Admission Prerequisites to the Program

The right of teaching on English bachelor educational program has an owner of the State certificate that confirms completion by him of the general education course or equalized to him person which will be enrolled by the rule stated by Georgian legislation. The applicant must submit the certificate confirming the knowledge of English on the level not less than B2 or international certificate of TOEFEL (The Test of English as a Foreign Language) of II certification level. The applicant is free to submit a certificate confirming his/her competence if he/she have completed general education course in English. At absence of the appropriate certificate or other analogous document, the applicant will have an interview in English. The temporary commission staffed by the experts from the staff of GTU will implement the interview.

Program Objective

- Graduates of the program will effectively apply computational techniques, data analytics, and statistical methods to address real-world challenges in various domains by designing and developing data-driven solutions for complex problems in both industry and academia.
- Graduates will demonstrate ethical and professional conduct, understanding the societal impact of computing solutions, and adhering to ethical principles in their professional practice.
- Graduates will be successful either through professional employment in the private or public sector, or as students in graduate study, and they will continue to acquire knowledge of new technologies, tools, and techniques in computer science through professional self-education.

Learning Outcomes / Competencies (general and professional)

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
6. Apply computer science theory and software development fundamentals to produce computing-based solutions.

Student's knowledge assessment System

Grading system is based on a 100-point scale.

Positive grades:

- **(A)** - Excellent - grades between 91-100 points;
- **(B)** – Very good - grades between 81-90 points
- **(C)** - Good - grades between 71-80 points
- **(D)** - Satisfactory - grades between 61-70 points
- **(E)** - Pass - the rating of 51-60 points

Negative grades:

- **(FX)** - Did not pass - grades between 41-50 points, which means that the student is required to work more to pass and is given the right, after independent work, to take one extra exam;

- **(F)** – Failed - 40 points and less, which means that the work carried out by the student did not bring any results and he/she has to learn the subject from the beginning.

In case of acceptance of FX, a student who does not agree with the evaluation of the study results, has the right, within five working days from the notification of the result of the evaluation, to appeal to the dean with a reasoned complaint and request a revision of the results. An additional exam is prescribed, at least 5 days after the announcement of the results. The mark obtained in the additional exam is not added to the mark obtained in the final assessment.

Detailed information is provided on the GTU website: Instruction for managing the educational process at the Georgian Technical University, https://gtu.ge/Study-Dep/Forms/Forms.php

Courses in the Program		
№	**Learning Course**	**Credits**
1	Engineering Mathematcs 1.1	**5**
2	General Physics A2	**4**
3	Fundamentals of Computer Architecture and Organization	**5**
4	Algorithmization Fundamentals and Programming elements	**6**
5	Introduction to Information Technology	**5**
6	Foreign Language 1 (selective)	
6.1	Georgian language-1 (for non-Georgian speakers)	**5**
6.2	Foreign Language (English) – B2 + 1	
7	Engineering Mathematcs 2.1	**5**
8	General Physics B2	**4**
9	Operating Systems Fundamentals	**5**
10	Object-Oriented Programming -1 (based on C++ - C#)	**5**
11	Foreign Language 2 (selective)	
11.1	Georgian language-2 (for non-Georgian speakers)	**5**
11.2	Foreign Language (English) – B2 + 2	
12	Fundamentals of Database systems	**6**
13	Engineering Mathematics 3.1	**5**
14	Object-Oriented Programming 2 (based on Java)	**5**
15	Science (Selective)	
15.1	**General Physics C2**	**4**
15.2	General Chemistry A	
16	Database management system - Oracle	**6**
17	Fundamentals of Probability Theory	**5**
18	Optimization methods	**5**
19	Basics of Web-Technologies	**6**
20	Introduction to Computer Networks	**6**
21	Distributed Database Systems	**6**
22	Discrete Mathematics	**6**
23	Statistical Models and Simulation by SPSS	**6**
24	Big Data Fundamentals	**6**
25	Introduction to Information security	**6**
26	Data Warehousing Fundamentals	**6**

27	Programming on Python	**6**
28	Fundamentals of Artificial Intelligence	**6**
29	Data Mining and Knowledge Discovery for Big Data	**6**
30	Grid Computing	**6**
31	Cloud Computing	**6**
32	Machine Learning	**6**
33	***Selective 1***	
33.1	Computer Network Organization	**6**
33.2	Cognitive Computing and Big Data Analytics	
33.3	Business Intelligence for Decision Making	
34	Big Data Storage and Processing System Hadoop	**6**
35	Multi-Method Modeling and Simulation	**6**
36	***Selective 2***	
36.1	Geographic Information Systems (GIS)	**5**
36.2	Knowledge Representation and Reasoning	
37	Internship	**7**
38	Building Mobile apps	**6**
39	Final Project	**10**
	Free Components (Electives)	
	Free Components	**20**