



MARMARA UNIVERSITY - FACULTY OF ENGINEERING

2017-2018 Spring

CSE3044 Software Engineering

COURSE DESCRIPTION FORM

Offering Department	Department of Computer Engineering		Undergraduate must course (6th semester)						
Course Code	CSE 3044								
Course Name	Software Engineering								
Language of Instruction	English								
ECTS	7								
Contact Hours	Theoretical (T): 3		Practice (U): 2		Laboratory(L):				
Pre-requisites	CSE 3055 Database Systems								
Instructor	Name	Borahan Tümer							
	E-mail	borahan.tumer@marmara.edu.tr							
Course Materials	Mandatory	Software Engineering, Ian Sommerville, 8 th edition, Addison-Wesley, 2007							
	Recommended	Software Engineering for Internet Applications, Eve Andersson, Philip Greenspun, and Andrew Grumet, MIT Press, 2006 The Unified Software Development Process, Ivar Jacobson, Grady Booch and James Rumbaugh, Addison Wesley, 1999							
Course Objectives	To explain the stages of software life cycle and process models and realize them in the class project; for the stage of software process design, to form the UML class, sequence and activity diagrams as a team work; to discuss the software testing activities, types and the risk management stage and to apply these as a team on the project.								
Course Content	Introduction; the definition of software process, stages of software development and process models; studying the requirements and requirement engineering; discussing the critical software systems and overviewing their properties and the differences of their development process from that of the regular software systems; software design; basics of the internet applications; verification and validation in software engineering, software testing, blackbox and whitebox testing and software cost estimation.								
Learning Outcomes	LO1	To explain all stages (specification, development, verification and validation) of software life cycle and realize them in the class project							
	LO2	To discuss software process models and realize them in the class project							
	LO3	For the requirement analysis stage in the software life cycle, to write the requirement analysis document supporting with UML use case diagram as a team work.							
	LO4	For the software design stage in the software life cycle, to form the UML class, sequence and activity diagrams as a team work.							
	LO5	To study software testing for different testing methods and work on some examples as a team work.							
	LO6	To discuss project/risk management stages and apply them on the class project in teams.							
Program Outcomes		LO1	LO2	LO3	LO4	LO5	LO6		
PO2	Ability to identify, formulate, and solve complex engineering problems (a); ability to select and apply proper analysis and modelling methods for this purpose (b).		b						
PO3	Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way so as to meet the desired result (a); ability to apply modern design methods for this purpose (b).			a	b				
PO4	Ability to devise (a), select, and use (b) modern techniques and tools needed for engineering practice (1); ability to employ information technologies effectively (2).	1a	1b	2	2				
PO6	Ability to work efficiently in intra-disciplinary (a) and multi-disciplinary teams (b); ability to work individually (c).			a	a	c	a		
PO10	Information about business life practices such as project management, risk management, and change management (a); awareness of entrepreneurship, innovation (b), and sustainable development (c).						a		
PO14	Knowledge of data structures and algorithm analysis (a), database management systems (b), operating systems (c), software engineering (d), computer architecture (e) and automata theory (f) in computer engineering.	d	d	d	d	d	d		
Subjects (Knowledge, Skills and	No	Week	Subjects	LO1	LO2	LO3	LO4	LO5	LO6
	S1	1-3	Software Process Models	MF,Q					P
	S2	4	Software Requirement Analysis		MF,Q	P			P

Behaviours), Contributions of Subjects to Learning Outcomes, Assessment Methods	S3	5	Critical Systems	MF,Q	MF,Q															
	S4	6	Software Architectural Design				MF,Q													
	S5	7	Distributed Software Design				P													
	S6	8-9	Software Verification and Validation					P,MF,Q												
	S7	10	Software Blackbox Testing					MF,Q												
	S8	11-12	Software Whitebox Testing					MF,Q												
	S9	13-14	Software Cost Estimation					MF,Q												
	Assessment Methods and Weights	No	Type	Weight	Implementation Rule		Make-up Rule													
		MF	Midterm, Final	55%	Any relevant material such as books, lecture notes and use of a calculator is allowed during the exams.		Marmara University regulations will be followed for make-up exams.													
Q		Quiz	5%	Subjects are covered in pop-up quizzes.		-														
P		Project	40%	A class project is assigned to each team. This project is composed of the three stages of software life cycle: requirement analysis, software design and implementation. Each stage is individually and independently evaluated.																
TOTAL			100%																	
Determining Letter Grades	<ul style="list-style-type: none"> The letter grades will be determined based on the midterm and final exams, quizzes. In order to determine the letter grade, a curve or catalog based method will be followed based on the total average scores of the students. The final exam score and the total average score of the student must be at least 35 to pass the course. According to Marmara University Undergraduate regulations, the weight of the final exam must be at least 40 out of 100. 																			
	<table border="1"> <thead> <tr> <th>Assessment</th> <th>Midterm</th> <th>Quizzes</th> <th>Project</th> <th>Final</th> <th>TOTAL</th> </tr> </thead> <tbody> <tr> <td>Weight</td> <td>15</td> <td>5</td> <td>40</td> <td>40</td> <td>100</td> </tr> </tbody> </table>									Assessment	Midterm	Quizzes	Project	Final	TOTAL	Weight	15	5	40	40
Assessment	Midterm	Quizzes	Project	Final	TOTAL															
Weight	15	5	40	40	100															
Teaching Method, Student Work Load	Time Applied by the Instructor																			
	No	Method	Explanation					Hours												
	1	Lectures	Lectures are given in class using the board or via presentations. Example questions are solved to enhance the concepts.					14x3=42												
	2	Problem Session/ Practice	Problems related to the course topics are solved on the board.					14x2=28												
	3	Laboratory	Experiments are done in the laboratory or theoretical concepts covered during the lectures are practiced using computer exercises.																	
	4	Interactive Courses	Questions are asked to students during lectures and they are encouraged to guess the answers (peer learning is also in this category)																	
	5	Field Work	Students attend activities outside the campus.																	
	6	Midterm	Midterm exam is given during the midterm week.					2												
	7	Final	Final exam is given during the final exam week.					2												
	Estimated Time to be Allocated by a Student																			
	8	Project	The students carry out research about the problem given in the project, design and implement their solution and prepare a report.					3x20=60												
	9	Homeworks	The students solve the problems given as homework.																	
	10	Pre-class learning of Course Material	The students study and learn the new subjects from course materials.					13x1=13												
11	Review of Course Material	Students review the course subjects from course materials to prepare for the exams and homeworks.					26													
12	Office Hour	Students ask questions to the instructor or the assistant during office hours.					2													
Total						175														
Academic Honesty	Violations of scholastic honesty include, but are not limited to cheating, plagiarizing, fabricating information or citations, facilitating acts of dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students.																			
	In case academic dishonesty is observed, the first authority is the instructor of the course. The instructor may decide to give the student zero for the homework(s)/lab(s)/exam(s), give the letter grade FF, or may take disciplinary action.																			