



Bachelor's Educational Program

Program Title

ბიონანოკერამიკული და პოლიმერული კომპოზიტები და ექსპერტიზა

Bionanoceramic and Polymer Composite and Expertise

Faculty

ქიმიური ტექნოლოგიის და მეტალურგიის

Faculty of Chemical Technology and Metallurgy

Program Head/Heads

Professor Zviad KOVZIRIDZE

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

The bachelor of Materials Engineering Technology

will be awarded if at least 240 credits are completed by combining 220 credits of courses with content relevant to the primary field of study and 20 credits of free components;

Language of Teaching

Georgian

Prerequisite for Admission to the Program

Only the holder of a state certificate proving complete general education, or an equivalent person enrolled in accordance with the procedure established by Georgia law, shall have the right to study at the Bachelor's Educational Program.

Program Description

The Educational Program is based on the European Credits Transfer System ECTS system . 1 credit is equal to 25 hours, which includes both contact and independent work hours. The study year equals 60 ECTS credits. The duration of the Program is 4 years (8 semesters). One semester includes 20 weeks.

According to the student's individual workload, the number of credits in one year can be less or more than 60 credits, but no more than 75 credits.

The program includes training courses of the relevant content of the main field of study in the amount of 220 credits. Among them are optional training courses - 5 credits; group of optional humanities courses in the amount of 3 credits (the student chooses 1 course); foreign language in the amount of 20 credits (4 blocks of optional foreign language, each in the amount of 5 credits); introductory practice - 6 credits and production practice - 10 credits; Bachelor's thesis 10 credits.

In the program there is an optional block of free components - in the amount of 20 credits (the student chooses 4 study courses in the amount of 5 credits each).

Practice is a necessary component of higher education, which helps the student to become a professional and allows him to develop the acquired theoretical knowledge in a practical environment.

The program is completed with the defense of a bachelor's thesis, which will establish the student as a specialist corresponding to modern requirements - a bachelor of science in materials engineering technology.

The rules for organizing the learning process, conducting and evaluating students' practice, the rules for completing a Bachelor's research project/thesis, evaluating student achievements, entering into educational and financial agreements with students, and accumulating credits by students, and other information are provided in the "Instructions for the Management of the Learning Process at the Technical University of Georgia".

Program Objective

- To provide graduates with broad theoretical and practical knowledge in the field of materials engineering technology, skills necessary for the field corresponding to the modern requirements of the labor market;
- To teach students the basics of materials engineering technology, the structure of bio-nanoceramic and polymer composite materials, physical-mechanical properties and chemical composition, the relationship between structure and properties, the safe management of production technological processes and the operation of technical and technological means according to environmental protection requirements, the methodology of product quality expertise and expertise conducting skills;
- To teach the properties of the main and new composite materials used in technology, their fields of application. Principles of operation of devices and technological modes.

Learning Outcomes/Competences (general and professional)

- Describes established theories and principles in the field of bio-nanoceramic and polymer composites; purpose of materials used in production, environmental and labor safety norms;
- Explains planning, design and development related to composites and their processing processes;
- Calculates the main characteristics of raw materials and finished materials used in various fields of composite materials, technological and hardware part;

- Discusses the main processes in the production of bio-nanomedical and polymer composites;
- Based on the knowledge of natural and engineering sciences, as well as technology and mathematics, carries out a research or practical project/work in accordance with predetermined guidelines;
- Evaluates the physical-mechanical characteristics of materials and the proper functioning of technological devices;
- Analyzes the effect of material processing on the performance characteristics of construction materials;
- Applies product quality expertise methodology when conducting composite materials expertise.
- Takes part in the evaluation and reconciliation of product examination results, risk factors in technological processes using standard and some unique methods characteristic of the field.
- Provides clear and understandable communication about ideas related to the field, existing problems and ways to solve them, with an audience of specialists and non-specialists, in forms appropriate to the context, using modern information and communication technologies.

Methods of Achieving Learning Outcomes (teaching-learning)

Lecture Seminar (group work) Practical Laboratory Practice Course work/Project Consultation Independent work

In the learning process, depending on the specifics of a particular study course program, the following activities of the teaching-learning methods are used, which are outlined in the relevant study course programs (syllabi):

Analysis; explanatory; case study; written work; laboratory; analysis; synthesis; demonstration; inductive; deductive; discussion/debates; Brain storming; verbal or oral; group (collaborative) work; Problem-based learning (PBL); activity-based learning; cooperative learning; heuristic; role and situation plays; 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 getting FX in the component of the Educational Program, GTU is obliged to schedule an additional exam at least 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 at the additional exam is the final grade and is reflected in the final grade of the Educational Program component. In case of receiving 0-50 points in the final evaluation of the educational component, or if the student fails to overcome the minimum competence limit in the final/additional exam, the student will be assigned a grade of F-0.

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 assessment component/components, including an assessment method/methods, and the assessment method/methods are measured by assessment criteria.

The right to take the final exam is granted to a student who has accumulated at least the minimum positive grade in the component(s) of the intermediate evaluations (at least 30 points in total), as well as completed and submitted on time the minimum amount of work specified by the program in the form of documentary material.

Detailed information regarding the evaluation system is provided on the website of GTU. In the "Instruction on management of the educational process at the Technical University of Georgia".

Fields of employment

Industrial production factories, chemical technology enterprises, cement, glass and ceramic factories, polymer processing enterprises, material expert laboratories.

Opportunities for continuing education

Master's degree 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: 74