ახალი უმაღლესი სასწავლებელი ნიუუნი

NEW HIGHER EDUCATION INSTITUTE NEWUNI

Bachelor's Program - Computer Science

Catalogue

Name of the program: Computer Science

Higher education level: I, Bachelor

Qualification level: 6

Name of qualification: *Bachelor of Computer Science*

Detailed field name and code: 0613

Language of instruction: Georgian

Program ECTS: 240 ECTS (8 semesters. A semester is composed of 19 weeks. One academic year is divided into two semesters and includes an average of 60 ECTS; however, due to the unique characteristics of the educational program and/or the student's individual study program, the number of credits per year may be less than 60 or more, but not more than 75 (one credit = 25 astronomical hours).

Head of the program: Prof. Salome Oniani, PhD Degree in Engineering of Informatics;

Admission Requirements for the Program: A student will be admitted to this program according to the procedures established by Georgian legislation. Eligibility to study in the Bachelor's Program in Computer Science is granted to individuals who possess a certificate of complete general education or an equivalent document, based on the results of the Unified National Examinations (ranking document), except for cases defined by the Law of Georgia on Higher Education.

The mandatory subjects for enrollment in the program are: Georgian Language and Literature, English Language (minimum competence level - 30%+1) , and Mathematics/Physics..

Persons with the right to study without passing the Unified National Exams (foreign citizens, stateless persons or citizens of Georgia) will be granted the status of a student of the institution in accordance with the rules established by the legislation of Georgia (Law on Higher Education - Article 52, paragraph 3; Order of the Minister of Education and Science of Georgia No. 224/n);

New higher education institution - in accordance with the conditions specified in the "Regulatory Rules for the Educational Process" of the University: "A foreign citizen wishing to enroll in a Georgian-language program at the institution is obliged to undergo an interview at the institution and/or present a certificate confirming the level of Georgian language proficiency (at least B2) issued by an authorized body of the state; the institution provides access to the video recording of the interview.

Program Structure

The Bachelor of Computer Science educational program has a consistent structure provided for by Georgian legislation (courses/subjects/modules of the main field of study (with a volume of at least 120 credits) and a free component), which ensures the transfer of knowledge according to the principle: from general to specific, from simple to complex. The 240 credits of the Bachelor of Computer Science educational program include the following components:

- Compulsory courses of the main field of study and Bachelor's project - 190 credits;
- Compulsory elective courses/subjects/modules of the major field of study - **20 credits;**
- Apprenticeship component - **10 credits;**
- Free component mandatory and elective courses/subjects/modules - **30 credits** (among them 15 credits mandatory, 15 credits elective).

Accordingly:

- Compulsory Component - **205 credits:** (compulsory courses/subjects of the major field including Bachelor's project (10 credits); compulsory courses/subjects of the free component **15 credits.**
- Elective part 35 credits (compulsory electives of the major field of study (20 credits) and electives of the free component (15 credits), courses/subjects and/or courses/subjects from other bachelor program(s).

By concentrating compulsory elective courses/subjects of the major field of study aimed at the development of sectoral competencies, elective courses of the free component aimed at transferable competencies and/or courses from other undergraduate educational program(s), the student can form the desired individual profile.

- ✓ The compulsory courses of the main field of study (180 credits) are focused on providing broad knowledge of the theories and concepts in the field of computer science, on promoting understanding of complex issues in the field, on developing the skills necessary for identifying and solving problems within the field in the process of implementing practical activities, on stimulating the ability to constantly update the acquired knowledge, and on forming the responsibilities necessary for professional activity;
- ✓ The bachelor's project (compulsory component, 10 credits) is focused on the practical realization of the theoretical knowledge acquired during the study process, on using the acquired skills in solving challenges in the field. This component allows the student to gain experience in applying the knowledge and skills acquired in an academic environment in a real project;
- ✓ Compulsory elective courses in the main field of study (20 credits) to deepen the broad knowledge acquired within the framework of the compulsory courses in the main field of

study in a specific direction corresponding to the student's interests;

- ✓ Compulsory courses in the free component (15 credits) are focused on the development of written and verbal communication skills, on ensuring the teaching of a foreign language as a language of communication and, through this, on promoting communication in a foreign language along with the native language; on the use of foreign language sources in the learning and teaching process and on strengthening the element of internationalization.
- ✓ Free component elective courses (15 credits) are focused on the student, in accordance with his/her interests, acquiring additional knowledge from the free component elective courses specified in this program (including an additional foreign language), as well as from the list of mandatory elective courses in the main field of study and/or through separate courses of other bachelor's programs without any formal unifying scheme, subject to compliance with the prerequisites.

The choice of compulsory elective of the major field of study and elective courses/subjects of the free component is made according to the curriculum of the bachelor's program, where the prerequisites of the courses/subjects and components and their logical sequence are provided.

Within the elective courses of the free component, the student can choose courses/subjects from other educational program(s) or from the list of compulsory elective courses of the core field of study, taking into account/observing the prerequisites of the relevant course.

The logical sequence of the formation of achievable competencies determines the content and structure of the bachelor's program and is reflected in the curriculum (Appendix 1).

The qualification "*Bachelor of Computer Science*" is awarded upon successful completion of a current bachelor's degree program with a minimum accumulation of 240 credits and fulfilment of program-specific requirements.

Note: *If the student is unable to complete the program and obtain at least 240 credits in four academic years, i.e. eight semesters, he/she is given the opportunity to complete the program in four additional semesters and obtain a bachelor's academic degree.*

Program objectives

The goal of the Bachelor's Program in *Computer Science* is to prepare graduates who:

- Are qualified, competitive, and responsible specialists with an academic degree that meets the demands of the labor market;
- Are capable, based on their theoretical and practical knowledge of computer science, of conducting analysis and design, developing and maintaining software products, independently and/or as part of a team;
- They can solve professional tasks by following professional and ethical norms;
- Can identify their own learning needs and continue acquiring new knowledge independently and/or pursue further studies at the next academic level.

Learning Outcomes

As a result of completing the program, the graduate achieves learning outcomes that align with the descriptor of qualifications for the first level of higher education (bachelor) within the higher education qualifications framework. This achievement is ensured through the consistent and comprehensive implementation of the program's goals.

Upon completion of the Bachelor's Degree Program in Computer Science, graduates:

- Explains the fundamental topics of Computer Science;
- Identifies the software and technical tools necessary for implementing projects in Computer Science and related fields;
- Analyzes the algorithms associated with the implementation and deployment of Computer Science tasks and projects and matches them with appropriate software tools;
- Implements the development, advancement, and deployment processes of various Computer Science tasks and projects, considering the interests of clients and users;
- Applies the foundations of Computer Science and software tools for problem analysis and decision-making;
- Participates in the development, implementation, and evaluation of computer technology-based solutions, both individually and as a team member;
- Communicates with stakeholders in a professional context;
- Makes well-reasoned decisions based on professional, ethical, legal, security, and responsibility principles during professional activities;
- Identifies individual learning needs and plans personal development in the broader context of professional and technological changes.

Teaching/Learning methods:

A diverse range of teaching-learning methods is employed to deliver student- and labor market-oriented education, facilitating effective knowledge transfer from educators to students. These methods include the verbal approach, demonstration, presentations, group activities, practical exercises, project-based and problem-based learning, case studies, simulation exercises, discussions, e-learning, and others. Correspondingly, various teaching-learning activities are utilized to promote learning and achieve desired learning outcomes, such as independent study of books/manuals, active participation in discussions, analysis of practical examples and case studies, completion of written assignments, independent development of papers/projects/theses, hands-on learning through practical tasks, as well as presentations, collaborative group work, explanatory approaches, and other methods.

In the teaching process, the choice of prioritizing either student-oriented methods or a combination thereof is possible. The selection of a method or a combination of methods to achieve learning outcomes depends on the specifics of each course, the defined objectives and learning outcomes, as well as the individual needs and interests of students. The methods employed for teaching program components are detailed in the respective syllabi, and their descriptions are available on the website www.newuni.edu.ge.

Student Assessment System:

The student achievement evaluation system is in accordance with the legislation of Georgia and is provided in the Educational Process Regulation of the New Higher Education Institute. The level of achievement of the student's learning outcomes is evaluated in accordance with the order of the Minister of Education and Science of Georgia dated January 5, 2007 No. 3. The student is evaluated using the ECTS system, within 100 points.

Points	Assessment	
91-100	A	Excellent
81-90	B	Very Good

71-80	C	Good
61-70	D	Satisfactory
51-60	E	Sufficient
41-50	FX	Did not pass (the student needs more work to pass the examination and is given the right to retake (one time) an exam via independent work)
0-40	F	Failed (considerable further work is required and the student has to retake the course)

The evaluation system allows five different types of positive and two different types of negative evaluation. In the component of the educational program, in case of acceptance of FX, the higher educational institution ensures the appointment of an additional exam within at least 5 days after the announcement of the final exam results. The grades specified above are obtained based on the summation of the midterm grades and the final exam/public defense grade:

Course: max. 100 points	
IMid-term Evaluations:	**60 points:**
Mid-term exam	*30 points*
Mid-term assessments	*30 points*
Final Exam	**40 points**

The assessment of student learning in courses comprises both mid-term and final assessments. Each assessment type contributes differently to the overall assessment (mid-term assessment maximum 60%, and final assessment 40%), with their combined total equating to 100 points. A student who scores at least 21 points in the interim assessment is eligible to sit for the final exam. To pass the final exam, a student must achieve at least 50% of the maximum grade, which is 20 points out of 40. Both midterm and final exams are compulsory components of the assessment process, and a variety of assessment methods are employed to evaluate students' knowledge.

Credit is awarded to students only upon successful achievement of the learning outcomes outlined in the syllabus, demonstrated by receiving one of the passing grades stipulated by law (with a minimum passing grade of 51 points). The regulations governing admission to final exams/public defenses and the assessment of student accomplishments are defined by the educational process regulations and the syllabus of each course/program component. These documents detail the evaluation system, components, methods, and criteria used. Both summative and formative assessments are employed in evaluating student performance.

Program relevance to the mission:

The goal of the Computer Science educational program aligns closely with the institution's mission, which is to prepare competitive specialists imbued with democratic values and civic self-awareness. The program is designed to provide education that meets the demands of a knowledge-based civil society and the labor market, ensuring students receive high-quality knowledge. It emphasizes student-oriented teaching, fostering the realization of personal and professional potential, and cultivating creative, research, and practical skills. Additionally, the program aims to promote student success through diverse academic, professional, and financial support mechanisms. Furthermore, it seeks to enhance research activities and integrate their findings into the teaching process.

Areas of employment and the possibility of continuing education:

Graduates of the program will be able to develop their professional careers in the following fields:

- Software development;
- Web programming and services;
- Smart systems and Internet of Things (IoT);
- Mobile application programming;
- Communication systems;
- IT project management;
- Research and development of hardware;
- Data analysis and engineering;
- Artificial intelligence systems;
- Cybersecurity.

Graduates of the program may be employed in:

- High-tech companies;
- Technology startups;
- Laboratories;
- Any company requiring IT support, development, or data analysis;
- Short-term projects focused on software product development.
- Additionally, all graduates have the opportunity to continue their studies at the master's level.