Software Development Methodologies

Course Code: CSE 212 Course Period: Spring Course Type: Core Credits: 3 Theoric: 2 Practice: 0 Laboratory Hour: 2 ECTS: 5 Prerequisite Courses: Fundamentals of Computer Programming [1] Course Language: English Course Objectives:

The aim of this course is to provide students with knowledge and abilities to design and implement programs using object oriented methodologies and modern development environments.

Course Content:

Approaches to modular program design, basic concepts of objects: classes and instances, single and multiple inheritance, polymorphism, object hierarchies and exceptions and exception handling, graphical user interface (GUI) implementation, multithreading and file I/O. The course will also focus on object-oriented (OO) requirements and design principles, techniques for transforming design models to code and data structures. Special emphasis will be given to programming in Java.

Course Methodology:

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OBJECTS & CLASSES

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

Course Evaluation Methods:

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

Course L	Course Learning Outcomes		Teaching Methods	Assessment Methods		
1) Knowle concepts applied ir model an	edge in object oriented programming as; ability to use theoretical and nformation in object oriented to ad solve engineering problems.	1,6	1,2,4	A,C,D		
2) Ability to design and implement object oriented programs (design overall hierachy, classes and methods) under realistic constraints and conditions.		3,4,6	1,2,3	B,C,D		
3) Knowledge and ability to implement multithreaded interactive applications with graphical user interface components (mouse, window, button).		1,4,6	1,2,3	A,C		
4) Knowledge and ability to devise, select, and use modern techniques and tools needed for the design and implementation of software using object oriented concepts.		4,6	1,2,3	B,D		
COURSE CONTENT						
Week T	lopics .		Study Materials			
1 II F	1 INTRODUCTION TO OBJECT ORIENTED Textbook PROGRAMMING			extbook		

3	METHOD CALLS & TYPE CONVERSIONS	Textbook

Textbook

4	DATA STRCUTURES & ARRAY AND ARRAYLISTS	Textbook
5	INHERITANCE	Textbook
6	POLYMORPHISM	Textbook
7	MIDTERM EXAM I	Textbook
8	EXCEPTION HANDLING	Textbook
9	FILE I/O	Textbook
10	OBJECT SERIALIZATION	Textbook
11	INTRODUCTION TO GUI DESIGN	Textbook
12	MIDTERM EXAM II	Textbook
13	MULTITHREADING & MULTITHREADED GUI	Textbook
14	ACCESSING DATABASES (JDBC)	Textbook

RECOMMENDED SOURCES

Textbook	Lecture Notes: <u>http://cse.yeditepe.edu.tr/v2/en/academic/course-pages</u> [2]
	Lab material: <u>http://cse.yeditepe.edu.tr/v2/en/academic/course-pages</u> [2]
Additional Resources	JAVA: HOW TO PROGRAM, BY H.M.DEITEL & P.J. DEITEL (8TH EDITION) ISBN 0-13-136483-9.
	JAVA IN A NUTSHELL: A DESKTOP QUICK REFERENCE, BY DAVID FLANAGAN, O'REILLY (5TH EDITION)

MATERIAL SHARING

Documents	http://coadsys.yeditepe.edu.tr/ [3]
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Assignments <u>http://coadsys.yeditepe.edu.tr/</u> [3]

Exams

ASSESSMENT

IN-TERM STUDIES	NUMBER	PERCENTAGE			
Mid-terms	2	42			
Assignment	6	15			

Lab	Work 12			20			
Term Project 1				23			
Total				10	0		
COI OVE	CONTRIBUTION OF FINAL EXAMINATION TO OVERALL GRADE			30			
COI GR/	CONTRIBUTION OF IN-TERM STUDIES TO OVERALL GRADE			70			
Tota	al			10	0		
CO	URSE'S CONTRIBUTION TO PROGRAM						
No	Program Learning Outcomes	(Contribution				
			1	2	3	4	5
1	Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline; ability to use theoretical and applied information in these areas to model and solve engineering problems.						X
2	Ability to identify, formulate, and solve complex engineering problems; ability to select and apply proper analysis and modeling methods for this purpose.	ıg					
3	Ability to design a complex system, process, device or product under realistic constraints and conditions, in such way as to meet the desired result; ability to apply modern design methods for this purpose.	а					X
4	Ability to devise, select, and use modern techniques and tools needed for engineering practice; ability to employ information technologies effectively.						X
5	Ability to design and conduct experiments, gather data, analyze and interpret results for investigating engineering problems.						
6	Ability to work efficiently in intra-disciplinary and multi- disciplinary teams; ability to work individually.						X
7	Ability to communicate effectively both orally and in writing knowledge of a minimum of one foreign language.];					
8	Recognition of the need for lifelong learning; ability to account information, to follow developments in science and technology, and to continue to educate him/herself.	ess					
9	Awareness of professional and ethical responsibility.						

- 10 Information about business life practices such as project management, risk management, and change management; awareness of entrepreneurship, innovation, and sustainable development.
- 11 Knowledge about contemporary issues and the global and societal effects of engineering practices on health, environment, and safety; awareness of the legal consequences of engineering solutions.

ECTS ALLOCATED BASED ON STUDENT WORKLOAD BY THE COURSE DESCRIPTION

Activities	Quantity	Duration (Hour)	Total Workload (Hour)
Course Duration (Excluding the exam weeks: 12x Total course hours)	12	4	48
Hours for off-the-classroom study (Pre-study, practice)	14	2	28
Midterm examination	2	1.5	3
Homework	6	3	18
Project	1	30	30
Final examination	1	1.5	1.5
Total Work Load			128.5
Total Work Load / 25 (h)			5.14
ECTS Credit of the Course			5