Digital Telecommunication Technologies

Bachelor's Educational Programme | 200 credits | Georgian Technical University

Programme admission prerequisite

The right to study on the bachelor's educational programme "Digital Telecommunication Technologies" is granted only to a holder of a state certificate confirming complete general education, or of a document equivalent to it, who is enrolled in accordance with the procedure established by the legislation of Georgia.

Programme objectives

- To prepare qualified personnel for the free labour market in the field of modern digital telecommunications, possessing broad knowledge of the existing modern technological systems and technical means, of the theory of construction of electronic devices and components, of design, of the principles of functioning and of the rules of operation;
- To develop in the bachelor the skills for the rational operation, development, monitoring and maintenance of existing telecommunication systems and networks, as well as the skills for using those new technologies and types of services that are determined by global trends in the development of telecommunications;
- To provide graduates with professional and general (transferable) competences, which determine not only their employment prospects with the qualification of Bachelor of Engineering in Telecommunications, but also create motivation for them to continue their studies and to deepen their professional competence.

Learning outcomes / competences (general and professional)

1. Describes the theories and principles applied in the field of telecommunications and interprets them critically;
2. Analyses complex issues of telecommunication theory and technology, as well as issues determined by the main development trends of the field;
3. Carries out circuit-engineering design, and the calculation and construction of switching nodes, using the relevant documentary material;
4. Operates and monitors the power supply devices of telecommunication equipment in accordance with the operating rules and recommendations for these devices;
5. In a complex, unpredictable environment, carries out professional activity in an organised manner in accordance with the assignment and in compliance with ethical norms; observes the requirements, applicable norms, rules and standards established for the operation of telecommunication facilities;
6. Carries out measurements of the characteristics of telecommunication devices, channels and paths and analyses the results;
7. Uses computer programmes at the various stages of design, installation, adjustment and commissioning, and operation of individual nodes, systems and networks of telecommunication equipment;
8. Becomes familiar with the possibilities of new telecommunication methods, systems, networks and services;
9. Independently and conscientiously draws up a programme for his/her further professional growth and development.

Student knowledge assessment system

Assessment is carried out on a 100-point scale.

Positive grades:

- A. Excellent — 91–100 points;

- B. Very good — 81–90 points;
- C. Good — 71–80 points;
- D. Satisfactory — 61–70 points;
- E. Sufficient — 51–60 points.

Negative grades:

- (FX) Did not pass — 41–50 points, which means that the student needs to do more work in order to pass and is granted the right to sit an additional examination once on the basis of independent work;
- F. Failed — 40 points or fewer, which means that the work carried out by the student is not sufficient and he/she must study the subject anew.

In the case of an FX, an additional examination is scheduled no earlier than 5 days after the announcement of the results. The grade obtained at the additional examination is not added to the grade obtained in the final assessment.

A student who does not agree with the assessment of the learning outcomes is entitled, within five working days of being informed of the assessment result, to apply to the dean with a reasoned complaint and to request a review of the results, link: https://www.gtu.edu.ge/uploads/2026/03/appeal-restore.pdf

Detailed information about the assessment system is provided in the Instruction for the Management of the Learning Process at Georgian Technical University, link: https://www.gtu.edu.ge/students/stsavleba-da-mkhardachera/sastsavlo-protsesi/sauniversito-maregulirebeli-dokumentebi/

Practice is assessed in accordance with the GTU Rule for Conducting and Assessing Student Practice and in accordance with the procedure and criteria described in the relevant syllabus, link: https://www.gtu.edu.ge/students/stsavleba-da-mkhardachera/sastsavlo-protsesi/pormebi-instruqtsiebi/

The defence of the bachelor’s project is assessed in accordance with the Rule for Carrying Out a Bachelor’s Research Project/Thesis, link: https://www.gtu.edu.ge/uploads/2026/03/sabakalavro-kvlevithi-proeqtisnashromis-shesrulebis-tsesi.pdf

Curriculum

Where several subjects are listed in one row, they form an elective group sharing the same credit value.

Subject	Credits
Discrete Mathematics	5
General Physics	5
Fundamentals of Programming	5
Introduction to Telecommunications	5
Management Models of Telecommunication Companies	5
Special Course in the State Language (Georgian Language)	5
English Language B1 (intensive) German Language B1 (intensive) French Language B1 (intensive) Russian Language B1 (intensive)	5
Probability Theory and Mathematical Statistics	5
Linux Operating System	5
Electrical Circuits and Fundamentals of	6

Radioelectronics in Telecommunications	
Network and Telecommunication Technologies	5
English Language B2 (intensive) German Language B2 (intensive) French Language B2 (intensive) Russian Language B2 (intensive)	5
Fundamentals of Philosophy History of Georgia and ... Introduction to Psychology Introduction to Sociology Elements of Academic Writing Political Science	3
Free Component 1	3
Applied Electrodynamics	5
Television and Radio Broadcasting Technologies	5
Digital Elements, Nodes and Devices of Telecommunications	5
Telecommunication Cable Lines	5
Signal Theory	5
Teletraffic Theory	5
Switching in Modern Telecommunication Networks Digital Telecommunication	5
Fundamentals of Information and Coding Theory	5
Digital Fibre-Optic Transmission Systems and Technologies	5
Construction of Telecommunication Networks and Data Transmission Methods	5
Models of Radio Communication Channels	5
Propagation of Electromagnetic Waves and Antennas	5
Construction of Telecommunication Systems and Data Transmission Methods	5
Occupational Safety in Telecommunications	3
Practice in Telecommunications	5
Programming in	6

Telecommunications	
Internet of Things and Wireless Communication Technologies	5

Concentration 1 — Mobile and Satellite Communication Systems

Subject	Credits
Next-Generation Mobile Communication Technologies	6
Planning and Optimisation of Mobile Radio Networks	6
Radio-Relay and Satellite Transmission Systems	5

Concentration 2 — Infocommunication Networks and Systems

Subject	Credits
Design of Telecommunication Cable Systems and Networks	5
Formation of Digital Streams	6
Optical Transport Systems and Networks	6
Computer Engineering of Digital Telecommunication Systems	6
Project Management of Telecommunication Companies	6
Free Component 2	3

Concentration 1 — Mobile and Satellite Communication Systems (final stage)

Subject	Credits
Efficient Source Coding of Signals	5
Bachelor’s Thesis in Telecommunications	7
Signal-Code Systems	5

Concentration 2 — Infocommunication Networks and Systems (final stage)

Subject	Credits
Next-Generation Networks	5
Bachelor’s Thesis in Telecommunications	7
Data Transmission Technologies over Internet Protocol	5
TOTAL	**200**