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, 240 ECTS (1 ECTS: 25 hours) ● Free-elective Component: General Module – 78 ECTS; ● Major - 162 ECTS (including 42 ECTS electives).
Language of Instruction	English
Head of the Program	Erekle Magradze, Professor
The Date of Program development and Update	The program was launched in 2018 and recently updated in 2021. Subject to periodic review changes to the curriculum might be introduced prior to the beginning of each academic year.

Admission Requirements to the Program

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

- English Language - 70% + 1;
- Georgian Language determined by National Assessment and Examinations Center - 25%+1;
- Mathematics - 40% + 1 or Physics - 40%+1.

International applicants should follow the rules and terms defined by the Ministry of Education, Science, Culture and Sports of Georgia 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, the 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 a paper or online-based entry test in Mathematics or Physics - Entry-Level Test 40% + 1 . The test will be administered by the University to a similar level as required by Georgian students.

Program Objectives

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.

Program Educational Objectives:

The objectives of the Computer Engineering program are to produce graduates who within 3-5 years after graduation, will be able to:

PEO1: Have a successful career, including leadership opportunities, in the computer engineering profession.

PEO2: Solve advanced technological problems and become technical leaders in their field of specialization.

PEO3: Continue learning through graduate courses, seminars, and research to stay current with the profession as it evolves and expands.

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: Have a successful career, including leadership opportunities, in the computer engineering profession.		X	X	X	X	X	X
PEO 2: Solve advanced technological problems and become technical leaders in their field of specialization.	X	X		X		X	
PEO 3: Continue learning through graduate courses, seminars, and research to stay current with the profession as it evolves and expands.					X		X

Teaching Methods

- Interactive lectures and seminars;
- Active learning methods;
- Analysis and synthesis;
- Problem-based learning;
- Individual and group work;
- Laboratory work;
- Practical 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 **240 ECTS** to be awarded their Bachelor's Degree in Computer Engineering.

8 Semesters, 240 ECTS (1 ECTS: 25 hours)
- Free-elective Component: General Module – 78 ECTS;
- Major - 162 ECTS (including 42 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 generally consist of 3 to 6 students 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.