Ilia State University
Faculty of Business, Technology and Education
Bachelor Program: Civil Engineering (Major)
Curriculum

Faculty	Faculty of Business, Technology and Education
Program Title	Civil Engineering (Major)
Awarded Academic Degree/Qualification	The Degree of Bachelor of Civil Engineering
Program Duration/ECTS Credits	8 Semesters, 252 ECTS (1 ECTS- 25 hours): ● General Education - 44 ECTS; ● Maths, Physics and Chemistry - 66 ECTS; ● Major program -142 ECTS.
Language of Instruction	English
The Date of Program development and Update	Program is developed in 2019 and can be subject to periodic revision.

Admission Requirements to the Program

The Georgian citizens must pass the Unified National Exams. Admission for the program requires minimal competence levels in following Unified National Exams:

- English Language - 70% + 1;
- Georgian Language determined by National Assessment and Examinations Center;
- Mathematics/Physics – 40% + 1

International applicants should follow the rules and terms defined by the Ministry of Education, Science, Culture and Sports of Georgia (http://www.mes.gov.ge/content.php?id=1131&lang=geo) according to the order №224/N (December 29, 2011). The Applicant should prove English language qualification equivalent to CEFR level B2 or higher. To prove the English qualification, the applicant must submit one of the following:

a) an official international language certificate (the main certificates and minimum scores accepted are given below*);

b) an English Proficiency Statement from the university, high school or college, confirming that English was the language of instruction;

c) a certificate issued by a local or international English language instruction provider (e.g. language school), confirming the acquisition of B2 level as a result of a language course the applicant attended.

d) Or apply and take University's institutional paper based or online language test aligned with CEFR level B2. Note: The English language requirement may be waived if the applicant is a native of or graduated from an English medium high school / university in countries, official language of which is English.

*** The following are the minimum English test scores for admission: TOEFL**

- paper based PBT 513
- internet based iBT 65
- computer based CBT 183

IELTS

- Academic (Band 5.5)

Cambridge ESOL (English for Speakers of Other Languages)

- Certificate of Advanced English CAE: 160/Level B2 (also grades A/B/C)
- First Certificate in English FCE: 160/Grade C (also grades A/B)

- Business English Certificate (Higher) BEC: 45/Level B2 (also grades A/B/C)
- Business English Certificate (Vantage) BEC: 60/Grade C (also grades A/B)
- Business Language Testing Service BULATS: 60 overall
- PTE (General level 3)
- PTE Academic (59-75 points)

TELC (The European Language Certificates)

- TELC English B2: Pass

Michigan (Cambridge Michigan)

- Examination for the Certificate of Proficiency in English ECPE: Low Pass
- Examination for the Certificate of Competency in English ECCE: Pass
- MELAB: B2

International Students shall undergo paper and online based Entry Tests in Maths; this test will be administered by the University to a similar level as required by Georgian students above i.e.:

- Ilia University Entry Level Maths Test 50% + 1;

Program Objectives

Mission of the Program:

The mission of the Civil Engineering at Ilia State University is to prepare our students for careers in their chosen area of specialisation. As such, the program aims to provide quality instruction, advisory services and student support to ensure students achieve their goals and gain the knowledge and experience required to succeed in the demanding field of civil engineering.

The Program Educational Objectives of the Civil Engineering program are closely aligned with Ilia University's mission of advancing science to the benefit of society locally and internationally. This is especially true in a people serving profession such as civil engineering which is entirely focused on bettering the standard of living of society at large. With an internationalised focus and teaching in English language with the aim to involve both local and international students in the program, we hope for a high level of internationalisation and future cooperation between the graduates across borders.

This program focuses on the delivery of interdisciplinary courses to create well rounded holistic thinkers, problem solvers and future leaders in the civil engineering fields of water, transport, structural and geotechnical engineering. To complement the interdisciplinary learning promoted by this program, students will have the ability to take business administration courses to acquire managerial skills that are instrumental to a successful professional career.

Within the programme, fundamental courses in maths, physics, chemistry and additional natural science electives build to later courses in engineering design. The program is structured to ensure adequate incremental practical and theoretical knowledge in the field of Civil Engineering. Programme graduates will be competitive professionals in Georgia or abroad in areas of project and engineering design and management. They will also be able to continue their education at the master level of studies.

In addition, the programme is oriented towards the development of transferable skills such as effective oral and written communication in at least one other non-native speaking language so as to develop multicultural awareness. We expect that our graduates will use these skills in whichever sector they consider advancing their careers, whether it be in the private, government or educational sector.

Program Educational Objectives:

Graduates of the Ilia University Civil Engineering Program will meet the following Program Educational Objectives:

Objective 1: Graduates will collaborate in a team environment as a civil engineer;

Objective 2: Graduates will be ready for leadership roles within the civil engineering profession;

Objective 3: Graduates will pursue life-long learning in engineering which may include a graduate degree.

Learning Outcomes and Competencies

The following Learning Outcomes will be assessed for each student:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics;
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;
3. An ability to communicate effectively with a range of audiences;
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;
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;
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions;
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Teaching Methods

- Lectures and Seminars/Written and verbal method;
- Laboratory Work;
- Practical Work;
- Project Work Individually and in Teams.

Note: Specific teaching methods are identified for each individual program component and are listed in relevant syllabi.

Program Structure

Structure of Civil Engineering Bachelor Program:

- **Maths, Physics and Chemistry** - 66 ECTS (Including 6 ECTS elective from Natural Science)
- **General Education** - 44 ECTS (including 6 ECTS of elective from business administration; 8 ECTS Management and Finance for future engineers Module)
- **Major program** - 142 ECTS (including 30 ECTS of electives)

Maths, Physics and Chemistry Foundation Courses:

66 ECTS of Foundation Maths, Physics and Chemistry with associated laboratories ensures a good base for continued advanced learning for our civil engineering students.

General Education:

General Education includes courses (**44 ECTS**) in line with the philosophical direction of Ilia State University including business administration and management and finance module, Practical Course of Georgian for Foreigners / Practical Course of German/English - **12 ECTS** *

** International students must pass both Practical Courses of Georgian; local students must pass Practical Courses of German or English language.*

Major Program:

- Mandatory courses of Civil Engineering Bachelor program – **112 ECTS (including 6 design ECTS)**
- Mandatory/elective courses Civil Engineering Bachelor Program – **30 ECTS**

Mandatory/elective course choices: Students choose four courses from the following six areas (no more than 1 in each area – this ensures a broad knowledge base that can be further specified in graduate studies).

Water Resourse Engineering
Transportation Engineering
Structural Engineering
Geotechnical Engineering
Environmental Engineering
Construction Engineering

Capstone Design Project:

During the last semester of study, students must participate in a Senior Capstone Design Project (6 ECTS). The main purpose of the design experience is to prepare students for the real-world challenges in the field of Civil Engineering by exposing them to industry and allowing them to use their developed problem-solving skills to find engineering design solutions to industry problems. The students will also develop their managerial skills through planning, design and meeting deadlines together with industry participation. Finally, students will improve their communication, presentation and teamwork skills during these practical components of the programme.

Senior-design teams will generally consist of 3 to 6 students under the direction of a faculty mentor/supervisor and with an agreed industry sponsor that will be involved in the forerunning semester for collaboration with the students in the Project Concept Development phase and in the final semester as Project Reviewer. Even though students will be working in groups, each student will need to submit an individual activity report showing which tasks they have were assigned by the group and agreed by the Faculty advisor and how they have managed to complete their individual tasks. All group members will also evaluate each other anonymously as to each group members active involvement, availability and ability to meet team set deadlines.

Student Assessment

Student assessment should be based on a 100-point grading scale:

(A) 91-100 Excellent
(B) 81-90 Very Good
(C) 71-80 Good
(D) 61-70 Satisfactory
(E) 51-60 Sufficient
(FX) 41-50 Unsatisfactory - meaning a student needs more effort to pass an examination and is given an extra chance to pass an additional examination through independent work.
(F) Failure - 40 and less of the maximum of grades, meaning the student's effort is not enough and he has to learn the subject anew.

Note: *Assessment components and criteria are detailed in the syllabus of each course.*

Employment Opportunities

Graduated students can be employed in a variety of organizations related to planning, design, construction, management, maintenance, repair and renewal of infrastructure components such as building, transportation, energy and water systems. The employment scope can include:

- Construction management and engineering design of houses and industrial buildings;
- Transportation construction and asset management of roads and railways with associated tunnels and bridges, Traffic analysis and transportation planning;
- Water supply, sewerage, wastewater treatment and reservoirs design and construction;
- Inspection and assessment of existing buildings and strengthening of them;
- Public Enterprises such as Municipalities, and government owned infrastructure companies;
- Diagnostics and repair of a wide range of engineering equipment (household, medical, military, etc.);
- Renewable energy systems design and construction management.

Necessary Auxiliary Conditions /Resources For Learning

The faculty has the **material resources** that are used in teaching and technical preparation:

- Auditoriums for lecture;
- Civil Engineering teaching laboratories;
- Computer classes;
- University Library;
- Electronic platform of the University – Argus;
- Teaching and Learning Staff Development Center.

Partner organizations, supporting development and implementation of the program:

- San Diego State University Georgia;
- PROGRESI Ltd. (Engineering Center of Computer Aided Design);
- Caucasus Road Project Ltd. (Road Construction Company);
- Saunders Group Ltd Infrastructure Consultants;
- Cubicon LTD Structural Engineering Design;
- ILF Consulting Engineers;
- EPTISA Consulting Engineers;