SWE 214—Introduction to Software Engineering

Term: 061   Section: 1

Time & Place: SMW 8 – 9, Bldg 23-014

          Lab: U 14:10 – 17:10, Bldg 23-018

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COURSE SITE:	http://www.ccse.kfupm.edu.sa/~malalla/SWE214/index.htm
OFFICE HOURS:	SMW 9 – 10, and whenever you catch me.

DESCRIPTION

The course covers software engineering process models, requirements engineering process, and system models. More emphasis is put on methods, tools, notations, and verification and validation techniques for the analysis and specification of software requirements. The students will be introduced to the principles of project management. They will be exposed to the use-case driven approach for developing softwares and will practice requirements engineering, systems modeling, object orientation paradigm and UML CASE tools within a teamwork environment.

PREREQUISITES   ICS 201

COURSE OBJECTIVES

1. To learn the software engineering process.
2. To learn and appreciate the role of formal modeling in software analysis and requirements specification.
3. To learn the role of requirements analysis in system and software development.
4. To learn formal and informal methods of analyzing and validating requirements.

EVALUATION

Assignments & Quizzes	10%
Labs	25%
Major Exam I Sat. Nov. 4th at 5-7 pm.	15%
Major Exam II Sat. Dec. 9th at 5-7 pm.	20%
Final Exam (comprehensive)	30%

TEXTBOOK

The official textbook is

Leffingwell and D. Widrig, *Managing Software Requirements: A Use Case Approach*, 2nd Ed., Addison Wesley, 2003.

Students are also encouraged to refer to other books on the subject available in the library, e.g.

1. Suzanne Robertson and James Robertson, *Mastering the Requirements Process*, Addison-Wesley, 1999.
2. Gerald Kotonya and Ian Sommerville, *Requirements Engineering: Processes and Techniques*, John Wiley, 1998.
3. Ian Sommerville and Pete Sawyer, *Requirements Engineering: A good practice guide*, John Wiley, 1997.

CONTENTS

The following schedule is tentative and subjected to changes. Any change will be announced in the class and course website/ WebCT.

Weeks	Topics	Chapters
1	Introduction	
	FAQ about software engineering	
	The requirements problem	Ch 1
2	Introduction to UML	
	Introduction to requirements management	Ch 2
	Requirements and the software lifecycle	Ch 3
3	Use case diagrams I	
	The software team	Ch 4
	The five steps in problem analysis	Ch 5
4	Use case diagrams II	
	The challenge of requirements elicitation	Ch 8
	The features of a product or system	Ch 9
5	Documenting use cases	
6	Interaction diagrams I	
	Interviewing	Ch 10
	Requirements workshops	Ch 11
7	Interaction diagrams II	
	Brainstorming and idea reduction	Ch 12
	Storyboarding	Ch 13
8	Statecharts I	
	A use case primer	Ch 14
9	Statecharts II	
	Organizing requirements information	Ch 15
	The vision document	Ch 16
10	Class diagrams I	
	Establishing project scope	Ch 18
	Managing your customer	Ch 19

11	Class diagrams II	
12	Software requirements – a more rigorous look	Ch 20
	Refining the use cases	Ch 21
	Developing the supplementary specification	Ch 22
13	On ambiguity and specificity	Ch 23
	Technical methods for specifying requirements	Ch 24
	From use cases to implementation	Ch 25
14	Tracing requirements	Ch 27
	Managing changes	Ch 28
	Assessing requirements quality in iterative development	Ch 29
15	Agile requirements methods	Ch 30
	Prescription for requirements management	Ch 31
16	Review	

REMINDERS

1. The course website/WebCT is an important source of information. It will be updated regularly to contain up-to-date announcements, handouts, slides, etc.

2. By the university rules, 9 absences yield a DN grade.

3. No assignments would be accepted without penalty after the due date.