

Course Description Form			
Course Code and Name	5091329 Advanced Software Engineering		
Course Semester	Fall - Spring		
Catalog Content	Concepts of software engineering, requirements engineering, modeling, design patterns, design and implementation of large software systems.		
Textbook	(1) Ian Sommerville, Software Engineering (7th Edition), Addison Wesley, 2004. (2) Roger S. Pressman, Software Engineering A Practitioner's Approach (6th Edition), McGraw-Hill, 2005. (3) Bernd Bruegge, Allen H. Dutoit, Object-Oriented Software Engineering: Using UML, Patterns and Java (2nd Edition), Prentice Hall, 2003. (4) Kent Beck, Cynthia Andres, Extreme Programming Explained: Embrace Change (2nd Edition), Addison-Wesley, 1999.		
Supplementary Textbooks	-		
Credit	8		
Prerequisites of the Course (Attendance Requirements)	-		
Type of the Course	Elective		
Instruction Language	Turkish		
Course Objectives	Learning concepts of software engineering, learning planning and developing of large software systems.		
Course Learning Outcomes	<ol style="list-style-type: none"> 1. Knowledge about software engineering concepts. 2. Understanding of the requirements engineering concept. 3. Learning of design approaches and tools as a software process. 4. The ability of design and implementation of large software systems. 		
Instruction Methods	The mode of delivery of this course is face to face		
Weekly Schedule	<ol style="list-style-type: none"> 1.Week: Introduction to software engineering 2.Week: Requirements engineering 3.Week: Requirements engineering 4.Week: Nonfunctional Requirements 5.Week: KAOS Goal Modeling 6.Week: UML 7.Week: Use cases 8.Week: Overview Modeling 9.Week: Class Modeling 10.Week: Structural Modeling 11.Week: Dynamic Modeling 12.Week: System Design 13.Week: Design Patterns 14.Week: Design Patterns 		
Teaching and Learning Methods <i>(These are examples. Please fill which activities you use in the course)</i>	Weekly theoretical course hours: 3 Reading Activities: 1 Internet browsing, library work: 1 Report preparing: 5 Preparing a Presentation: 8 Presentations: 1 Preparation of Midterm and Midterm Exam: 24 Final Exam and Preparation for Final Exam: 36		
Assessment Criteria		Numbers	Total Weighting (%)
	Midterm Exams	1	35
	Assignment	6	25
	Application	0	0
	Projects	0	0
	Practice	0	0
	Quiz	0	0

	Percent of In-term Studies (%)		60				
	Percentage of Final Exam to Total Score (%)		40				
	Attendance						
Workload	Activity	Total Number of Weeks	Duration (weekly hour)	Total Period Work Load			
	Weekly Theoretical Course Hours	14	3	42			
	Weekly Tutorial Hours	0	0	0			
	Reading Tasks	14	2	28			
	Studies	14	2	28			
	Material Design and Implementation	0	0	0			
	Report Preparing	8	5	40			
	Preparing a Presentation	2	10	20			
	Presentations	2	1	2			
	Midterm Exam and Preperation for Midterm Exam	1	20	20			
	Final Exam and Preperation for Final Exam	1	20	20			
	Other (should be emphasized)	0	0	0			
	Total Workload			200			
	Total Workload / 25			8			
	Course Credit (ECTS)			8			
Contribution Level Between Course Learning Outcomes and Program Outcomes	No	Program Outcomes	1	2	3	4	5
	1	Reaches the expansion of knowledge by conducting scientific research in the field of engineering and evaluation, interpretation and application of information.				x	
	2	Has extensive and in depth knowledge including the latest techniques, methods applied and their limitations in engineering.				x	
	3	Completes and applies knowledge by using scientific methods by using limited or missing data and integrates information from different disciplines.					x
	4	Be aware of new and developing practices of the profession, examines and learns when needed.			x		
	5	Defines and formulates problems related to the field, develops methods to solve them and applies innovative methods in solutions.			x		

	6	Develops new and / or original ideas and methods, designs complex systems or processes and develops innovative / alternative solutions in their designs.	x				
	7	Designs and applies theoretical, experimental and modeling based researches, examines and solves the complex problems encountered in this process.	x				
	8	Works effectively in disciplinary and multidisciplinary teams, leads such teams and develops solution approaches in complex situations, works independently and takes responsibility.			x		
	9	Communicates oral and written using a foreign language at least at the level of European Language Portfolio B2.		x			
	10	Conveys the process and results of the studies in written and oral form in a systematic and clear manner in national and international environments within or outside the field.		x			
	11	Knows the social, environmental, health, security, legal aspects of engineering applications; project management, and business life applications and be aware of the constraints of these engineering applications.				x	
	12	Considers social, scientific and ethical values in the stages of data collection, interpretation and announcement and in all professional activities.		x			
The Course's Lecturer(s) and Contact Information		Name Surname: Prof. Dr. M. Ali AKCAYOL E-mail address: akcayol@gazi.edu.tr					