

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

Faculty	Faculty of Business, Technology and Education
Program Title	Computer Engineering (Major)
Awarded Academic Degree/Qualification	Bachelor of Computer Engineering
Program Duration/ECTS Credits	8 Semesters, 244 ECTS (1 ECTS: 25 hours) <ul style="list-style-type: none"> ● Free Component: General Module – 88 ECTS; ● Major - 156 ECTS (including 36 ECTS electives).
Language of Instruction	Georgian
Head of the Program	Paata Gogishvili, Associate Professor
The Date of Program development and Update	The program was launched in 2017 and recently updated in 2022. Subject to periodic review changes to the curriculum might be introduced prior to the beginning of each academic year.
Admission Requirements to the Program	
<p>Georgian citizens must pass the Unified National Exams. Admission for the program requires minimal competence levels in the following Unified National Exams:</p> <ul style="list-style-type: none"> ● English Language - 30% + 1; ● Georgian Language determined by National Assessment and Examinations Centre - 25%+1; ● Mathematics - 30% + 1 or Physics - 30%+1. 	
Program Objectives	
<p>The aim of the bachelor program is to prepare highly qualified computer engineers who will be equipped with extensive knowledge in design, developing and operation of computer hardware, as well as in the development of computer software. To this end, it intends to well-pad its students with broad knowledge of computer hardware, electronic devices, their technical characteristics and related physical processes, as well as computational and engineering skills for using various ways and methods for their improvement. At the same time, the program aims to develop the professional skills of the students that will allow them to have successful careers in computer engineering.</p>	
Program Educational Objectives:	
<p><i>The objectives of the Computer Engineering program are to produce graduates who within 3-5 years after graduation, will be able to:</i></p> <ul style="list-style-type: none"> Objective 1: Graduates will have practical skills in modern engineering and contribute to the development of society. Objective 2: Graduates will have the professional skills necessary for employment, who will be able to make engineering and technological decisions with high technical and ethical standards; Objective 3: Graduates will have the appropriate knowledge and skills necessary to continue learning and acquire new knowledge in a changing professional field. 	
Program Learning Outcomes	

The program learning outcomes aim at equipping students with:

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.

Relationship between the program educational objectives and the student learning outcomes is given in the following table:

Program Educational Objectives	Program Learning Outcomes						
	1	2	3	4	5	6	7
PEO 1: Graduates will have practical skills in modern engineering and contribute to the development of society.	X	X	X	X	X	X	
PEO 2: Graduates will have the professional skills necessary for employment, who will be able to make engineering and technological decisions with high technical and ethical standards;		X		X	X	X	X
PEO 3: Graduates will have the appropriate knowledge and skills necessary to continue learning and acquire new knowledge in a changing professional field.	X		X	X	X		X

Teaching Methods

- Interactive lectures and seminars;
- Written and Oral methods;
- Practical work;
- Laboratory work;
- Active learning methods;
- Discussion and Debates;
- Analysis and synthesis;
- Problem-based learning;
- Individual and group work;
- Flipped Classroom;
- Brainstorming and reflection;
- Projects.

Note: Specific teaching methods are identified and listed in each course syllabus.

Program Structure

All students admitted to the bachelor program are required to accumulate **244 ECTS** to be awarded their Bachelor's Degree in Computer Engineering.

8 Semesters, 244 ECTS (1 ECTS: 25 hours)

- Free Component: General Module – 88 ECTS;
- Major - 156 ECTS (including 36 ECTS electives).

Senior Design Project

The bachelor program in Computer Engineering culminates with a Senior Design Project (12 ECTS). The main purpose of the design experience is to prepare students for the real-world challenges in the field of Computer Engineering by allowing them to use their 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 program.

Senior-design teams will under the supervision 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 been assigned by the group and approved by the Faculty advisor and how they have managed to complete their individual tasks. All group members will also assess each other anonymously against such criteria as active involvement/contribution, 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

Program graduates will be qualified to pursue their professional careers in:

- High-Tech Companies;
- Automotive Industry;
- Manufacturing plants;
- Computer and Electronics Service;
- Smart systems;
- IOT;
- Telecommunications;
- Medical and BioLabs;
- Tech Startups;
- Hardware R&D.

Also, the graduates of the program can continue their academic studies at a master level.

Necessary Auxiliary Conditions /Resources For Learning

Teaching and learning resources:

- Classes;
- Computer labs;
- Computing Centre;
- Electrical and Electronic Engineering teaching laboratories;
- Ilia State University Library;
- Electronic platform of the University - Argus;

- E-Learning, Turnitin;
- Data Center;
- Teaching Staff Development Center (TSDC).
- Scientific Databases.

Partner organizations, supporting the development and implementation of the program:

- San Diego State University;
- Edison LTD;
- Innotec LTD;
- Kartli Generation LTD.
- Idea Design Group LTD;
- Ozorix LTD.