

**BIOENGINEERING %30 ENGLISH UNDERGRADUATE PROGRAM
2018-2019 NEW SYLLABUS**

Total Local Credit: 157 - Total ECTS: 240 - Total Local Credits in English Language: 50 - Total Elective Courses ECTS: 60

1. Semester											2. Semester										
Code	Name	Prerequisite	Lng	T	P	L	LC	ECTS	Code	Name	Prerequisite	Lng	T	P	L	LC	ECTS				
ENF1170	Introductory Computer Sciences		TR	2	2	0	3	4	MAT1072	Mathematics 2		TR	3	2	0	4	6				
MDB1031	Advanced English 1		EN	3	0	0	3	3	FIZ1002	Physics 2		TR	3	0	2	4	5				
TDB1031	Turkish Language 1		TR	2	0	0	0	2	BYM1512	Organic Chemistry for Engineers		TR	3	0	0	3	5				
KIM1170	General Chemistry		TR	3	0	2	4	5	BYM1602	Physical Chemistry in Bioengineering		EN	3	0	0	3	4				
MAT1071	Mathematics 1		TR	3	2	0	4	6	MDB1032	Advanced English 2		EN	3	0	0	3	3				
FIZ1001	Physics 1		TR	3	0	2	4	5	TDB1032	Turkish Language 2		TR	2	0	0	0	2				
BYM1201	Introduction to Bioengineering		EN	2	0	0	2	2	SEC0002	Elective 2-1		TR	3	0	0	3	3				
SEC0001	Elective 1-1		TR	3	0	0	3	3	BYM1312	Occupational Safety and Health 1		TR	2	0	0	2	2				
Total									Total												
23									22												
30									30												

3. Semester										
Code	Name	Prerequisite	Lng	T	P	L	LC	ECTS		
BYM2311	Occupational Safety and Health 2		TR	2	0	0	2	2		
BYM2321	Biochemistry in Bioengineering		TR	3	0	0	3	4		
SEC0003	Elective 3-1		EN	3	0	0	3	5		
BYM2711	Biothermodynamics		TR	2	2	0	3	5		
MDB2051	Reading and Speaking in English		EN	2	0	0	2	2		
BYM2101	Basic Principles in Molecular Biology		EN	3	0	0	3	5		
MAT2411	Differential Equations		TR	4	0	0	4	5		
ATA1031	Principles of Atatürk and History of Modern Turkey 1		TR	2	0	0	0	2		
Total										
20										
30										

4. Semester										
Code	Name	Prerequisite	Lng	T	P	L	LC	ECTS		
BYM2812	Fluid Mechanics in Bioengineering		TR	3	0	0	3	5		
BYM2302	Biomaterials		EN	3	0	0	3	5		
BYM2222	Cell Biology and Cellular Mechanisms		TR	2	0	2	3	5		
BYM2202	Polymer Science and Technology		EN	3	0	0	3	4		
SEC0004	Elective 4-1		EN	3	0	0	3	5		
MDB3032	Business English		EN	2	0	0	2	2		
ATA1032	Principles of Atatürk and History of Modern Turkey 2		TR	2	0	0	0	2		
BYM2002	Intern 1		TR	0	0	0	0	2		
Total										
17										
30										

5. Semester										
Code	Name	Prerequisite	Lng	T	P	L	LC	ECTS		
BYM3901	Heat Transfer in Bioengineering		EN	3	0	0	3	5		
BYM3911	Mass Transfer in Bioengineering		TR	3	0	0	3	5		
BYM3401	Separation Processes in Bioengineering		EN	2	0	2	3	5		
BYM3511	Genetics Engineering		TR	2	0	2	3	5		
SEC0005	Elective 5-1		TR	3	0	0	3	5		
SEC0005	Elective 5-2		TR	3	0	0	3	5		
Total										
18										
30										

6. Semester										
Code	Name	Prerequisite	Lng	T	P	L	LC	ECTS		
BYM3212	Tissue Engineering		TR	3	0	0	3	5		
BYM3202	Engineering Laboratory		EN	0	0	4	2	4		
BYM3782	Bioreactor Design		TR	3	0	0	3	5		
SEC0006	Elective 6-1		EN	3	0	0	3	5		
SEC0006	Elective 6-2		EN	3	0	0	3	5		
BYM3002	Intern 2		TR	0	0	0	0	2		
BYM3032	Project		TR	2	2	0	3	4		
Total										
17										
30										

7. Semester										
Code	Name	Prerequisite	Lng	T	P	L	LC	ECTS		
BYM4241	Bioengineering Laboratory 1		TR	0	0	4	2	4		
BYM4081	Mathematical Modelling in Bioengineering		TR	2	2	0	3	5		
BYM4741	Bioprocess Engineering		TR	3	0	0	3	5		
BYM4191	Physiology		TR	3	0	0	3	4		
SEC0007	Elective 7-1		TR	3	0	0	3	4		
SEC0007	Elective 7-2		TR	3	0	0	3	4		
SEC0007	Elective 7-3		TR	3	0	0	3	4		
Total										
20										
30										

8. Semester										
Code	Name	Prerequisite	Lng	T	P	L	LC	ECTS		
BYM4000	Graduation Thesis		TR	0	12	0	6	9		
BYM4382	Immunology		TR	3	0	0	3	5		
BYM4242	Bioengineering Laboratory 2		TR	0	0	4	2	4		
SEC0008	Elective 8-1		EN	3	0	0	3	4		
SEC0008	Elective 8-2		EN	3	0	0	3	4		
SEC0009	Elective 9-1		TR	3	0	0	3	4		
Total										
20										
30										

Elective 3										
Code	Name	Prerequisite	Lng	T	P	L	LC	ECTS		
BYM2201	Biomedical Electronics		EN	3	0	0	3	5		
BYM2301	Introduction to Modern Biology		EN	3	0	0	3	5		
BYM2401	Technical Drawing in Bioengineering		EN	3	0	0	3	5		

Elective 4										
Code	Name	Prerequisite	Lng	T	P	L	LC	ECTS		
BYM2502	Cell Culture Systems		EN	3	0	0	3	5		
BYM2602	Biosensors		EN	3	0	0	3	5		
BYM2702	Stoichiometry		EN	3	0	0	3	5		

Elective 5										
Code	Name	Prerequisite	Lng	T	P	L	LC	ECTS		
BYM3331	Microbiology in Bioengineering		TR	3	0	0	3	5		
BYM3651	Fundamentals of Biopolymers		TR	3	0	0	3	5		
BYM3361	Concepts of Genetics		TR	3	0	0	3	5		
BYM3521	Bioinstrumental Techniques		TR	3	0	0	3	5		

Elective 6										
Code	Name	Prerequisite	Lng	T	P	L	LC	ECTS		
BYM3402	Biomedical Physics		EN	3	0	0	3	5		
BYM3502	Biophysics in Bioengineering		EN	3	0	0	3	5		
BYM3602	Enzyme Technology		EN	3	0	0	3	5		
BYM3802	Artificial Organs		EN	3	0	0	3	5		

Elective 7										
Code	Name	Prerequisite	Lng	T	P	L	LC	ECTS		
BYM4691	Biochemical Engineering		TR	3	0	0	3	4		
BYM4521	Design in Bioengineering		TR	3	0	0	3	4		
BYM4721	Nanotechnology in Bioengineering		TR	3	0	0	3	4		
BYM4661	Biomedical Materials		TR	3	0	0	3	4		
BYM4451	Biotechnology and Biosafety		TR	3	0	0	3	4		
BYM4321	Controlled Release Systems		TR	3	0	0	3	4		
BYM4851	Environmental Microbiology	BYM3331	TR	3	0	0	3	4		

Elective 8										
Code	Name	Prerequisite	Lng	T	P	L	LC	ECTS		
BYM4102	Data Analysis and Visualization		EN	3	0	0	3	4		
BYM4202	Modern Techniques in Molecular Biology		EN	3	0	0	3	4		
BYM4302	Vocational English in Bioengineering		EN	3	0	0	3	4		
BYM4502	Virology		EN	3	0	0	3	4		

Elective 1										
Code	Name	Prerequisite	Lng	T	P	L	LC	ECTS		
ITB2090	Democracy Culture Principles and Institutions		TR	3	0	0	3	3		
ITB3020	Introduction to Philosophy		TR	3	0	0	3	3		
ITB3040	Political Developments and Social Movements in 20th-Century		TR	3	0	0	3	3		
ITB3150	History and Cinema		TR	3	0	0	3	3		
ITB3220	Modernity and Consumer Society		TR	3	0	0	3	3		
ITB3260	Cultural Studies and Identity		TR	3	0	0	3	3		
ITB3270	Istanbul: Past, Present, and Future		TR	3	0	0	3	3		
ITB3330	Environment and Ecology		TR	3	0	0	3	3		
ITB3390	History of Civilizations		TR	3	0	0	3	3		
ITB3420	The Social Structure of Ottoman Empire		TR	3	0	0	3	3		
ITB3250	Introduction to Psychology		TR	3	0	0	3	3		
ITB3360	History of Art		TR	3	0	0	3	3		
MDB4011	Introduction to German Language Skills		DE	3	0	0	3	3		
MDB4021	German Language Skills		DE	3	0	0	3	3		
MDB4031	Advanced German		DE	3	0	0	3	3		

Seçmeli 9										
Code	Name	Prerequisite	Lng	T	P	L	LC	ECTS		
BYM4672	Biotransport		TR	3	0	0	3	4		
BYM4292	Bioengineering Economics		TR	3	0	0	3	4		
BYM4472	Process Dynamics and Control in Bioengineering		TR	3	0	0	3	4		

Elective 2										
Code	Name	Prerequisite	Lng	T	P	L	LC	ECTS		
ITB2030	Philosophy of Science		TR	3	0	0	3	3		
ITB2040	Economic Policies and Applications		TR	3	0	0	3	3		
ITB2080	Women in Social Transformations		TR	3	0	0	3	3		
ITB3010	Sociology		TR	3	0	0	3	3		
ITB3130	Political Ideologies: Theory and History		TR	3	0	0	3	3		
ITB3210	Communication in Contemporary Society		TR	3	0	0	3	3		
ITB2020	History of Science		TR	3	0	0	3	3		
ITB4930	History of Architecture		TR	3	0	0	3	3		
ITB3560	Political Philosophy		TR	3	0	0	3	3		
ITB3570	Philosophy of Education		TR	3	0	0	3	3		
ITC1020	Social Structures and Historical Transformations		TR	3	0	0	3	3		
MDB4041	Reading & Speaking in German		DE	3	0	0	3	3		
MDB4051	Business German		DE	3	0	0	3	3		