COURSE INFORMATON					
Course Title	*Code*	*Semester*	*L+P Hour*	*Credits*	*ECTS*
ADVANCED TOPICS IN SOFTWARE ENGİNEERING	**CSE544**		**3**	**3**	**7**

Prerequisites	

Language of Instruction	English
Course Level	Master's Degree
Course Type	Elective
Course Coordinator	
Instructors	Assist.Prof. Dr. Birol Aygün
Assistants	
Goals	Understanding of advanced topics in software engineering, in particular formal foundations, distributed software development processes, pervasive applications, new technological tools and approaches, review of design, implementation and testing technologies
Content	1) Review of basic software engineering topics and formal foundations, 2) Distributed software development process, 3) Pervasive applications, 4) Design, implementation and testing technologies, 5) Complexity models and defect prediction, 6) Project assignments

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Course Learning Outcomes	Program Learning Outcomes	Teaching Methods	Assessment Methods
1) Review of basic software engineering topics and formal foundations	1,2	1,2,3	A,C,D
2) Distributed software development process	3,4,5	1,2,3,4	A,C,D
3) Pervasive applications	6,7	1,2,3,4	A,B,D
4) Design, implementation and testing technologies	7,8	1,2,3,4	B,D
5) Complexity models and defect prediction	1,2	1,2,4	A,D
6) Project assignments	9	3,4	D

Teaching Methods:	1: Lecture, 2: Question-Answer, 3: Lab, 4: Case-study

Assessment Methods:	A: Testing, B: Experiment, C: Homework, D: Project

COURSE CONTENT		
Week	**Topics**	**Study Materials**
1	Review of basic software engineering topics	Textbook ,slides, course notes
2	Formal foundations of computational models and notations	Textbook , slides, course notes
3	Geographically distributed software development process	Textbook , slides, course notes
4	Contemporary software development frameworks	Textbook , slides, course notes, project descriptions
5	Pervasive applications, conceptualization, design patterns	Textbook , slides, course notes
6	Course review	Textbook , slides, course notes
7	MidTerm	Textbook , slides, course notes
8	Pervasive application design, development, evaluation	Textbook , slides, course notes
9	Static and dynamic models of software, multi-threading and multi-processing	Textbook , slides, course notes
10	Complexity models and defect prediction	Textbook , slides, course notes
11	Software testing technologies	Textbook , slides, course notes
12	Course Review	Textbook , slides, outside material
13	Course review	Textbook , slides, outside material

14	Project presentations	Project demos and documents

RECOMMENDED SOURCES	
Textbook	**Software Engineering: A Practitioner's Approach, 7/e, 2010 Roger Pressman, ISBN 0073375977**
Additional Resources	Web Engineering: A Practitioner's Approach, Roger Presman, Class Notes, reading list (TBA)

MATERIAL SHARING
Documents http://birolaygun.com/CSE544
Assignments
Exams

ASSESSMENT		
IN-TERM STUDIES	**NUMBER**	**PERCENTAGE**
Mid-terms	1	20
Exercises	3	15
Term Project	1	25
Final Exam	1	30
Attendance and participation		**10**
Total		**100**
CONTRIBUTION OF FINAL EXAMINATION TO OVERALL GRADE		35
CONTRIBUTION OF IN-TERM STUDIES TO OVERALL GRADE		65
Total		**100**

COURSE CATEGORY	Expertise/Field Courses

COURSE'S CONTRIBUTION TO PROGRAM						
No	Program Learning Outcomes	Contribution				
		1	2	3	4	5
1	Knowledge in the advanced computer architecture field			X		

2	Knowledge in advanced system design for computer engineering s purpose.				X
3	Knowledge in the theoretical topics of computer science			X	
4	Ability to comprehend, analyse and critique academic publications and conduct scholarly research at the frontiers of computer engineering				**X**
5	Ability and knowledge in the fields of Next-Generation and contemporary computer networks			X	

ECTS ALLOCATED BASED ON STUDENT WORKLOAD BY THE COURSE DESCRIPTION

Activities	Quantity	Duration (Hour)	Total Workload (Hour)
Course Duration (Excluding the exam weeks: 15x Total course hours)	15	2	30
Hours for off-the-classroom study (Pre-study, practice)	22	4	100
Midterm examination	1	3	3
Labwork	15	1	15
Project	1	25	25
Final examination	1	3	3
Total Work Load			176
Total Work Load / 25 (h)			5.0
ECTS Credit of the Course			7