ENGINEERING AND NATURAL SCIENCES FACULTY
SOFTWARE ENGINEERING DEPARTMENT
2025 - 2026 Syllabus

First Semester						
Course Code	**Course Name**	**T**	**A**	**NC**	**ECTS**	**Prerequisite***
PHYS101	PHYSICS I	3	0	0	4	
PHYS103	PHYSICS LABORATORY I	0	2	0	2	
TDL101	TÜRK DİLİ I	2	0	0	2	
TİT101	TÜRK İNKILAP TARİHİ I	2	0	0	2	
MATH101	CALCULUS I	4	0	0	6	
CHEM101	GENERAL CHEMISTRY	3	0	0	5	
ENG101	ACADEMIC ENGLISH I	3	0	0	2	
SENG113	COMPUTER PROGRAMMING I	3	2	0	5	
SENG101	INTRODUCTION TO SOFTWARE ENGINEERING	2	0	0	2	
Total					**30**	

Second Semester						
Course Code	**Course Name**	**T**	**A**	**NC**	**ECTS**	**Prerequisite***
ENG102	ACADEMIC ENGLISH II	3	0	0	2	
PHYS102	PHYSICS II	3	0	0	4	
PHYS104	PHYSICS LABORATORY II	0	2	0	2	
MATH104	APPLIED LINEAR ALGEBRA	3	0	0	6	
MATH102	CALCULUS II	4	0	0	6	MATH101
TİT102	TÜRK İNKILAP TARİHİ II	2	0	0	2	
TDL102	TÜRK DİLİ II	2	0	0	2	
SENG114	COMPUTER PROGRAMMING II	3	2	0	6	SENG113
Total					**30**	

Third Semester

Course Code	Course Name	T	A	NC	ECTS	Prerequisite*
SENG207	PROBABILITY AND STATISTICS	3	0	0	6	
SENG201	OBJECT ORIENTED PROGRAMMING	3	2	0	6	SENG114
ENGR201	DIFFERENTIAL EQUATIONS	4	0	0	6	
SENG209	SOFTWARE REQUIREMENTS ENGINEERING	3	0	0	6	
ENGR265	PRINCIPLES OF OCCUPATIONAL HEALTH AND SAFETY I	2	0	0	3	
SENG211	SOFTWARE PROJECT MANAGEMENT	3	0	0	6	
Total					33	

Fourth Semester

Course Code	Course Name	T	A	NC	ECTS	Prerequisite*
ENGR202	DISCRETE MATHEMATICS	4	0	0	6	
SENG206	CONCEPTS OF PROGRAMMING LANGUAGES	3	0	0	6	SENG114
ENGR266	PRINCIPLES OF OCCUPATIONAL HEALTH AND SAFETY II	2	0	0	3	
SENG214	SOFTWARE TESTING AND QUALITY ASSURANCE	3	0	0	6	
ENGRXXX veya UEXXX	FACULTY ELECTIVE veya UNIVERSITY ELECTIVE	2	0	0	3	
SENG204	DATA STRUCTURES	3	2	0	6	SENG201
Total					30	

Fifth Semester

Course Code	Course Name	T	A	NC	ECTS	Prerequisite*
SENG303	DESIGN AND ANALYSIS OF ALGORITHMS	3	0	0	5	SENG204
SENG301	DATABASE MANAGEMENT SYSTEMS	3	2	0	5	SENG201
SENG319	SOFTWARE DESIGN PATTERNS	3	0	0	6	SENG201
SENG305	OPERATING SYSTEMS	3	0	0	6	SENG204
SENGXXX	DEPARTMENT ELECTIVE	3	0	0	5	
SENG300	INDUSTRIAL PRACTICE I	0	2	0	4	
Total					31	

Sixth Semester						
Course Code	**Course Name**	**T**	**A**	**NC**	**ECTS**	**Prerequisite***
SENG304	COMPUTER NETWORKS	3	0	0	6	
SENG326	SOFTWARE ARCHITECTURE	3	0	0	6	
SENG302	SECURE SOFTWARE DEVELOPMENT	3	0	0	6	
SENGXXX	DEPARTMENT ELECTIVE	3	0	0	5	
SENG306	SCIENTIFIC COMPUTING	3	0	0	7	SENG113
Total					**30**	

Seventh Semester						
Course Code	**Course Name**	**T**	**A**	**NC**	**ECTS**	**Prerequisite***
SENG401	GRADUATION PROJECT I	3	3	0	6	SENG204
SENG400	INDUSTRIAL PRACTICE II	0	2	0	4	
SENGXXX	DEPARTMENT ELECTIVE	3	0	0	5	
SENGXXX	DEPARTMENT ELECTIVE	3	0	0	5	
SENGXXX	DEPARTMENT ELECTIVE	3	0	0	5	
SENGXXX	DEPARTMENT ELECTIVE	3	0	0	5	
Total					**30**	

Eighth Semester						
Course Code	**Course Name**	**T**	**A**	**NC**	**ECTS**	**Prerequisite***
SENG402	GRADUATION PROJECT II	3	3	0	7	SENG204
ENGRXXX or UEXXX	FACULTY ELECTIVE or UNIVERSITY ELECTIVE	2	0	0	3	
SENGXXX	DEPARTMENT ELECTIVE	3	0	0	5	
SENGXXX	DEPARTMENT ELECTIVE	3	0	0	5	
SENGXXX	DEPARTMENT ELECTIVE	3	0	0	5	
SENGXXX	DEPARTMENT ELECTIVE	3	0	0	5	
Total					**30**	

T: Theory **A:** Application **NC:** National Credit **ECTS:** Europe Credit Transfer System

*Courses in the prerequisite column must be succeeded with at least DD grade.

ELECTIVE COURSES

Course Code	Course Name	T	A	NC	ECTS	Prerequisite*
SENG310	HUMAN COMPUTER INTERACTION	3	0	0	5	
SENG311	WEB TECHNOLOGY APPLICATIONS	3	0	0	5	
SENG312	INTRODUCTION TO ROBOTICS	3	0	0	5	
SENG313	COMPILER DESIGN	3	0	0	5	
SENG314	FORMAL LANGUAGES WITH ABSTRACT MACHINES	3	0	0	5	
SENG315	COMPUTER GRAPHICS	3	0	0	5	
SENG316	COMPUTER ARCHITECTURE	3	0	0	5	
SENG317	ARTIFICIAL INTELLIGENCE	3	0	0	5	
SENG318	RAPID APPLICATION DEVELOPMENT	3	0	0	5	
SENG320	NUMERICAL ANALYSIS	3	0	0	5	
SENG324	ADVANCED DATABASES	3	0	0	5	
SENG410	DATA MINING	3	0	0	5	
SENG411	WEB PROGRAMMING	3	0	0	5	
SENG412	SPECIAL TOPICS IN ROBOTICS	3	0	0	5	
SENG413	OPEN SOURCE SOFTWARE DEVELOPMENT	3	0	0	5	
SENG414	3D MODELLING AND GAME DESIGN	3	0	0	5	
SENG415	INTERNET ENGINEERING	3	0	0	5	
SENG416	DIGITAL IMAGE PROCESSING	3	0	0	5	
SENG417	ERP SYSTEMS	3	0	0	5	
SENG418	PARALEL COMPUTING	3	0	0	5	
SENG419	SYSTEM ADMINISTRATION	3	0	0	5	
SENG420	NATURAL LANGUAGE PROCESSING	3	0	0	5	
SENG421	REAL TIME NETWORK SYSTEMS	3	0	0	5	
SENG422	CLOUD COMPUTING	3	0	0	5	
SENG423	INTERNET OF THINGS	3	0	0	5	
SENG424	EMBEDDED SYSTEMS	3	0	0	5	
SENG425	DATA SCIENCE	3	0	0	5	
SENG426	OPTIMIZATION	3	0	0	5	
SENG427	INTRODUCTION TO BIOINFORMATICS	3	0	0	5	

SENG428	NEURAL NETWORKS	3	0	0	5	
SENG429	CYBER SECURITY	3	0	0	5	
SENG430	INFORMATION SYSTEM SECURITY	3	0	0	5	
SENG431	SYSTEM SIMULATION AND MODELLING	3	0	0	5	
SENG432	SOFTWARE METRICS	3	0	0	5	
SENG433	FUNDAMENTALS OF BLOCKCHAIN TECHNOLOGY	3	0	0	5	
SENG434	GREEN SOFTWARE ENGINEERING	3	0	0	5	
SENG435	INTRODUCTION TO DIGITAL IMAGE PROCESSING	3	0	0	5	
SENG445	INTRODUCTION TO MACHINE LEARNING	3	0	0	5	
ENGR450	ENGINEERING APPLICATION ON SITE	5	0	0	15	