Course Name: Software Engineering – 1
Course Code: CS251

I. Basic Course Information

Major or minor element of program: General
Department offering the course: Computer Science Department

Academic level: 200 Level
Semester in which course is offered: First (fall) Semester
Course pre-requisite(s): CS 213 Programming - 2

Credit Hours: 3
Contact Hours Through:

Lecture	Tutorial *	Practical *	Total
2.5	0.0	1.5	4.0

* 1.5 hours for **either** Tutorial or Practical

Approval date of course specification: September 2014

II. Overall Aims of Course

The course is a survey of the field of software engineering, with a practical component. It aims at teaching students how to be able to explain and apply a broad range of concepts from software engineering, spanning all aspects the software engineering process. In addition, the course aims to make students be able to recognise, define, and make correct use of generally accepted software engineering terminology and to have experience of working as a member of a team on a software engineering project.

III. Program ILOs covered by course

Program Intended Learning Outcomes (By Code)			
Knowledge & Understanding	Intellectual Skills	Professional Skills	General Skills
K5,K11	I4,I7	P3,P6,P10,P11	G2,G4,G6

IV. Intended Learning Outcomes of Course (ILOs)

a. Knowledge and Understanding

On completing the course, students should be able to:

K.1 Define the software Engineering principles.
K.2 Define the basics of software analysis and design.
K.3 Define the basics of software requirements engineering.

b. Intellectual/Cognitive Skills

On completing the course, students should be able to:

I.1 Understand the basics of System analysis and design.
I.2 Use of UML as a modeling tool of software systems.
I.3 Achieve judgment and design solution strategies with quality criteria.
I.4 Solve problems considering commercial and industrial constraints.

c. Practical/Professional Skills

On completing the course, students should be able to:

P.1 Use software engineering tools in modelling.
P.2 Work in teams.
P.3 Design object oriented software.
P.4 Address professional issues in software engineering.

d. General and Transferable Skills

On completing the course, students should be able to:

G.1 Make presentations.
G.2 Write technical reports.
G.3 Work in groups.

V. Course Matrix Contents

	Main Topics / Chapters	Duration (Weeks)	Course ILOs Covered by Topic (By ILO Code)			
			K & U	I.S.	P.S.	G.S.
1-	Introduction to Software Engineering	1	K1,K2	I1	P4	[ ]
2-	Unified Modeling Language (UML)	4	[ ]	I2,I3,I4	P1	[ ]
3-	Requirements Engineering	2	K3	[ ]	P2,P4	G2,G3
4-	System Analysis	2	K2	I1	P1,P2,P4	G2,G3
5-	Architectural Design	2	[ ]	I1	P1,P2	All
6-	System Design	2	K2	I2	All	All
	Net Teaching Weeks	**13**				

VI. Course Weekly Detailed Topics / hours / ILOs

Week No.	Sub-Topics	Total Hours	Contact Hours	
			Theoretical Hours	Practical Hours *
1	Introduction to Software Engineering	2.5	2.5	
2	Use Case modeling	4	2.5	1.5
3	Class diagram	4	2.5	1.5
4	Sequence diagram	4	2.5	1.5
5	State diagram	4	2.5	1.5
6	Requirements Engineering	4	2.5	1.5
7	**Midterm Exam**			
8	System Analysis	4	2.5	1.5
9	Subsystem Decomposition	4	2.5	1.5
10	Software Architectural Styles	4	2.5	1.5
11	Concurrency	4	2.5	1.5
12	Hardware/Software Mapping	4	2.5	1.5
13	Persistent Data Management	4	2.5	1.5
14	Global Resource Handling , Access Control and Boundary Conditions	4	2.5	1.5
15	**Final Exam**			
Total Teaching Hours		**51**	**33**	**18**

* **No Practical/Tutorial during the first week of the semester**

VII. Teaching and Learning Methods

Teaching/Learning Method	Selected Method	Course ILOs Covered by Method (By ILO Code)			
		K & U	Intellectual Skills	Professional Skills	General Skills
Lectures & Seminars	X	All	I2,I3,I4	P3,P4	
Tutorials	X		I1,I2	P1	
Computer lab Sessions					
Practical lab Work	X		I2	P1,P4	
Reading Materials	X	All	I1,I2	P3,P4	
Web-site Searches					
Research & Reporting					
Problem Solving / Problem-based Learning					
Projects					
Independent Work					
Group Work	X		I1	P2,P3,P4	G1,G2,G3
Case Studies					
Presentations					
Simulation Analysis					
Others (Specify):					

VIII. Assessment Methods, Schedule and Grade Distribution

Assessment Method	Selected Method	Course ILOs Covered by Method (By ILO Code)				Assessment Weight / Percentage	Week No.
		K & U	I.S.	P.S.	G.S.		
Midterm Exam	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	7
Final Exam	[X]	[All]	[I1,I2,I3,I4]	[P3]	[ ]	60%	15
Quizzes	[X]	[All]	[I1,I2]	[P3]	[ ]	[20]	[3,6,9,12]
Course Work	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Report Writing	[X]	[ ]	[ ]	[ ]	[All]	[5]	[4,8,12]
Case Study Analysis	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Oral Presentations	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Practical	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Group Project	[X]	[ ]	[I2]	[All]	[G3]	[15]	[4,8,12]
Individual Project	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Others (Specify):	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

IX. List of References

Essential Text Books	• [Object-Oriented Software Engineering: Using UML, Patterns, and Java, by Bernd Bruegge]
Course notes	• [Lecture Slides]
Recommended books	• [Software Engineering by Ian Somerville] • [UML Distilled by Martin Fowler]
Periodicals, Web sites, etc …	• [None]

X. Facilities required for teaching and learning

[List the facilities required
- Labs (PC's)
- Rationale Rose, Eclipse, Java SDK]

Course coordinator: Dr. Mohamed El Ramly

Head of Department: Prof. Abeer El Korany

Date: September 2014