



საქართველოს ტექნიკური
უნივერსიტეტი
1922 წლიდან

Bachelor's Educational Program

Title of the Program

სამოქალაქო ინჟინერია

Civil Engineering

Faculty

სამშენებლო

Civil Engineering

Program Supervisor/ Supervisors

Associate Professor Manuchar Shishinashvili

Professor Levan Jikidze

Qualification to be Awarded, and the Number of Credits in the Program

Bachelor of Science in Civil Engineering

Bachelor's qualification will be awarded with a combination of not less than 235 credits of courses relevant to field of study and at least 5 credits of free components.

Teaching Language

English

Admission Prerequisites to the Program

Only the holder of a state certificate of complete general education or a person equal to him, who is enrolled in accordance with the rules established by the legislation of Georgia, has the right to study for a bachelor's degree.

Citizens of Georgia will be enrolled based on the results of the United National Exams.

- International applicants will be enrolled in accordance with statement № 224 / N issued by the Ministry of Education, Science, Culture and Sports of Georgia on December 29, 2011.

It is obligatory to present a certificate / document proving English language proficiency at B2 level. To prove English language proficiency, the applicant must submit one of the following:

- a) Official international certificate: TOEFL, IELTS, Cambridge ESOL (English for Speakers of Other Languages), TELC (The European Language Certificates), Michigan (Cambridge Michigan);
- b) Proof of English language proficiency from high school, college or university, proving that the applicant was taught in English;
- c) Certificate issued by a local or international English language teaching provider confirming that B2 level of English has been achieved by the applicant through the relevant course.
- d) An applicant who fails to submit the above mentioned documents is required to pass a B2-level proficiency test in English at the GTU Computer Center.

Note: English language requirements can be waived if English is the native language of the applicant or if he / she has graduated from high school / university in a country where English is the official language and the applicant has studied English accordingly.

Program Description

Program content with credits:

A student must earn at least 240 credits to award an academic degree in Civil Engineering under the **Bachelor of Science in Civil Engineering's** English-language education program, which will ensure that the program's objectives and relevant learning outcomes meet the eligibility requirements of the higher education qualifier.

The program is compiled according to the European Credit Transfer System (ECTS), 1 credit equals 25 hours and includes contact and independent working hours. The distribution of credits is presented in the curriculum.

Duration of study:

The duration of the program is defined as not less than 4 years (8 semesters), The semester includes 18 weeks.

GTU has 13 weeks of study (auditory courses) and 5 sessions (midterm, final and additional exams) during one semester.

Educational program structure:

The curriculum includes compulsory components of relevant content for the main field of study - a total of 202 credits (including undergraduate internship - 5 credits and a bachelor's project with a total of 8 credits), compulsory elective components of relevant content for the main field of study - a total of 35 credits and free components 3 credits.

Instructions for choosing an optional component:

The process of selecting both free components and elective courses related to the profession should be transparent; In order to define his / her profile, the student should be provided with the necessary information, advice and assistance. To do this, the Dean of the Faculty has a person of appropriate qualifications and experience who will provide qualified assistance to students in their elective components. If necessary, the head of the relevant department is involved in the consultation process. Prior to the start of the semester, each student of the program will be sent a personal page on the GTU e-learning portal, as well as a text message to the contact phone, informing about the elective courses and the selection procedure, as well as the application form. In the event of a competition for a particular elective component, priority will be given to the person with the highest academic achievement, while the person with the low academic achievement will be enrolled in the next elective course of his or their choice.

The Georgian Technical University Curriculum Management Instruction provides information on organizing the curriculum, selecting curriculum components, evaluating student achievement, appealing against appraisal of learning outcomes, student and financial agreements and student credit accumulation, internships and appraisals, undergraduate research project / Detailed information can be found at the university website.

Program Objective

Objective 1: Graduates of the CIVE program will be successful civil engineers in their respective fields of work.

Objective 2: Graduates of the CIVE program will be hands-on practitioners of civil engineering and will be effective collaborators and innovators, leading or participating in efforts to address social, technical, and business challenges.

Objective 3: CIVE program graduates will embrace the continuous learning necessary to practice civil engineering over their entire professional lifetimes and engage in life-long learning and professional development through self-study, continuing education or graduate and professional studies in engineering.

Learning Outcomes/Competence (general and professional)

Outcome 1: An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics;

Outcome 2: An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors;

Outcome 3: An ability to communicate effectively with a range of audiences;

Outcome 4: An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental,

and societal contexts;

Outcome 5: An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives;

Outcome 6: An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions;

Outcome 7: An ability to acquire and apply new knowledge as needed, using appropriate learning strategies;

Methods of Achieving Learning Outcomes (Teaching - Learning)

1. ☒ Lecture ☒ Seminar (working in groups) ☒ Practical class ☒ Laboratory ☒ Practice
☒ Course work/project ☒ Consultation ☒ Independent work

Due to the specifics of the particular course in the learning process the following activities listed below are provided for teaching and learning methods and which are reflected in the relevant teaching courses (syllabus):

Relevant activities of teaching-learning methods:

Discussion / Debate, Cooperative Learning, Collaborative Working, Problem-Based Learning (PBL), Heuristic Teaching, Case Study, Brainstorming, Role-playing and situational games, Demonstration, Induction, Deduction, Analysis, Synthesis, Verbal or oral communication, written work, laboratory activity, explanation, action-oriented teaching, project development and presentation.

The relevant activities of the teaching-learning methods are used in the learning process, depending on the specifics of the training course, which are reflected in the curricula (syllabi).

Student Knowledge Assessment System

Grading system is based on a 100-point scale.

Positive grades:

- **(A)** - Excellent - grades between 91-100 points;
- **(B)** – Very good - grades between 81-90 points
- **(C)** - Good - grades between 71-80 points
- **(D)** - Satisfactory - grades between 61-70 points
- **(E)** - Pass - the rating of 51-60 points

Negative grades:

- **(FX)** - Did not pass - grades between 41-50 points, which means that the student is required to work more to pass and is given the right, after independent work, to take one extra exam;
- **(F)** – Failed - 40 points and less, which means that the work carried out by the student did not bring any results and he/she has to learn the subject from the beginning.

In the component of the educational program, in case of receiving FX, an additional exam is appointed, not less than 5 days after the announcement of the results.

The number of points obtained in the final assessment is not added to the grade obtained by the student on the additional exam.

The grade obtained on the additional examination is the final grade and is reflected in the final grade of the educational program component.

In case of getting 0-50 points in the final grade of the educational component, or if the student does not exceed the minimum competency threshold in the final/additional exam, the student will be given a grade of F-0.

In each component, the program part of the assessment of the level of achievement of student learning outcomes consists of midterm assessment and final exam. Midterm assessments in turn include ongoing activity and midterm exams.

Each form and component of the assessment determines its share of the final assessment from the total assessment score (100 points). In particular, the maximum score of the midterm assessment is not more than 60, and the maximum score of the final exam is not less than 40.

Each form of assessment includes an assessment component/component that includes the assessment method/methods, and the assessment method/ methods is measured by the assessment criteria.

A student who has obtained at least a minimum positive grade in the intermediate assessment component (s) in accordance with the course curriculum (not less than 30 points in total), has completed and presented the minimum number of works specified in the program in the form of documentary material.

Sphere of Employment

Graduates will be able to get employment in civil construction, hydraulic structures, construction-design-construction firms, construction profile services of city halls, municipalities and ministries, construction and development firms, In construction expert bureaus, examination and testing laboratories. In construction materials and goods manufacturing enterprises, in open cast mine for building materials extraction, water supply and sewerage systems treatment plant profile design organizations, municipal service utilities, construction of railways, roads, water supply systems, hydropower systems and other. (The graduate will be employed in the positions provided by the qualifications awarded by the program).

Potential for Further Education

Master's Educational Programs

Human and Material Resources Required to Implement the Program

The program is provided with appropriate human and material resources. For more information see attached Documents.

The Number of Syllabi Attached: 58

Courses in the Program

№	Course	Admission Prerequisites	ECTS Credits							
			Year I		Year II		Year III		Year IV	
			Semester							
			I	II	III	IV	V	VI	VII	VIII
1	Calculus C1	N/A	8							
2	General and Inorganic Chemistry A	N/A	8							
3	The Basics of Biology	N/A	6							
4	Oral communication	N/A	5							
5	Elective Humanitarian Components									
5.1	History and Culture of Georgia	N/A	3							
5.2	Introduction to Philosophy	N/A								
5.3	Sociology	N/A								
6	Calculus C2	Calculus C1		7						
7	General Physics 1A	Calculus C1		7						
8	Surveying for Civil Engineering	N/A		6						
9	Interpersonal Communication	N/A		5						
10	Computer Engineering Graphics in Civil Engineering	N/A		5						
11	Introduction to Civil Engineering	N/A			3					
12	Calculus C3	Calculus C2			8					
13	General Physics 2B	General Physics 1A			7					
14	Theoretical Mechanics (Statics)	Calculus C1			5					
15	Statistical methods in Engineering	Calculus C1			4					
16	Technical communication	N/A			5					
17	Business and Professional Communication	Technical communication				5				
18	Ordinary Differential Equations	Calculus C3				5				

№	Course	Admission Prerequisites	ECTS Credits							
			Year I		Year II		Year III		Year IV	
			Semester							
			I	II	III	IV	V	VI	VII	VIII
19	Theoretical Mechanics (Dynamics)	Theoretical Mechanics (Statics)				5				
20	Building Materials	General and Inorganic Chemistry A				5				
21	Strength of materials	Theoretical Mechanics (Statics)				5				
22	The Principles of Economics	N/A				3				
23	Construction Methods	Building Materials					5			
24	Geotechnical Engineering	Surveying for Civil Engineering					5			
25	Fluid Mechanics	Theoretical Mechanics (Statics)					5			
26	Geographic Information Systems	Calculus C1					6			
27	Construction machinery	Introduction to Civil Engineering					3			
28	Basics of Structural Mechanics	Strength of materials					6			
29	Environmental Engineering	General and Inorganic Chemistry A						6		
30	Construction of Transport Infrastructure	Introduction to Civil Engineering						6		
31	Hydrology and Hydrometric	Fluid Mechanics						6		
32	Applied Hydraulics	Fluid Mechanics						6		
33	Design of Buildings with Reinforced Concrete Structures	Basics of Structural Mechanics						6		
Elective courses in the field of basic education 1										
34.1	Open Channel Hydraulics	Fluid mechanics							6	
34.2	Foundation base Engineering and building structure deformation	Geotechnical Engineering								
34.3	Traffic Engineering Design	Construction of Transport Infrastructure								
Elective courses in the field of basic education 2										
35.1	Water Supply and Distribution Systems	Applied Hydraulics							6	
35.2	construction of hydraulic structures	Hydrology and Hydrometric								
35.3	Highway’s Engineering	Construction of Transport Infrastructure								
Free components										
36.1	Democracy and Citizenship	N/A								

№	Course	Admission Prerequisites	ECTS Credits							
			Year I		Year II		Year III		Year IV	
			Semester							
			I	II	III	IV	V	VI	VII	VIII
36.2	Construction contracts and state procurement	N/A							5	
36.3	Principles of marketing	N/A								
37	Principles of Construction Estimating	Construction Methods							4	
38	Principles of construction economics	The Principles of Economics							4	
39	Bachelor's Practice	Fluid Mechanics; Design of Buildings with Reinforced Concrete Structures; Construction Methods							5	
Elective courses in the field of basic education 3										
40.1	Water Treatment Engineering	Applied Hydraulics								
40.2	Steel Constructions	Basics of Structural Mechanics								6
40.3	Design of Temporary Structures	Building Materials								
Elective courses in the field of basic education 4										
41.1	Wastewater Treatment Engineering	Applied Hydraulics								
41.2	Irrigation and Drainage	Applied Hydraulics								6
41.3	Railway Engineering	Construction of Transport Infrastructure								
Elective courses in the field of basic education 5										
42.1	Construction Project Management	Construction Methods								
42.2	Solid and Hazardous Waste Engineering	Environmental Engineering								6
42.3	Bridge Engineering	Construction of Transport Infrastructure								
43	Safety Equipment on Construction Sites	Construction Methods								4
44	Bachelor's project	Bachelor's Practice								8
Per Semester			30	30	32	28	30	30	30	30
Per Year			60		60		60		60	
Total			240							