T.C.

ADANA ALPARSLAN TÜRKEŞ BİLİM VE TEKNOLOJİ ÜNİVERSİTESİ

BÖLÜM/ANABİLİM DALI DERS BİLDİRİM FORMU

1. SEMESTER

Tarih: 24/04/2023

Cod	Course Name	Compulsory/ Elective	T	P	C	ECTS
MAT101	Calculus I	Compulsory	4	0	4	7
HIS101	Ataturk's Principles and History of Turkish Revolution I	Compulsory	2	0	NC	2
TUR101	Turkish Language I	Compulsory	2	0	NC	2
BIO105	General Biology for Bioengineers	Compulsory	3	2	4	5
BIO107	Introduction to Bioengineering	Compulsory	2	0	2	4
CHM107	General Chemistry I	Compulsory	2	2	3	5
PHY103	General Physics	Compulsory	3	0	3	5
TOTAL			18	4	16	30

- During 1. semester, elective course with minimum 0 ECTS should be taken.

2. SEMESTER

Code	Course Name	Compulsory/ Elective	T	P	C	ECTS
MAT102	Calculus II	Compulsory	4	0	4	7
HIS102	Ataturk's Principles and History of Turkish Revolution II	Compulsory	2	0	NC	2
TUR102	Turkish Language II	Compulsory	2	0	NC	2
BIO104	Cell Biology	Compulsory	2	2	3	5
BIO106	Introduction to Computer Programming	Compulsory	2	2	3	5
CHM110	General Chemistry II	Compulsory	2	0	2	3
CHM106	Organic Chemistry	Compulsory	3	0	3	4

ENG108	Technical English for Engineers	Compulsory	2	0	2	2
TOTAL			19	4	17	30

- During 2. semester, elective course with minimum 0 ECTS should be taken.

3. SEMESTER

Code	**Course Name**	**Compulsory/ Elective**	**T**	**P**	**C**	**ECTS**
MAT205	Differential Equations	Compulsory	3	0	3	6
BIO211	Biochemistry I	Compulsory	3	2	4	4
BIO231	Genetics	Compulsory	3	0	3	3
BIO213	Microbiology for Bioengineers	Compulsory	3	2	4	4
BIO217	Stoichiometry	Compulsory	3	0	3	5
BIO223	Thermodynamics	Compulsory	3	0	3	5
GENXXX	General Elective Course	Elective	2	0	2	3
TOTAL			20	4	22	30

- During 3. semester, general elective course with minimum 3 ECTS should be taken.

4. SEMESTER

Code	**Course Name**	**Compulsory/ Elective**	**T**	**P**	**C**	**ECTS**
BIO210	Biochemistry II: Biocatalysis	Compulsory	3	0	3	3
BIO214	General Physiology	Compulsory	3	0	3	3
BIO204	Fluid Mechanics	Compulsory	2	2	3	5
BIO220	Heat Transfer	Compulsory	3	0	3	5
BIO208	Molecular Biology	Compulsory	2	2	3	5
BIO2XX	Area Elective	Elective	2	0	2	3
BIO2XX	Area Elective	Elective	2	0	2	3
GENXXX	General Elective Course	Elective	2	0	2	3
TOTAL			19	4	21	30

- During 4. semester, with minimum 9 ECTS (6 ECTS area, 3 ECTS general) elective courses should be taken.

5. SEMESTER

Code	**Course Name**	**Compulsory/ Elective**	**T**	**P**	**C**	**ECTS**

BIO315	Bioprocess	Compulsory	3	0	3	5
BIO317	Biostatistics	Compulsory	2	1	3	3
BIO319	Engineering Laboratory	Compulsory	0	4	2	4
BIO321	Mass Transfer	Compulsory	3	0	3	5
BIO301	Occupational Health and Safety I	Compulsory	2	0	2	2
ENG303	English for Academic Purpose	Compulsory	2	0	2	2
BIO343	Introduction to Plant Biotechnology	Compulsory	2	0	2	3
BIO3XX	Area Elective	Elective	2	0	2	3
GENXXX	General Elective Course	Elective	2	0	2	3
TOTAL			18	5	21	30

- During 5. semester, with minimum 6 ECTS (3 ECTS area, 3 ECTS general) elective courses should be taken.

6. SEMESTER

Code	**Course Name**	**Compulsory/ Elective**	**T**	**P**	**C**	**ECTS**
BIO318	Animal and Plant Cell Cultures	Compulsory	3	2	4	5
BIO326	Bioengineering Laboratory	Compulsory	0	4	2	5
BIO320	Bioreactors	Compulsory	3	0	3	5
BIO322	Ethics in Bioengineering	Compulsory	2	0	2	2
BIO302	Occupational Health and Safety II	Compulsory	2	0	2	2
BIO344	Separation and Purification	Compulsory	3	0	3	3
BIO316	Summer Internship	Compulsory	0	2	NC	5
BIO3XX	Area Elective	Elective	2	0	2	3
TOTAL			15	8	18	30

- During 6. semester, area elective course with minimum 3 ECTS should be taken.

7. SEMESTER

Code	**Course Name**	**Compulsory/ Elective**	**T**	**P**	**C**	**ECTS**

BIO437	Bioengineering Project I	Compulsory	0	2	1	6
BIO403	Process Control	Compulsory	3	0	3	5
BIO407	Process Design	Compulsory	2	2	3	7
BIO409	Seminar	Compulsory	2	0	NC	2
BIO4XX	Area Elective	Elective	3	0	3	5
BIO4XX	Area Elective	Elective	3	0	3	5
TOTAL			13	4	13	30

- During 7. semester, area elective course with minimum 10 ECTS should be taken.

8. SEMESTER

Code	**Course Name**	**Compulsory/ Elective**	**T**	**P**	**C**	**ECTS**
BIO4XX	Area Elective	Elective	0	2	1	10
BIO4XX	Area Elective	Elective	3	0	3	5
BIO4XX	Area Elective	Elective	3	0	3	5
BIO4XX	Area Elective	Elective	3	0	3	5
BIO4XX	Area Elective	Elective	3	0	3	5
TOTAL			12	2	13	30

OR

Code	**Course Name**	**Compulsory/ Elective**	**T**	**U**	**K**	**AKTS**
BIO421*,1	Applied Engineering Education	Elective	5	0	NC	30
		TOTAL	5	0	NC	30

- During 8. semester, area elective course with minimum 30 ECTS should be taken.

*BIO421 course includes 40 hours of indüstrial practice and can be opened in both Spring and Fall semesters. It can be chosen only by prolonged students in fall term·

[1]The students who fulfill the restrictions in related instruction can enroll this course.

Total Credits: 149; **Total ECTS Credits**: 240

AREA ELECTIVE COURSES						
Code	**Course Name**	**Compulsory/ Elective**	**T**	**P**	**C**	**ECTS**
BIO234	Biomaterials	Elective	2	0	2	3
BIO236	Biosensors	Elective	2	0	2	3
BIO238	Immunology	Elective	2	0	2	3
BIO240	Food Microbiology for Bioengineers	Elective	2	0	2	3
BIO337	Scientific Research Techniques	Elective	2	0	2	3
BIO325	Biotechnology of Archaea	Elective	2	0	2	3
BIO323	Biochemical Regulation and Signal Transduction	Elective	2	0	2	3
BIO327	Enzyme Technology	Elective	2	0	2	3
BIO329	Introduction to Bioinformatics	Elective	2	0	2	3
BIO331	Medical Genetics	Elective	2	0	2	3
BIO335	Modern Techniques in Molecular Biology	Elective	2	0	2	3
BIO339	Functional Bioproducts	Elective	2	0	2	3
BIO336	Genetic Engineering	Elective	1	1	2	3
BIO346	Biochromatography	Elective	2	0	2	3
BIO328	Drug Delivery Devices	Elective	2	0	2	3
BIO330	Fermentation Technology	Elective	2	0	2	3
BIO338	Introduction to System Biology	Elective	2	0	2	3
BIO342	Marine Biotechnology	Elective	2	0	2	3
BIO332	Histology	Elective	2	0	2	3
BIO334	Plant Genetic Engineering	Elective	2	0	2	3
BIO340	Antimicrobial Materials	Elective	2	0	2	3

BIO348	Introduction to Molecular Modeling	Elective	2	0	2	3
BIO499	Artificial Organ Technologies	Elective	3	0	3	5
BIO423	Biological Treatment Processes	Elective	3	0	3	5
BIO481	Biotechnology	Elective	3	0	3	5
BIO467	Cancer Biology	Elective	3	0	3	5
BIO431	Cellular Therapy and Regenerative Medicine	Elective	3	0	3	5
BIO489	Computational Biology and Network Medicine	Elective	3	0	3	5
BIO435	Environmental Technologies	Elective	3	0	3	5
BIO439	Genomics and Proteomics	Elective	3	0	3	5
BIO441	Industrial Biotechnology	Elective	3	0	3	5
BIO493	Molecular Medicine	Elective	3	0	3	5
BIO445	Molecular Metabolism	Elective	3	0	3	5
BIO447	Molecular Modeling and Simulations	Elective	2	1	3	5
BIO455	Recombinant Protein Production from Microorganisms	Elective	3	0	3	5
BIO469	Special Cell Culture Techniques	Elective	3	0	3	5
BIO479	Stem Cell Technologies	Elective	3	0	3	5
BIO425	Tissue Engineering	Elective	3	0	3	5
BIO491	Toxicology	Elective	3	0	3	5
BIO471	Instrumental Analyses	Elective	3	0	3	5
BIO473	Nanotechnology for Bioengineers	Elective	3	0	3	5
BIO421	Applied Engineering Education	Elective	5	0	NC	30
BIO404	Bioengineering Project II	Elective	0	2	1	10

BIO419	Antioxidant Defence Systems	Elective	3	0	3	5
BIO433	Advance Plant Genetics	Elective	3	0	3	5
BIO411	Molecular Dynamics Simulations	Elective	3	0	3	5
BIO415	Novel Bioreactor Control Systems	Elective	3	0	3	5

*BIO4XX course(s) can be opened in both Spring and Fall semesters (except BIO421 and BIO404).
*BIO421 course can be opened in both Spring and Fall semesters. It can be chosen only by prolonged students in fall term.

GENERAL ELECTIVE COURSES

Code	**Course Name**	**Compulsory/ Elective**	**T**	**P**	**C**	**ECTS**
GENXXX	Business Communications	Elective	2	0	2	3
GENXXX	Tourism Geography of Turkey	Elective	2	0	2	3
GENXXX	Organizational Behaviour	Elective	2	0	2	3
GENXXX	Special Interest Tourism	Elective	2	0	2	3
GENXXX	Business Ethics	Elective	2	0	2	3
GENXXX	Human Resources	Elective	2	0	2	3
GENXXX	Human Resources Management	Elective	2	0	2	3
GENXXX	History of Art	Elective	2	0	2	3
GENXXX	World Geography and Travel Destinations	Elective	2	0	2	3
GENXXX	Negotiation Skills	Elective	2	0	2	3

GENXXX	Management and Organization	Elective	2	0	2	3
GENXXX	Financial Markets and Institutions	Elective	2	0	2	3
GENXXX	Strategic Management	Elective	2	0	2	3
GENXXX	E-Commerce	Elective	2	0	2	3
GENXXX	World Economy	Elective	2	0	2	3
GENXXX	International Business Management	Elective	2	0	2	3
GENXXX	Introduction to Business	Elective	2	0	2	3
GENXXX	Entrepreneurship I	Elective	2	0	2	3
GENXXX	Entrepreneurship II	Elective	2	0	2	3
GENXXX	Principles of Marketing	Elective	2	0	2	3
GENXXX	Global Marketing	Elective	2	0	2	3
GENXXX	Consumer Behavior	Elective	2	0	2	3
GENXXX	Introduction to Economics	Elective	2	0	2	3
GENXXX	Social Entrepreneurship	Elective	2	0	2	3
GENXXX	Brand Management	Elective	2	0	2	3
GENXXX	Cultural Heritage and Tourism Development	Elective	2	0	2	3
GENXXX	Managing Teams	Elective	2	0	2	3
GENXXX	Leadership and Change	Elective	2	0	2	3

GENXXX	Sales Management	Elective	2	0	2	3
GENXXX	Theater	Elective	2	0	2	3
GENXXX	Engineering Management	Elective	2	0	2	3
GENXXX	Business Law	Elective	2	0	2	3
GENXXX	Engineering Economics	Elective	2	0	2	3
GENXXX	Production Planning	Elective	2	0	2	3
GENXXX	Corporate Social Responsibility Project	Elective	2	0	2	3
GENXXX	Intellectual Property Rights and Patent	Elective	2	0	2	3
GENXXX	Project Writing and Management	Elective	2	0	2	3
GENXXX	Career Planning	Elective	2	0	2	3
GENXXX	Volunteering Works	Elective	2	0	2	3
GENXXX	Mining History	Elective	2	0	2	3
GENXXX	Entrepreneurship Financing	Elective	2	0	2	3
GENXXX	Financial Literacy for Managers	Elective	2	0	2	3
GENXXX	History of Science	Elective	2	0	2	3
GENXXX	Environmental Problems	Elective	2	0	2	3

GENXXX	Introduction to MATLAB for Engineers	Elective	2	0	2	3
GENXXX	Managerial Accounting	Elective	2	0	2	3

T = Theoretical; **P** = Practical; **C** = Credit**, NC =** Non-Credits

In order to obtain the BSc in Bioengineering degree, students must accumulate 240 ECTS credits and successfully complete all of the compulsory and elective courses with minimum 240 ECTS.

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