

CURRICULUM 2023

First Semester			Credit	ECTS	Prerequisite/corequisite
MATH	141	Fundamental Analysis I	(3+2)4	5	
PHYS	121	General Physics I	(3+2)4	7	
CHEM	121	General Chemistry I	(3+0)3	5	
CHEM	141	General Chemistry Lab. I	(0-2)1	2	
ENG	101	English Reading and Writing Skills I	(3+0)3	3	
MBG	121	Biology	(3+0)3	5	
BE	101	Introduction to Bioengineering	(2+0)2	3	
			Total: 20 Credit	30	

Second Semester			Credit	ECTS	Prerequisite/corequisite
MATH	142	Fundamental Analysis II	(3-2)4	7	
PHYS	122	General Physics II	(3-2)4	7	
CHEM	122	General Chemistry II	(3-0)3	6	
CHEM	142	General Chemistry Lab II	(0-2)1	2	
BE	102	Introduction to Programming	(2-2)3	5	
ENG	102	English Reading and Writing Skills II	(3-0)3	3	
GCC	101	Career Planning and Development	(2-0)Non-Credit	2	
			Total: 18 Credit	32	

Third Semester			Credit	ECTS	Prerequisite/corequisite
MATH	255	Differential Equations	(4-0)4	5	
BE	201	Mass and Energy Balance in Engineering	(3-0)3	5	
BE	203	Molecular Biology	(3-0)3	5	
CHEM	221	Organic Chemistry	(4-0)4	5	
BE	205	Fundamentals of Electrics and Electronic Circuits	(3-0)3	3	
ECON	205	Principles of Economics	(3-0)3	3	
HIST	201	Atatürk's Principles I	(2-0)Non-Credit	2	
TURK	201	Turkish Language I	(2-0)Non-Credit	2	
			Total: 20 Credit	30	

Fourth Semester			Credit	ECTS	Prerequisite/corequisite
BE	202	Numeric Methods in Engineering	(3-0)3	5	
BE	204	Thermodynamics	(3-0)3	5	
BE	206	Fluid Mechanics	(3-0)3	5	
BE	208	Biochemistry	(3-0)3	5	
MSE	211	Material Science and Engineering	(3-0)3	5	
		Non-Technical Elective Course		3	
HIST	202	Ataturk's Principles II	(2-0)Non-Credit	2	
TURK	202	Turkish Language II	(2-0)Non-Credit	2	
			Total: 15 Credit	32	

Fifth Semester			Credit	ECTS	Prerequisite/corequisite
BE	301	Transport Phenomena in Biological Systems	(3-0)3	4	
ENG	301	Technical Writing and Communication	(3-0)3	2	
BE	305	Statistical Tools for Bioengineers	(3-0)3	5	
BE	307	Cell Biology	(3-0)3	4	
		Non-Technical Elective Course		3	

BE	309	Biomaterials	(3-0)3	3	
BE	311	Bioprocess Engineering I	(3-0)3	5	
BE	300	Summer Internship I	Non-Credit	7	
			Total: 18 Credit	33	

Sixth Semester			Credit	ECTS	Prerequisite/ corequisite
BE	304	Physiology	(3-0)3	5	
BE	308	Medical Biosensors	(3-0)3	4	
BE	310	Bioengineering Lab I	(0-4)2	6	
BE	312	Biomedical Instrumentation I	(3-0)3	4	
		Technical Elective Course		3	
		Non-Technical Elective Course		3	
			Total: 11 Credit	25	

Seventh Semester			Credit	ECTS	Prerequisite/ corequisite
BE	401	Design in Bioengineering I	(3-0)3	7	
BE	403	Bioengineering Lab II	(2-4)3	7	
BE	405	Biomedical Instrumentation II	(3-0)3	5	
		Technical Elective Course		3	
		Technical Elective Course		3	
		Technical Elective Course		3	
BE	400	Summer Internship II	Non-Credit	7	
			Total: 9 Credit	35	

Eight Semester			Credit	ECTS	Prerequisite/ corequisite
BE	402	Design in Bioengineering II	(2-4)4	10	
BE	404	Bioengineering Lab II	(0-4)2	10	
BE	406	Ethics in Bioengineering	(2-0)2	4	
		Technical Elective Course		3	
		Technical Elective Course		3	
			Total: 8 Credit	30	

Total Credits: 146 245

Elective Courses			Credit	ECTS	Prerequisite/ corequisite
BE	351	Research Project I	(0-6)3	4	
BE	352	Research Project II	(0-6)3	4	
BE	407	Applications of Biotechnology in Pharmaceutical Sector	(3-0)3	3	
BE	408	Enzyme Kinetics and Technologies	(3-0)3	3	
BE	409	Introduction to Biomolecular Engineering	(3-0)3	3	
BE	410	Introduction to Tissue Engineering	(3-0)3	3	
BE	411	Biomechanics	(3-0)3	3	
BE	412	Optimization	(3-0)3	3	
BE	413	Scientific Research Techniques	(3-0)3	3	
BE	414	Controlled Drug Delivery Technologies	(3-0)3	3	
BE	415	Characterization of Biomedical Nanomaterials	(3-0)3	5	

BE	417	Macromolecular Dynamics: From Structure to Function	(3-0)3	5	
BE	451	Research Project III	(0-6)3	4	
BE	452	Research Project IV	(0-6)3	4	
BE	499	Cooperative Education Course	(0-6)3	5	
BE	314	Bioprocess Engineering II	(3-0)3	5	
BE	497	Supplementary Curricular Courses	(0-6)3	6	
BE	418	Bioinformatics Tools for Macromolecular Systems	(3-0)3	5	