

The following criteria are applied for determining the teaching competence of academic personnel:

Developing a syllabus;
Selecting adequate methods of teaching and assessment;
Participating in the design of programs;
Verifying the ability to transfer knowledge;
Fair assessment of students;
Knowledge of competent competences, i.e. knowledge of the subject, course management, and consultation.

When assessing the competence of teaching for the academic personnel, the following methods are applied:

Self-evaluation of academic personnel;
Attendance to lectures and seminars conducted by the academic staff member;
Scientific activity;
Outcomes of students' academic achievement;
Syllabus review

In assessing the scientific competence, throughout the academic year, an academic personnel report is prepared which monitors annual scientific and pedagogical undertakings.

Students' academic performance is the most important indicator in evaluation of the academic process; Based on the analysis of students' academic performance the following will be identified:

Quality and level of complexity of educational programs and individual subjects;
Adequacy of the methods used in evaluation;
Pedagogical skills of academic staff;
Level of preparation of students

In order to protect the principles of objectivity and fairness in internal evaluation, students' involvement in the internal assessment process is important, for which student inquiry questionnaire and organization of polls are made.

Evidences/indicators

- The GTU Quality Assurance Department website http://gtu.ge/quality/Quality-Ensuring.php
- "Quality Assurance Mechanisms" Approved by the Decree of the Academic Council 01-05-04 / 108 of April 17, 2018 (annex 13)
- Student survey results (annex 2.2 and 2.4)

Recommendations: N/A

Suggestions for programme development: N/A

Best Practices (if applicable): N/A

In case of accredited programme, significant accomplishments and/or progress: N/A

Evaluation

☒Complies with requirements

☐ Substantially complies with requirements

☐ Partially complies with requirements

☐ Does not comply with requirements

5.2 External quality

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

Descriptive summary and analysis of compliance with standard requirements

The Doctoral Educational Program "Military Engineering" was granted accreditation in 2013. Annual self-evaluation of the program has been carried out at the National Centre for Quality Improvement once in a year since 2013 to date, reflecting annual changes.

In 2016, the State Audit Office conducted research through the analysis of student academic achievement outcomes and the degree program development process, to define and evaluate the degree programs demanded on the labour market, to identify deficiencies, and to assist in their improvement with relevant recommendations.

Based on the above-mentioned conclusion, Georgian Audit office gave the University the recommendations which allow students and graduates to regularly and properly evaluate degree programs and academic process complying with their own requirements and needs; in order to ensure the efficiency of the degree program evaluation, the university should set up faculty committees consisting of the students and the academic personnel.

Evidences/indicators

- The Doctorate Educational Program "Military Engineering" was awarded by Accreditation Council of Educational Programs on the basis of decision N167 dated November 19, 2013.
- The annual educational program accreditation self-assessment is presented yearly to the Centre for the Doctoral educational program "Military Engineering"

Recommendations: N/A

Suggestions for programme development: N/A

Best Practices (if applicable): N/A

In case of accredited programme, significant accomplishments and/or progress: N/A

Evaluation

☒ Complies with requirements

☐ Substantially complies with requirements

☐ Partially complies with requirements

☐ Does not comply with requirements

5.3. Programme monitoring and periodic review

Programme monitoring and periodic review is conducted with the involvement of academic, scientific, invited, administrative staff, students, graduates, employers and other stakeholders through systematically collecting and analysing information. Assessment results are utilized for programme improvement.

Descriptive summary and analysis of compliance with standard requirements

The educational program monitoring and quality evaluation process is a complex process and according to the existing rule, all stakeholders are involved.

The Quality Assurance Service of the Faculty discusses the educational program and provides recommendations for its improvement.

The Quality Assurance Service has implemented the assessment program presented for accreditation. The academic and invited staff, students, alumni and employers, field specialists were also involved in the evaluation process. The assessment is carried out both in the discussion format and through questionnaires. The obtained information was developed to evaluate the program, its strengths and areas to be improved were analysed and determined.

Evidences/indicators

- Outcomes of student survey similar foreign language programs (Annex 12.1)

Recommendations: N/A

Suggestions for programme development: The list of the Employment Areas (p. 9 of the Doctoral program) should be non-limitative.

Best Practices (if applicable): N/A

In case of accredited programme, significant accomplishments and/or progress: N/A

Evaluation

☒ Complies with requirements

☐ Substantially complies with requirements

☐ Partially complies with requirements

☐ Does not comply with requirements

Programme's Compliance with Standard

Standard	Complies with Requirements	Substantially complies with requirements	Partially Complies with Requirements	Does not Comply with Requirements
Teaching quality enhancement opportunities	x			

Enclosed Documentation (N/A)

HEI's Name: Georgian Technical University

Higher Education Programme Name: Doctoral Program of Military Engineering

Number of Pages of the Report: 26

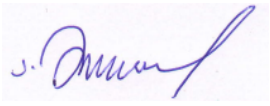
Programme's Compliance with the Standard

Standard	Complies with Requirements	Substantially complies with requirements	Partially Complies with Requirements	Does not Comply with Requirements
1. Programme objectives are clearly defined and achievable; they are consistent with the mission of the HEI and take into consideration labour market demands	x			
2. Teaching methodology and organization, adequate evaluation of programme mastering	x			
3. Student achievements and individual work with them	x			
4. Providing teaching resources	x			
5. Teaching quality enhancement opportunities	x			

Expert Panel Chair's

Jean Marsia - 

Expert Panel Members'

Andro Maisuradze - 

Nika Tikanashvili -