

<b>INFORMATION ON THE BIOMEDICAL ENGINEERING MASTER DEGREE PROGRAM</b>	
<b>General Information</b>	<p>The Biomedical Engineering Master of Science program was established in 2014 to educate creative and qualified PhD candidates and biomedical engineers (with MSc certificate), who can define the human body as a comprehensive system using engineering methods and take part in the development of more effective diagnosis and treatment strategies. As of 2017, 2 professors, 2 associate professors, 2 assistant professors, and 1 research assistant are working full-time in the department.</p> <p>Our Master of Science program is carefully crafted and updated periodically according to international standards to meet the requirements of both PhD requirements and graduate work environments.</p>
<b>Program Purpose</b>	<p>The aim of TOBB ETÜ Biomedical Engineering Master of Science Program is to graduate future PhD candidates and Biomedical Engineers who have strong scientific and technical knowledge and are able to work successfully in design, production, application and AR-GE studies both at industry and research institutions. The biomedical engineering master of Science program curriculum is designed to educate biomedical engineers to be creative, to have systematic problem-solving abilities, to be liable for social, economic and professional ethics, to have responsibility and leadership, to contribute to the scientific knowledge by making scientific research, and to produce solutions to the problems of the national industry.</p>
<b>Degree Earned</b>	The students who successfully complete the program are awarded the degree of Master of Science in Biomedical Engineering.
<b>Level of Degree Earned</b>	This is a Master's Degree (EQF 7) program.
<b>Requirements and Rules of the Degree Earned</b>	<p>To graduate from the Biomedical Engineering Master of Science Program, students have to achieve a minimum of 3.00 out of 4.00 Grade Point Average and has to pass all of the courses in the curriculum with a minimum of CC/G grade (TOBB ETU Graduate Education Rules And Regulations, Article 9, Article 10). A minimum of 120 ECTS credits have to be earned for graduation. In addition, the students have to complete the mandatory seminar education and Master of Science thesis within a specified period, following well-defined specifications (TOBB ETU Graduate Education Rules And Regulations, Article 9).</p>
<b>Registration Admission Requirements</b>	<p>Candidates, having Bachelors Degree, can apply the Biomedical Engineering Master of Science Program fulfilling the minimum requirements set by the Graduate School of Natural &amp; Applied Sciences (ALES for the MS with/without thesis and proficiency in English language). The acceptance depends on the results of the scientific evaluation and the interviews made and the quotas announced by the Institute of Natural &amp; Applied Sciences (TOBB ETU Graduate Education Rules And Regulations, Article 5).</p>
<b>Recognition of Prior Learning</b>	<p>Acceptance of the students, from other departments or universities, to the biomedical engineering Master of Science program is carried out by taking into consideration the provisions of the relevant legislations of the YÖK and within the framework of the principles and quotas determined by the TOBB ETÜ Senate (TOBB ETU Graduate Education - Examination Regulation, Article 32). The courses, in which students have received and completed from any previous higher education institution, can be accepted if it is related with the field of study and with the proposal of the advisor, the recommendation of the related department, and the approval of the Institute's Board of Directors.</p>
<b>Examinations, Assessment and Grading</b>	<p>Examinations and evaluations are carried out according to article 34 of TOBB ETÜ Graduate Education - Examination Regulation. At the beginning of each semester, teaching staff announce the type of exams (e.g. quizzes, midterms, final exam), homeworks, practice and other studies in which the students are responsible and their weightings in the semester grades. The dates of the final examinations and the places where the exams are to be held are determined by the Rectorate. At the end students are graded based on the partial grades from those listed above.</p>

<b>Teaching Style</b>	Full time education
<b>Graduation Requirements</b>	To graduate from the Biomedical Engineering Master of Science Program, students have to achieve a minimum of 3.00 out of 4.00 Grade Point Average and has to pass all of the courses in the curriculum with a minimum of CC/G grade (TOBB ETU Graduate Education Rules And Regulations, Article 12, Article 34). A minimum of 120 ECTS credits have to be earned for graduation. In addition, the students have to take the mandatory seminar course and complete the Master of Science Thesis within a specified period, following certain specifications.
<b>Occupational Profiles of Graduated-Employment Opportunities</b>	Graduates of the Biomedical Engineering Master of Science Program can work in the medical sector including design, production, maintenance and repair of medical devices, medical imaging, signal processing, medical informatics, prosthetic, orthosis and implant manufacturing, tissue engineering, genetic engineering and drug development areas.
<b>Transition to a Upper Degree</b>	Graduates of the Biomedical Engineering Master of Science Program can enroll in PhD programs fulfilling the minimum requirements set by the Graduate School of Natural & Applied Sciences (ALES and proficiency in English language).

<b>Program Qualifications</b>	
<b>1</b>	Ability to model and solve scientific and engineering problems by conducting scientific research in the field of specialization.
<b>2</b>	Ability to identify, formulate and solve mathematics, science and engineering related problems by associating them with biology.
<b>3</b>	Ability to use knowledge and expertise to design a complex system, process, biomedical device, product or material under realistic constraints and conditions to meet specific requirements.
<b>4</b>	Ability to design and carry out experiments, to collect data, to analyze and interpret results; ability to make measurements on living systems and collect and interpret data from these measurements; ability to solve problems related with interaction between materials and living systems.
<b>5</b>	Ability to work individually and in disciplinary/interdisciplinary teams effectively.
<b>6</b>	Ability to communicate effectively in Turkish and English through oral, written and visual methods.
<b>7</b>	Ability to reach out scientific information resources and access knowledge with consciousness, to monitor developments in science and technology and continuous self-improvement.
<b>8</b>	Having knowledge about the research carried out in companies and research centers, sectoral problems and solutions, risk and change management.
<b>9</b>	Having conformity with biomedical ethical principles, professional and ethical responsibility.
<b>10</b>	Have knowledge about the effects of biomedical engineering applications on health, environment and safety in universal and societal dimensions; awareness of the legal consequences of engineering solutions.

NQF-HETR PROGRAM QUALIFICATION MATRIX				PROGRAM QUALIFICATIONS									
Program : Biomedical Engineering				1	2	3	4	5	6	7	8	9	10
Related NQF-HETR Core Field: Engineering (Academic) - Master Degree													
CORE AREA QUALIFICATIONS	INFORMATION	Theoretical - Factual	Achieves knowledge expansion and depth by doing scientific research in engineering field, assesses knowledge, interprets and applies.	X	X	X	X			X			
			Has extensive knowledge about current techniques and methods applied in engineering and their limitations.	X	X	X	X			X			
			Completes and applies the knowledge using scientific methods using limited or incomplete data; integrates knowledge of different disciplines.	X	X	X	X			X			
			Is aware of new and evolving practices of the profession and examines and learns them when necessary.	X	X	X	X			X	X	X	X
	SKILLS	Cognitive - Applied	Completes and applies the knowledge using scientific methods using limited or incomplete data; integrates knowledge of different disciplines.	X	X	X	X			X	X		X
			Builds engineering problems, develops methods to solve them, and applies innovative methods in solutions.	X	X	X	X			X	X		X
			Develops new and / or unique ideas and methods; develops innovative solutions in system, component or process design.	X	X	X	X	X		X	X		X
			Designs and implements analytical, modeling and experimental based research; analyzes and interprets complex situations encountered in this process.	X	X	X	X			X	X		X
	COMPETENCIES	Ability to work independently and to take responsibility	Leads in multidisciplinary teams, develops solution approaches in complex situations and take responsibility.	X				X		X	X		
			Achieves knowledge expansion and depth by doing scientific research in engineering field, assesses knowledge, interprets and applies.	X				X		X	X		
			Completes and applies the knowledge using scientific methods using limited or incomplete data; integrates knowledge of different disciplines.	X				X		X	X		
			Builds engineering problems, develops methods to solve them, and applies innovative methods in solutions.	X				X		X	X		
			Develops new and / or unique ideas and methods; develops innovative solutions in system, component or process design.	X				X		X	X		
			Designs and implements analytical, modeling and experimental based research; analyzes and interprets complex situations encountered in this process.	X				X		X	X		
		Learning Competence	Is aware of the new and developing practices of the profession; it examines and learns them when necessary.	X	X	X	X						
			Completes and applies knowledge using scientific methods using limited or incomplete data; integrates knowledge of different disciplines.	X	X	X	X						
			Builds engineering problems, develops methods to solve them, and applies innovative methods in solutions.	X	X	X	X						
			Develops new and / or unique ideas and methods; develops innovative solutions in system, component or process design.	X	X	X	X						
		Communication and	Communicates verbally and in writing using a foreign language at least at the European Language Portfolio B2 General Level.	X						X	X		
			Transcribes the processes and outcomes of his or her work in a systematic and explicit way, either in writing or verbally, in the national or international contexts in the area or outside the field.	X						X	X		
Describes the social and environmental dimensions of engineering applications.	X							X	X		X		
Achieves knowledge expansion and depth by doing scientific research in engineering field, assesses knowledge, interprets and applies.	X		X	X	X			X					

	Communication and Social Competence	Completes and applies the knowledge using scientific methods using limited or incomplete data; integrates knowledge of different disciplines.	X	X	X	X			X				
		Builds engineering problems, develop methods to solve them, and applies innovative methods in solutions.	X	X	X	X			X				
		Has extensive knowledge about current techniques and methods applied in engineering and their limitations.	X	X	X	X			X				
		Designs and implements analytical, modeling and experimental based research; analyzes and interprets complex situations encountered in this process.	X	X	X	X			X	X			
	Field Specific Competence	Observes social, scientific and ethical values in the process of collecting, interpreting and announcing data and in all professional activities.	X	X	X	X	X	X				X	X
		Complete and applies the knowledge using scientific methods using limited or incomplete data; integrates knowledge of different disciplines.	X	X	X	X	X		X				
		Leads in multidisciplinary teams, develops solution approaches in complex situations and take responsibility.	X	X	X	X	X			X			
		Transcribes the processes and outcomes of his or her work in a systematic and explicit way, either in writing or verbally, in the national or international contexts in the area or outside the field.	X	X	X	X	X	X		X			

