



## The University Of Georgia

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|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Program name:                            | Electronic and Communication Engineering                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Study Level:                             | Undergraduate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Program leader:                          | Kakhaber Tavzarashvili<br>Irakli Noselidze<br>Nodar Ugrelidze                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Study language:                          | English                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Qualification:                           | Bachelor of Electrical Engineering                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Program capacity:                        | 180                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Program permission:                      | English language B1 level (70%) and other legislative requirements, namely citizens of Georgia should successfully pass Unified National Entrance Examinations. Foreign high-school graduates who received complete general education abroad or its equivalent and the last two years of complete general education had studied abroad or students who lived abroad for the last two or more years and who are currently studying abroad in higher educational institutions recognized by the legislation of the host countries will be able to enter the program without passing Uniform National Entrance Examinations according to Order №224/N of the Minister of Education and Science of Georgia (December 29, 2011).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Program goals:                           | <p>The aim of the program is to facilitate the development of electronic and communications engineering by prepare competent, highly qualified specialists who will have competitive higher education and skills in line with modern standards.</p> <p>The undergraduate program is designed to provide the student with a thorough engineering skills in electronics, computer engineering, and communication. To give knowledge of modern standards in information technologies, design and implementation of systems and processes, compilation of simple software code, analysis of various engineering and mathematical tasks and innovative technological thinking, to develop teamwork skills with real experience in project implementation.</p> <p>Graduates of the program will be able to be employed in Electronic, Computer, Telecommunications and Energy companies, Government organizations, Banks and other private companies where the competencies of an electronic engineering specialist are required. International certification courses integrated into the program provided by the school as additional offers, such as Cisco, Microsoft, Oracle Academic, iOS training courses, will give students the opportunity to receive international certificates.</p> |
| Methods for Attaining Learning Outcomes: | <ul style="list-style-type: none"><li>• Lecture - Seminar</li><li>• Working with the book</li><li>• Demonstration</li><li>• Discussions</li><li>• Practical lessons</li><li>• Laboratory exercises</li><li>• Interactive lessons</li><li>• Team work</li><li>• Problem solving and their solution</li><li>• Verbal and oral method</li><li>• Critical analysis</li><li>• Problem-solving tasks</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Learning outcomes:                       | <p><b>Outcomes</b></p> <p>Upon completion of the program, the graduate:</p> <ul style="list-style-type: none"><li>• Identifies, formulates, and solves complex engineering problems using the fundamentals of physics, mathematics, and engineering;</li><li>• Uses engineering design to develop concrete solutions that address public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors;</li><li>• Communicates effectively with an audience;</li><li>• Recognizes ethical and professional responsibility in engineering activities, makes informed judgments that consider the impact of engineering decisions on the global, economic, environmental, and social context;</li><li>• Works effectively in a team whose members collectively provide leadership, create a collaborative and inclusive environment, set goals, plan, and accomplish tasks;</li><li>• Designs and conducts experiments as needed, analyzes and processes data, and uses engineering judgment to draw conclusions;</li><li>• Acquires and applies new knowledge as needed using appropriate learning strategies.</li></ul>                                                                                                                         |
| Date of approval:                        | 01-01-1900                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Approval protocol number:                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Date of program update:                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Update protocol number:                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

**Program details:**

The student can be guided by the proposed curriculum and individually draw up his/her personal curriculum, taking into account the requirements of the subjects. To complete a bachelor's project in the last year of study, the student chooses a topic of thesis from the proposed areas. The bachelor's project is carried out in groups, which contributes to the development of filed knowledge and teamwork skills. The program provides for an optional course internship, which will help the student, if necessary, to better formulate himself when choosing a topic for a bachelor's project.

**Teaching Process Characteristics:**

In order to obtain a bachelor's degree, a student must complete 180 credits, which includes the following distribution of credits:

- Compulsory University 18 ECTS;
- Program Core 138 ECTS;
- Program Elective 24 ECTS.

**University Core**

| Code                    | Subject                                     | ECTS | Semester |
|-------------------------|---------------------------------------------|------|----------|
| KART1220E               | Academic Writing                            | 6    | 1        |
| LING0015                | Georgian as a Foreign Language I (General)  | 6    | 1        |
| LING0017                | Georgian as a Foreign Language II (General) | 6    | 2        |
| HIST1118E               | Civilizations and Developments of Humankind | 6    | 3        |
| BUSN1210E               | Basics of Business and Economics            | 6    | 4        |
| Total ECTS to be taken: |                                             | 18   |          |

**Program Core**

| Code      | Subject                                         | ECTS | Semester |
|-----------|-------------------------------------------------|------|----------|
| EENG1111E | Programming for Engineers - Python              | 6    | 1        |
| EENG1120E | Fundamentals of Electronics                     | 6    | 1        |
| MATH1115E | Calculus I                                      | 6    | 1        |
| MATH1123E | Linear Algebra and Analytical Geometry          | 6    | 1        |
| EENG1112E | Programming for Engineers - Python OOP          | 6    | 2        |
| EENG2424E | Circuit Theory                                  | 6    | 2        |
| MATH1166E | Calculus II                                     | 6    | 2        |
| PHYS2003E | Physics I                                       | 6    | 2        |
| EENG2212E | Analog Electronics                              | 6    | 3        |
| INFO3301E | Data Structures and Algorithms                  | 6    | 3        |
| MATH3112E | Discrete Mathematics                            | 6    | 3        |
| PHYS2004E | Physics II                                      | 6    | 3        |
| EENG2005E | Engineering Mathematics                         | 6    | 4        |
| EENG2008E | Modeling program tools                          | 6    | 4        |
| EENG3113E | Digital Electronics                             | 6    | 4        |
| EENG1002E | Neuronal systems                                | 6    | 5        |
| EENG2012E | Digital Communication                           | 6    | 5        |
| EENG2015E | Microcontrollers Programming                    | 6    | 5        |
| EENG2113E | Communication networks                          | 6    | 5        |
| MATH2004E | Probability and Statistics                      | 6    | 5        |
| EENG2112E | Signals, Systems, and Digital Signal Processing | 6    | 6        |
| EENG4010E | Bachelor project                                | 12   | 6        |

Total ECTS to be taken: 138

Program Elective

| Code      | Subject                                   | ECTS |  |
|-----------|-------------------------------------------|------|--|
| EENG1003E | Physics for Quantum Computing             | 6    |  |
| EENG1213E | Semiconductor devices                     | 6    |  |
| EENG1215E | Signal Processing                         | 6    |  |
| EENG1216E | Amplifier                                 | 6    |  |
| EENG1217E | Measuring Devices                         | 6    |  |
| EENG2115E | Communication technologies                | 6    |  |
| EENG2116E | Radiofrequency Circuits and Systems       | 6    |  |
| EENG2117E | Radiolocation and Radionavigation         | 6    |  |
| EENG2118E | Radio-Tele Broadcasting Technologies      | 6    |  |
| EENG3115E | Engineering Electromagnetics              | 6    |  |
| EENG4012E | Practice                                  | 6    |  |
| EENG4129E | Antenna theory and design                 | 6    |  |
| EENG4235E | Computer Security                         | 6    |  |
| INFO1107E | IT Services and Projects Management       | 6    |  |
| INFO1111E | Introduction in Programming (C++)         | 6    |  |
| INFO1112E | Office Systems                            | 6    |  |
| INFO3131E | Object Oriented Programming C++           | 6    |  |
| INFO3210E | Computer Networks II                      | 6    |  |
| INFO3302E | Operation System (Windows)                | 6    |  |
| INFO3303E | Computer Architecture                     | 6    |  |
| INFO3305E | Introduction to Machine Learning Modeling | 6    |  |
| INFO4114E | Artificial Intelligence                   | 6    |  |
| MATH4118E | Fundamentals of Cryptology                | 6    |  |
| STEM4000E | Technical Writing                         | 6    |  |

Total ECTS to be taken: 24

[Matrix Of Prerequisites](#)

| Point  | GPA  | The university assessment | The general assessment in Georgia |              |
|--------|------|---------------------------|-----------------------------------|--------------|
| 97-100 | 4,00 | A+                        | A                                 | Excellent    |
| 94-96  | 3,75 | A                         |                                   |              |
| 91-93  | 3,50 | A-                        |                                   |              |
| 87-90  | 3,25 | B+                        | B                                 | Very good    |
| 84-86  | 3,00 | B                         |                                   |              |
| 81-83  | 2,75 | B-                        |                                   |              |
| 77-80  | 2,50 | C+                        | C                                 | good         |
| 74-76  | 2,25 | C                         |                                   |              |
| 71-73  | 2,00 | C-                        |                                   |              |
| 67-70  | 1,75 | D+                        | D                                 | Satisfactory |
| 64-66  | 1,50 | D                         |                                   |              |
| 61-63  | 1,25 | D-                        |                                   |              |

|            |      |    |    |              |
|------------|------|----|----|--------------|
| 51-60      | 1,00 | E  | E  | Sufficient   |
| Not passed |      |    |    |              |
| 41-50      |      | FX | FX | Insufficient |
| <40        |      | F  | F  | Failed       |

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