Admission Prerequisites to the Program

- A person must have a master or equalized academic qualification in the field of related sphere, in particular engineering, informatics, natural sciences, biomedicine
- Applicants wishing to enroll in the program must submit: a research project, where the applicant would have outlined both the goal and direction of the research;
- It is mandatory to present a certificate/document confirming the knowledge of the English language at least B2 level. The applicant, who cannot present the said certificate, is obliged to pass the test in the computer center of STU in English language. Applicants, who have received one level of higher education in English are not required to pass an exam or present a certificate;
- In case of receiving a positive assessment in English language test, the applicant goes through an interview with the faculty temporary commission; During the interview, having scientific publications and/or inventions, participation in scientific conferences, attending trainings and other experience of teaching/research activities, confirmed by relevant prints, patents, certificates, deeds, etc., are taken into account. The procedure for admission to doctoral studies and enrollment conditions are given on the university's website: https://gtu.ge/;.
- Enrollment in the educational program is also possible by mobility, in accordance with the order of the Minister of Education and Science of Georgia dated February 2, 2010 No. 10/N "Rule of transfer from a higher educational institution to another higher educational institution".

https://gtu.ge/Study-Dep/Files/Pdf/brZ_10n_16032018_SD.pdf

- Applicants will also be admitted to the educational program on the basis of internal mobility. The terms and procedures of internal mobility are established by the order of the rector of the university and the information is posted on the website of the university.

Program Objectives

The objectives of PhD program is :

PEO 1. Visionary engineers and problem solvers, utilizing a breadth of scientific knowledge to address contemporary issues at the interface of engineering, medicine, and biology within a global, societal, and economic context.

PEO 2. Leaders in biotechnology and medical industries both in the public and private sectors capable of serving national and regional industries, hospitals, and government agencies.

PEO 3. Ethically and socially conscious professional engineers functioning well in multi-disciplinary teams, effective in communicating ideas and technical information.

PEO 4. Independent learners who can generate new knowledge and technologies, as well as, successfully engage in post-doctoral studies and scientific research in engineering medicine and biomedical sciences. Also teach anothers in this sphere

Learning Outcomes / Competencies (general and professional)

After completing the program, the graduate will have:

1. Ability to determine new approaches in the sphere of biomedical engineering, the base of which will be knowledge, innovative methods and technologies in the mentioned sphere.

2.Ability developed and modeling based on the lasts advances in recent achievements in the methods and theories of exact and approximate calculation.

3.Ability to analyze, synthesize and evaluate innovative ideas and research outcomes thoroughly and for specific reasons; the criteria for new bio-technical medical equipment and make decisions oriented on research studies; will be able to formulate and utter individual reasoned ideas about the problems under discussion.

4.Ability to understand professional and ethic responsibility in the process of decision making in the sphere of biomedical engineering and in ensuring a high standard of health care for the community.

5.Ability on the creation of new knowledge to plan, implement and supervise applied and fundamental researches independently, develop medical systems, information technologies of healthcare and new research and analytical methods of working on medical equipment.

6.Ability to make decisions based on purposeful and comprehensive analysis, synthesis and evaluation of new innovative ideas and research results. On the formation and research objectives of the criteria for new bio-technical medical equipment. Forms his own reasoned opinion.

7.Ability to develop new methodology for studies of scientific and pedagogical activities, implements to elaborate training aids for laboratory and practical tasks.

8.Ability to formulate scientifically important conclusions, valuable recommendations, and hypotheses to find new ways to solve an existing problem.

9.Ability to conduct research in accordance with the principles of academic good faith; Develops new research and analytical methods focused on creating new knowledge (at the level of the standard required for international peer-reviewed publication), participates in research projects based on the latest achievements.

10.Ability to get engaged freely in a theoretical discussion with the professionals working in the multidisciplinary field worldwide; Achieves recognition of own opinions and research in the international arena.

11.Ability to determine the appropriate direction of learning based on the understanding of the peculiarities of the learning process, to plan the learning process independently and creatively; to deepen professional knowledge independently using specialized literature and electronic resources.

Student Knowledge Assessment System

Grading system is based on a 100-point scale.Assessment of Learning Components:

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 pointsNegative 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.

The procedure for evaluating the research component of a Doctoral program is given on the university'swebsite. Detailed information about the evaluation system of the doctoral program is provided on thewebsite of the Georgian Technical University:
https://gtu.ge/Learning/pdf/danarTi_3_Sefasebis_wesi.pdf

Assessment of Researcs Component:

Five positive and two negative evaluations are used for one-time evaluation of the thesis.

Possitive assessment:

a) summa cum laude – excellent thesis – 91-100 points;

b) very good (magna cum laude) - the result that exceeds the requirements in every way - 81-90 points;

c) good (cum laude) – result that exceeds the requirements - 71-80 points;

d) average (bene) - an average-level paper that meets the basic requirements - 61-70 points;

e) Satisfactory (rite) - the result, which, despite the shortcomings, still meets the requirements - 51-60 points of the

maximum evaluation.

Negative Assessment:

a) Insufficient – a work of an unsatisfactory level that cannot meet the requirements - 41-50 points;

b) completely unsatisfactory (sub omni canone) - the result that does not completely meet the requirements - 40 points and less.

The scientific-research component of the doctoral education program is evaluated once, with a final evaluation. The evaluation system of the scientific-research component is given on the website of the Georgian Technical University

https://gtu.ge/Learning/pdf/danarTi_3_Sefasebis_wesi.pdf

Courses in the Program

#	Learning Course	Credits
1.	Scientific Communication Techniques	4
2.	Research Methods in Biomedical engineering	5
3.	Teaching Methods and Education Management	6
4.	Assistant of professor in Biomedical Engineering	5
	Special Mandatory Courses	
5.	Biomedical Sensors And MeasurementTransducers	5
6.	Radiation Safety And Dosimetry	5
7.	Physiology and Electrophysiology For Engineers	5
8.	Control Systems In Medicine	5
9.	**Elective Courses**	
9.1	Medical Image Analysis	5
9.2	Artificial Organs	
10	Clinical Engineering	5
	theresearch component	