

FACULTY OF ENGINEERING AND NATURAL SCIENCES
DEPARTMENT OF GENETICS AND BIOENGINEERING
GENETICS AND BIOENGINEERING PROGRAMME (IN ENGLISH)

UNDERGRADUATE CURRICULUM

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Semester 1

Code	Course Title	T	A	C	ECTS	Status	Prerequisite
MATH113	Mathematics I	3	2	4	6	Compulsory	
PHYS113	Physics I	2	2	3	5	Compulsory	
ATA111	Atatürk Principles and The History of Turkish Revolution I	2	0	2	2	Compulsory	
TRD111	Turkish Language I	2	0	2	2	Compulsory	
GBE101	Introduction to Bioengineering	2	0	2	6	Compulsory	
CHM103	Chemistry	2	2	3	5	Compulsory	
	Elective Foreign Language	2	2	3	4	Elective	
Total Credit		19			30		

Semester 3

Code	Course Title	T	A	C	ECTS	Status	Prerequisite
GBE201	Molecular Cell Biology II	2	2	3	5	Compulsory	
GBE205	Microbiology	2	2	3	5	Compulsory	
MATH265	Probability and Statistics I	3	0	3	5	Compulsory	MATH113
MATH215	Matematik III	2	2	3	6	Compulsory	MATH113
	Elective Foreign Language	2	2	3	4	Elective	
GBE208	Analytical Chemistry	3	0	3	5	Compulsory	
Total Credit		18			30		

Semester 5

Code	Course Title	T	A	C	ECTS	Status	Prerequisite
GBE301	Cell and Tissue Engineering	2	4	4	8	Compulsory	
GBE313	Physiology	3	0	3	6	Compulsory	
GBE315	Bioinformatics	2	2	3	6	Compulsory	
GBE323	Biochemistry I	2	2	3	5	Compulsory	
	Faculty Elective Course	3	0	3	5	Elective	
Total Credit		16			30		

Semester 7

Code	Course Title	T	A	C	ECTS	Status	Prerequisite
GBE425	Industrial Genetics and Bioengineering II	1	4	3	5	Compulsory	
GBE411	Biomedical Engineering	3	0	3	7	Compulsory	
GBE497	Genetics and Bioengineering Design	0	2	1	4	Compulsory	
BAA222	Entrepreneurship Applications	2	0	2	3	Compulsory	
	Departmental Elective Course	3	0	3	7	Elective	
	University Elective Course	3	0	3	4	Elective	
Total Credit		15			30		

Semester 2

Code	Course Title	T	A	C	ECTS	Status	Prerequisite
MATH114	Mathematics II	3	2	4	6	Compulsory	MATH113
PHYS114	Physics II	2	2	3	5	Compulsory	PHYS113
ATA112	Atatürk Principles and The History of Turkish Revolution II	2	0	2	2	Compulsory	
TRD112	Turkish Language II	2	0	2	2	Compulsory	
GBE102	Molecular Cell Biology I	2	0	2	8	Compulsory	
	Elective Foreign Language	2	2	3	4	Elective	
CLP001	Carrer and Life	0	2	1	3	Compulsory	
Total Credit		17			30		

Semester 4

Code	Course Title	T	A	C	ECTS	Status	Prerequisite
CMPE152	Computer Programming	2	2	3	5	Compulsory	
GBE216	Biomaterials	3	0	3	3	Compulsory	
GBE202	Bioengineering Laboratory	0	4	2	4	Compulsory	
MATH266	Probability and Statistics II	3	0	3	5	Compulsory	MATH265
MATH216	Mathematics IV	2	2	3	6	Compulsory	MATH114
GBE222	Biotransport	3	0	3	3	Compulsory	
GBE210	Organic Chemistry	3	0	3	5	Compulsory	
Total Credit		20			31		

Semester 6

Code	Course Title	T	A	C	ECTS	Status	Prerequisite
GBE302	Genetic Engineering	2	4	4	8	Compulsory	
GBE324	Biochemistry II	3	0	3	5	Compulsory	
GBE306	Quality and Security Management	1	0	1	2	Compulsory	
GBE326	Industrial Genetics and Bioengineering I	1	4	3	7	Compulsory	
GBE395	Seminar	1	2	2	4	Compulsory	
IE367	Occupational Health and Safety	3	0	3	5	Compulsory	
Total Credit		16			31		

Semester 8

Code	Course Title	T	A	C	ECTS	Status	Prerequisite
GBE498	Genetics and Bioengineering Graduation Project	0	4	2	4	Compulsory	
INT001	Internship I	0	0	0	4	Compulsory	
	Departmental Elective Course	3	0	3	7	Elective	
	Departmental Elective Course	3	0	3	7	Elective	
	Departmental Elective Course	3	0	3	7	Elective	
Total Credit		11			29		

TOTAL CREDIT	132
TOTAL ECTS	241

Abbreviations: T=Weekly hours: theoretical; A=Weekly hours: application; C=Credits in Turkish System; ECTS= European Credit Transfer System

ELECTIVE COURSES

Semester 1

Code	Course Title	T	A	C	ECTS	Status	Prerequisite
SECOND FOREIGN LANGUAGE							
DEPARTMENTAL ELECTIVE							
FACULTY ELECTIVE							
UNIVERSITY ELECTIVE							

Semester 3

Code	Course Title	T	A	C	ECTS	Status	Prerequisite
SECOND FOREIGN LANGUAGE							
DEPARTMENTAL ELECTIVE							
FACULTY ELECTIVE							
UNIVERSITY ELECTIVE							

Semester 5

Code	Course Title	T	A	C	ECTS	Status	Prerequisite
SECOND FOREIGN LANGUAGE							
DEPARTMENTAL ELECTIVE							
FACULTY ELECTIVE							
ENG301	Management for Engineers	3	0	3	5	Elective	
ENG303	Project Management	3	0	3	5	Elective	
ENG305	Introduction to Information Security	3	0	3	5	Elective	
ENG307	Biotechnology:Combining Engineering with the Biological Science	3	0	3	5	Elective	
ENG316	Introduction to Traffic Engineering	3	0	3	5	Elective	
ENG318	Introduction to Environmental Engineering	3	0	3	5	Elective	
ENG341	Introduction to Epigenetic Health	3	0	3	5	Elective	
ENG343	Introduction to Forensic Science	3	0	3	5	Elective	
ENG347	Technical Writing and Literature Search	3	0	3	5	Elective	
ENG349	Introduction to Bioinformatics and Biological Data Analysis	3	0	3	5	Elective	
UNIVERSITY ELECTIVE							

Semester 2

Code	Course Title	T	A	C	ECTS	Status	Prerequisite
SECOND FOREIGN LANGUAGE							
DEPARTMENTAL ELECTIVE							
FACULTY ELECTIVE							
UNIVERSITY ELECTIVE							

Semester 4

Code	Course Title	T	A	C	ECTS	Status	Prerequisite
SECOND FOREIGN LANGUAGE							
DEPARTMENTAL ELECTIVE							
FACULTY ELECTIVE							
UNIVERSITY ELECTIVE							

Semester 6

Code	Course Title	T	A	C	ECTS	Status	Prerequisite
SECOND FOREIGN LANGUAGE							
DEPARTMENTAL ELECTIVE							
FACULTY ELECTIVE							
UNIVERSITY ELECTIVE							

Code	Course Title	T	A	C	ECTS	Status	Prerequisite
SECOND FOREIGN LANGUAGE							
DEPARTMENTAL ELECTIVE							
GBE424	Molecular Signalling Pathways and Cancer	3	0	3	7	Elective	
GBE420	Protein Engineering	3	0	3	7	Elective	
GBE417	Forensic Technologies	3	0	3	7	Elective	
GBE412	Interdisciplinary Bioengineering	3	0	3	7	Elective	
GBE427	NutriGenomics	3	0	3	7	Elective	
GBE436	Thermodynamics for Bioengineers	3	0	3	7	Elective	
GBE438	Introduction to Nanoscience and Nanotechnology	3	0	3	7	Elective	
GBE488	Epigenetics in Human Health	3	0	3	7	Elective	
GBE434	Recent Topics in Biotechnology	3	0	3	7	Elective	
GBE440	Immunology	3	0	3	7	Elective	
GBE419	Evidence and Investigation Technologies	3	0	3	7	Elective	
FACULTY ELECTIVE							
UNIVERSITY ELECTIVE							

Code	Course Title	T	A	C	ECTS	Status	Prerequisite
SECOND FOREIGN LANGUAGE							
DEPARTMENTAL ELECTIVE							
GBE424	Molecular Signalling Pathways and Cancer	3	0	3	7	Elective	
GBE420	Protein Engineering	3	0	3	7	Elective	
GBE417	Forensic Technologies	3	0	3	7	Elective	
GBE412	Interdisciplinary Bioengineering	3	0	3	7	Elective	
GBE427	Nutrigenomics	3	0	3	7	Elective	
GBE436	Thermodynamics for Bioengineers	3	0	3	7	Elective	
GBE438	Introduction to Nanoscience and Nanotechnology	3	0	3	7	Elective	
GBE488	Epigenetics in Human Health	3	0	3	7	Elective	
GBE434	Recent Topics in Biotechnology	3	0	3	7	Elective	
GBE440	Immunology	3	0	3	7	Elective	
GBE419	Evidence and Investigation Technologies	3	0	3	7	Elective	
GBE490	OCOOP-I	3	0	3	7	Elective	
GBE492	OCOOP-II	3	0	3	7	Elective	
GBE494	OCOOP-III	3	0	3	7	Elective	

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UNIVERSITY ELECTIVE						