



Master's Educational Program

Program Title

მექანიკის ინჟინერია და ტექნოლოგია

Mechanical Engineering and Technology

Faculty

სატრანსპორტო სისტემებისა და მექანიკის ინჟინერიის ფაკულტეტი

The Faculty of Transport Systems and Mechanics Engineering

Program Head/Heads

Professor, Giorgi Japaridze

Qualification to be Awarded and the Extent of the Program in terms of Credit

Master of Mechanical Engineering and Technology

Will be awarded upon completion of at least 120 credits of the educational program

Language of Teaching

Georgian

Prerequisite for Admission to the Program

A person with at least a bachelor's degree or an academic degree equivalent to it, who is enrolled based on the results of the master's exams, according to the rules established by the Georgian legislation, has the right to study in the master's program (general master's exam and specialty exam/exams determined by GTU). Exam questions/tests will be posted on the GTU website at least one month before the commencement of the specialty exams.

The applicant must have a certificate confirming knowledge of the English language of at least B2 level, or must present a document of completion of a corresponding training course of B2 level. In the absence of a similar

certificate or other similar document, the applicant will be tested in the English language at the exam center of GTU.

Enrollment in the program without passing the master's exams is possible according to the rules established by the Ministry of Education, Science, Culture and Sports of Georgia.

Program Description

The master's degree program "Mechanical Engineering and Technology" was created taking into account the specifics of the field, innovations and labor market requirements.

The program is based on the European Credit Transfer System (ECTS), 1 credit is 25 hours, which includes both contact and independent work hours. The program lasts 2 years (4 semesters) and includes 120 credits. The program ensures that the learning outcomes required for the program objectives and qualifications are achieved by specifying level seven (Master's) of the Higher Education Qualifications Framework.

120 credits of the program include compulsory and elective education courses of relevant content of the field of study - 79 credits. Foreign language 5 credits, Master's industrial internship - 6 credits; 30 credits for the research component.

Detailed information about the master's degree is provided on the GTU website: "Regulations of the Georgian Technical University on the Master's degree", "Rules for evaluating the research component of the Master's educational program" and "Personal work plan of the Master's student"

Organization of the educational process, student achievements, assessment, educational and financial agreements with students, accumulation of credits by the student and other necessary detailed information is provided on the web page of GTU: "Instructions for managing the educational process at the Georgian Technical University"

Program Objective

The objective of the program is to prepare Masters with deep knowledge of the field of mechanical engineering and technology, critical analysis, practical and research skills, who will be able to:

- Solve existing tasks and problems with the knowledge of machine-building production technology, technical operation of machines and devices of various purposes, automation of machine systems;
- Use innovative constructions in the design of production technological processes and modern technologies of detail processing;
- Contribute to the development of the field by using the latest methods of examination of production machinery, their details and nodes.

Learning Outcomes/Competences (general and professional)

Argumentally **formulates** conclusions and research results with the academic or professional community in Georgian and foreign languages;

Analyzes the latest methods and approaches for conducting research in the field of mechanical engineering manufacturing technology based on deep and systematic knowledge;

Determines the design (kinematic and dynamic studies and calculation of structural and construction), manufacturing, technical operation (technical diagnostics and expertise) of machines and devices of various functional purposes (machine mechanics - technological machines);

Chooses methods of solving problematic issues in the field of production technology of mechanical engineering, ways of developing new original ideas (processes, tools and equipment, technological machines);

Organizes modern methods and means of conducting inspection of high-risk machines.

Plans current processes in the field of automation of machines and devices of various functional purposes (machine mechanics - technological machines), designing (kinematic and dynamic studies and calculation of

structural and constructive construction), manufacturing, technical operation of machines and machine systems; On the basis of proper analysis and studies, **distinguishes** modern systems of safety and automation of machines and devices in mechanical engineering;

Critically **assesses** high-performance methods of modern processing in the field of mechanical engineering and technology;

Determines the further need for further education, can conduct professional activities independently.

Consults with specialists in the field of mechanical engineering and technology to find alternative ways and solve existing problems.

Methods of achieving learning outcomes (teaching-learning)

Lecture Seminar (group work) Practical Laboratory Practice Course work/Project Master's Thesis Consultation Independent work

In the educational process, depending on the specifics of the specific educational course program, the following activities of teaching-learning methods are used, which are reflected in the relevant course programs (syllabi):

Discussion/debates; group (collaborative) work; deductive; demonstration; explanatory; verbal or oral; analysis; written work; inductive; action-oriented learning; Project development and presentation.

Student's Knowledge Assessment System

The student's knowledge is assessed on a 100-point scale.

Positive grades are:

- **(A)**-Excellent - 91-100 points;
- **(B)**-Very Good – 81-90 points;
- **(C)**-Good – 71-80 points;
- **(D)**-Satisfactory – 61-70 points;
- **(E)**-Sufficient – 51-60 points.

Negative grades are:

- **(FX)** - Failed to pass – 41-50 points, which means that the student needs more work to pass and is allowed to take an additional exam once with independent work;
- **(F)** - Failed - 40 points or less, which means that the work done by the student is insufficient and he/she will have to study the subject again.

In case of receiving FX in the component of the educational program, the GTU will appoint an additional exam no later than 5 days after the announcement of the results of the final exam. The number of points obtained in the final assessment is not added to the grade received by the student in the additional exam. The grade obtained in the supplementary examination is the final grade and is reflected in the final grade of the program component. In case of receiving 0-50 points in the final evaluation of the educational component, taking into account the evaluation received at the additional exam, the student is assigned an F-0 score.

The program part of the assessment of the level of achievement of the student's learning results in each component consists of an intermediate assessment and a final exam. The mid-term assessment in turn includes the ongoing activity and the mid-semester exam.

Each evaluation form and component has a specific share in the final evaluation from the total evaluation score (100 points). In particular, the maximum score of the intermediate assessment is no more than 60, and the maximum score of the final exam is no less than 40.

Each form of assessment includes an evaluation component/components, which includes an assessment method/methods, and the evaluation method/methods are measured by assessment criteria.

The right to pass the final exam is given to a student who passed the minimum competence limit in the intermediate assessment (scored at least 30 points). Information about the mid-semester exam and

final/supplementary exam dates is given in the Rector's order "On the Semester Conducting Schedule"
Detailed information about the educational process is provided on the web page of GTU: "Instructions for managing the educational process at the Georgian Technical University"

Fields of Employment

The field of employment of the master of mechanical engineering and technology is represented by enterprises, management structures of mechanical service in companies, design, scientific and training institutions, small and medium-sized enterprises; design and construction institutions; Inspection and diagnostic companies of high-risk facilities, as well as research and design organizations in supervisory structures and engineering expert bureaus.

Opportunities for continuing education

PhD educational programs

Human and material resources needed to implement the program

The program is provided with adequate human and material resources. For additional information, please find the attached documentation

Number of attached syllabi: 19.