KARADENIZ 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 – 1st Semester

Code	Course Title	ECTS	C	H	A	L	Prerequisite
MATH1011	Mathematics I	5	4	4	0	0	
YDI1001	English I	3	3	3	0	0	
SE10X1	Introduction to Software Engineering	2	2	2	0	0	
SE10X2	Programming I	6	3	3	0	0	
SE10X3	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**	**18.5**	**22**	**0**	**1**	

Spring Term – 2nd Semester

Code	Course Title	ECTS	C	H	A	L	Prerequisite
YDI1002	English II	3	3	3	0	0	
SE11X1	Programming II	6	3.5	3	1	0	Programming I
SE11X2	Linear Algebra	4	3	3	0	0	
SE11X3	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**	**19**	**22**	**1**	**1**	

Fall Term – 3rd Semester

Code	Course Title	ECTS	C	H	A	L	Prerequisite
SE20X1	Data Structures	4	3	3	0	0	Programming-II
SE20X2	Software Requirement and Modelling	5	3	3	0	0	
SE20X3	Digital Systems	5	4	4	0	0	
SE20X4	Object Oriented Programming	5	3.5	3	1	0	Programming-II
MATH2001	Differential Equations	5	4	4	0	0	
SE20X5	Discrete Mathematics	4	3	3	0	0	
	Occupational Health and Safety I	2	2	2	0	0	
	Total Credit	**30**	**22.5**	**22**	**1**	**0**	

Spring Term – 4th Semester

Code	Course Title	ECTS	C	H	A	L	Prerequisite
SE21X1	Formal Languages and Automata	4	3	3	0	0	
SE21X2	Programming Languages	5	3	3	0	0	
SE21X3	Software Architecture and Design	5	3	3	0	0	
SE21X4	Algorithms	4	3	3	0	0	
SE21X5	Engineering Mathematics	6	4	4	0	0	
SE21X6	Probability and Statistics	4	3	3	0	0	
	Occupational Health and Safety II	2	2	2	0	0	
	Total Credit	**30**	**21**	**21**	**0**	**0**	

Fall Term – 5th Semester

Code	Course Title	ECTS	C	H	A	L	Prerequisite
SE30X1	Operating Systems	5	3	3	0	0	
SE30X2	Data Science	5	3	3	0	0	
SE30X3	Computer Networks	4	3	3	0	0	
SE30X4	Software Quality Assurance	5	3	3	0	0	
	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 – 6th Semester

Code	Course Title	ECTS	C	H	A	L	Prerequisite
SE31X1	Software Project Design	6	3	2	2	0	Software Architecture and Design
SE31X2	Database Management Systems	5	3	3	0	0	
SE31X3	Software Security	5	3	3	0	0	
SE31X4	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 – 7th Semester

Code	Course Title	ECTS	C	H	A	L	Prerequisite
SE40X1	Professional Training I	3	0	0	2	0	
SE40X2	Software Project Development	10	3	2	2	0	Software Project Design
MHN400*	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 – 8th Semester

Code	Course Title	ECTS	C	H	A	L	Prerequisite
SE41X1	Professional Training II	3	0	0	2	0	
SE41X2	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**	**142**	**144**	**14**	**2**	

DEPARTMENT OF SOFTWARE ENGINEERING
UNDERGRADUATE CURRICULUM (Elective Courses)

Fall Term – 5th Semester

Non-Technical Elective – 1

Code	Course Title	ECTS	C	H	A	L	Prerequisite
IKT3015	Engineering Economics	4	2	2	0	0	
HUK3009	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
SE3YX1	Programming with Java	5	3	3	0	0	
SE3YX2	Artificial Neural Networks	5	3	3	0	0	
SE3XX3	Computer Graphics	5	3	3	0	0	
	Total Credit	**5**	**3**	**3**	**0**	**0**	

Spring Term – 6th Semester

Non-Technical Elective – 2

Code	Course Title	ECTS	C	H	A	L	Prerequisite
ISL3026	Management and Organization	3	2	2	0	0	
HUK3028	Informatics Law	3	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
SE30Y1	Image Processing	5	3	3	0	0	
SE30Y2	Web and Internet Programming	5	3	3	0	0	
SE3XY3	Computer Organization	5	3	3	0	0	
	Total Credit	**5**	**3**	**3**	**0**	**0**	

Fall Term – 7th Semester

Technical Elective – 3 – 4 – 5

Code	Course Title	ECTS	C	H	A	L	Prerequisite
SE4X1	System Programming	5	3	3	0	0	
SE4X2	Compiler Design	5	3	3	0	0	
SE4X3	Introduction to Bioinformatic	5	3	3	0	0	
SE4X4	Human Computer Interaction	5	3	3	0	0	
SE4X5	Deep Learning	5	3	3	0	0	
SE4X6	Agile Software Development	5	3	3	0	0	
	Total Credit	**15**	**9**	**9**	**0**	**0**	

Spring Term – 8th Semester

Technical Elective – 6 – 7 – 8

Code	Course Title	ECTS	C	H	A	L	Prerequisite
SE4Y1	Network and Data Security	5	3	3	0	0	
SE4Y2	Introduction To Parallel Computing	5	3	3	0	0	
SE4Y3	Data Mining	5	3	3	0	0	
SE4Y4	Natural Language Processing	5	3	3	0	0	
SE4Y5	Wireless and Mobile Networks	5	3	3	0	0	
SE4Y6	Cloud Computing	5	3	3	0	0	
	Total Credit	**15**	**9**	**9**	**0**	**0**	