

KARADENİZ TECHNICAL UNIVERSITY – ENGINEERING FACULTY
DEPARTMENT OF SOFTWARE ENGINEERING
UNDERGRADUATE CURRICULUM

The education period is four years in all departments of KTU Engineering Faculty. There are two semesters in one year, one being autumn and the other being spring. The curriculum applied in the 100% English program of the Department of Software Engineering is given below for each semester. The meanings of the abbreviations used in the given course list are as follows.

ECTS : European Credit Transfer System, **C** : Credit hour, **H** : Course hour, **A** : Application, **L** : Lab, **E** : Elective, **P** : Prerequisite

Fall Term – 1 st Semester							
Code	Course Title	ECTS	C	H	A	L	Prerequisite
MATH1001	Mathematics I	5	4	4	0	0	
YDIXXX1	English I	2	2	2	0	0	
SE1001	Introduction to Software Engineering	2	2	2	0	0	
SEXXX1	Programming I	7	3	3	0	0	
SE1005	Computer Fundamentals	5	3	3	0	0	
PHYS1001	Physics I	5	3.5	3	0	1	
TURK1003	Turkish Language I	2	0	2	0	0	
HIST1005	Ataturk's Principles and History of Revolution I	2	0	2	0	0	
Total Credit		30	17.5	21	0	1	

Spring Term – 2 nd Semester							
Code	Course Title	ECTS	C	H	A	L	Prerequisite
YDIXXX2	English II	2	2	2	0	0	
SEXXX2	Programming II	7	3.5	3	1	0	Programming I
SE1002	Linear Algebra	4	3	3	0	0	
SE1004	Engineering Ethics	3	2	2	0	0	
MATH1000	Mathematics II	5	4	4	0	0	
PHYS1000	Physics II	5	3.5	3	0	1	
TURK1004	Turkish Language II	2	0	2	0	0	
HIST1004	Ataturk's Principles and History of Revolution II	2	0	2	0	0	
Total Credit		30	18	21	1	1	

Fall Term – 3 rd Semester							
Code	Course Title	ECTS	C	H	A	L	Prerequisite
SE2001	Data Structures	4	3	3	0	0	Programming -II
SE2003	Software Requirement and Modelling	5	3	3	0	0	
SE2005	Digital Systems	5	4	4	0	0	
SE2007	Object Oriented Programming	5	3.5	3	1	0	Programming -II
MATH2001	Differential Equations	5	4	4	0	0	
SE2009	Discrete Mathematics	4	3	3	0	0	
SE2011	Occupational Health and Safety I	2	2	2	0	0	
Total Credit		30	22.5	22	1	0	

Spring Term – 4 th Semester							
Code	Course Title	ECTS	C	H	A	L	Prerequisite
SE2000	Formal Languages and Automata	4	3	3	0	0	
SE2002	Programming Languages	5	3	3	0	0	
SE2004	Software Architecture and Design	5	3	3	0	0	
SE2006	Algorithms	4	3	3	0	0	
SE2008	Engineering Mathematics	6	4	4	0	0	
SE2010	Probability and Statistics	4	3	3	0	0	
SE2012	Occupational Health and Safety II	2	2	2	0	0	
Total Credit		30	21	21	0	0	

Fall Term – 5 th Semester							
Code	Course Title	ECTS	C	H	A	L	Prerequisite
SE3001	Operating Systems	5	3	3	0	0	
SE3003	Data Science	5	3	3	0	0	
SE3005	Computer Networks	4	3	3	0	0	
SE3007	Software Quality Assurance	5	3	3	0	0	
SE3009	Entrepreneurship	2	2	2	0	0	
	Technical Elective – 1	5	3	3	0	0	
	Non-Technical Elective – 1	4	2	2	0	0	
Total Credit		30	19	19	0	0	

Spring Term – 6 th Semester							
Code	Course Title	ECTS	C	H	A	L	Prerequisite
SE3000	Software Project Design	6	3	2	2	0	Software Architecture and Design
SE3002	Database Management Systems	5	3	3	0	0	
SE3004	Software Security	5	3	3	0	0	
SE3006	Software Testing Verification and Validation	5	3	3	0	0	
	Technical Elective – 2	5	3	3	0	0	
	Non-Technical Elective – 2	4	2	2	0	0	
Total Credit		30	17	16	2	0	

Fall Term – 7 th Semester							
Code	Course Title	ECTS	C	H	A	L	Prerequisite
SE4001	Professional Training I	3	0	0	2	0	
SE4003	Software Project Development	10	3	2	2	0	Software Project Design
ENG4001	Multidisciplinary Engineering Applications	2	1	0	2	0	
	Technical Elective – 3	5	3	3	0	0	
	Technical Elective – 4	5	3	3	0	0	
	Technical Elective – 5	5	3	3	0	0	
Total Credit		30	13	11	6	0	

Spring Term – 8 th Semester							
Code	Course Title	ECTS	C	H	A	L	Prerequisite
SE4000	Professional Training II	3	0	0	2	0	
SE4002	Graduation Project	12	3	2	2	0	Software Project Development
	Technical Elective – 6	5	3	3	0	0	
	Technical Elective – 7	5	3	3	0	0	
	Technical Elective – 8	5	3	3	0	0	
Total Credit		30	12	11	4	0	
GENERAL TOTAL CREDIT		240	140	142	14	2	

**DEPARTMENT OF SOFTWARE ENGINEERING
UNDERGRADUATE CURRICULUM (Elective Courses)**

Fall Term – 5 th Semester							
Non-Technical Elective – 1							
Code	Course Title	ECTS	C	H	A	L	Prerequisite
SE3011	Engineering Economics	4	2	2	0	0	
SE3013	Basic Law	4	2	2	0	0	
USEC0007	Protection of Personal Data	4	2	2	0	0	
	Total Credit	4	2	2	0	0	
Technical Elective – 1							
Code	Course Title	ECTS	C	H	A	L	Prerequisite
SE3015	Programming with Java	5	3	3	0	0	
SE3017	Artificial Neural Networks	5	3	3	0	0	
SE3019	Computer Graphics	5	3	3	0	0	
	Total Credit	5	3	3	0	0	

Spring Term – 6 th Semester							
Non-Technical Elective – 2							
Code	Course Title	ECTS	C	H	A	L	Prerequisite
SE3008	Management and Organization	4	2	2	0	0	
SE3010	Informatics Law	4	2	2	0	0	
USEC0012	Career Planning	4	2	2	0	0	
	Total Credit	4	2	2	0	0	
Technical Elective – 2							
Code	Course Title	ECTS	C	H	A	L	Prerequisite
SE3012	Image Processing	5	3	3	0	0	
SE3014	Web and Internet Programming	5	3	3	0	0	
SE3016	Computer Organization	5	3	3	0	0	
	Total Credit	5	3	3	0	0	

Fall Term – 7 th Semester							
Technical Elective – 3 – 4 – 5							
Code	Course Title	ECTS	C	H	A	L	Prerequisite
SE4005	System Programming	5	3	3	0	0	
SE4007	Compiler Design	5	3	3	0	0	
SE4009	Introduction to Bioinformatic	5	3	3	0	0	
SE4011	Human Computer Interaction	5	3	3	0	0	
SE4013	Deep Learning	5	3	3	0	0	
SE4015	Agile Software Development	5	3	3	0	0	
	Total Credit	15	9	9	0	0	

Spring Term – 8 th Semester							
Technical Elective – 6 – 7 – 8							
Code	Course Title	ECTS	C	H	A	L	Prerequisite
SE4004	Network and Data Security	5	3	3	0	0	
SE4006	Introduction To Parallel Computing	5	3	3	0	0	
SE4008	Data Mining	5	3	3	0	0	
SE4010	Natural Language Processing	5	3	3	0	0	
SE4012	Wireless and Mobile Networks	5	3	3	0	0	
SE4014	Cloud Computing	5	3	3	0	0	
	Total Credit	15	9	9	0	0	