Course specification

(3203 **software Engineering (1))**

Faculty: HICIT- **Higher Institute for Computers & Information Technology**
Programme(s) on which the course is given: Under graduate program in Computer Science
Major or minor element of programme: Compulsory
Department offering the programme: Department of Computer Science
Department offering the course: Department of Computer Science
Year / Class: 3rd Year – 2nd semester
Date of specification approval: 22/2/2016

A- Basic Information

Title: software Engineering (1) **Code:** 3203
Weekly Hours: **Lecture :** 3
Exercise: - **Practical :**3 **Total:** 6

B- Professional Information

1- Course Objectives:

Provide students with the ability to develop software using the software engineering methodology.

The course will deal with topics such as project management, the software development process, requirements analysis and specification, architectural design and UML.

Student should be able to:
a. Create software specification.
b. Manage the software development process.

2- Program ILOs Covered by Course

Program Intended Learning Outcomes			
Knowledge and understanding	**Intellectual Skills**	**Professional and practical skills**	**General and Transferable skills**
a3, a9, a11, a15, a16, a17, a18, a21, a22	**b1, b2, b4, b5, b6, b7, b8, b9, b11, b12, b14, b15, b18, b19**	**c2, c3, c4, c5, c6, c9, c10, c11, c13, c15, c17, c18, c19**	**d1, d2, d3, d6, d7, d8, d9, d10, d12**

3 - Intended learning outcomes of course (ILOs)

In this course student will understand the phases and activities involved in the conventional software life cycle models; student will be aware of the potential benefits of good software project management; student will be able to analyse requirements; student will be able to select and apply appropriate design techniques; and student will understand the importance of the software development process in achieving software quality and will be aware of some relevant techniques and tools.
Successful completion of the Software Engineering course should lead to the following outcomes:

a. Knowledge and Under-Standing:

a1. understand the importance of product and process quality in the software development process

a2. understand how the phases of the lifecycle can be managed using different models of the lifecycle.
a3. Mention the properties of good software and how these relate to different types of software.
a4. explain the goals and deliverables of each phase of the software lifecycle, be able to select and apply appropriate techniques to achieving some of these goals and be able to accurately document the results.

b. Intellectual Skills:

b1. Demonstrate how a software team generates reliable estimates of effort, and project plans.
b2. Illustrate the basic concepts and principles to the analysis of software requirements.
b3.Illustrate the basic concepts and principles to the design of software activity.
b4. Discuss important issues in the management of software.
B5. Evaluate the categorize application domains for computer software.

c- Professional and practical skills

c1. Apply the process models to software development.

d- General and transferable skills

d1. Collaborate effectively within multidisciplinary team.
d2. Work in stressful environment and within constraints.
d3. Prepare technical reports, and a dissertation, to a professional standard; use IT skills and display mature computer literacy.
d4. Lead and motivate individuals.
d5. Search for information and adopt life-long self-learning.

4- Contents

Topic	Hours	Lec.	Exc/Lab
Software Engineering Concepts & Historical Perspective	6	3	3
Software Life Cycle Paradigms	6	3	3
Software project management	12	6	6
The software process	6	3	3
System models	9	6	3
Software Requirements Definition	9	6	3
UML	12	6	6
Architecture design	6	3	3
Course project	12	3	9

5- Teaching and learning methods

5.1 Lectures
5.2 Tutorial Exercises
5.3 Practical Lab
5.4 Discussions.

6 -Student assessment methods

6.1 Midterm Exam: To assess the knowledge and understanding achieved by the student during the previous weeks.
6.2 Final Exam: To evaluate what the student gain at the end of the course, and to assess: the knowledge and understanding, general skills, and intellectual skills.
6.3 Course Project: To allow students work in team, and to evaluate knowledge, understanding, intellectual, and transferable skills.
6.4 Course Work & Quizzes: To keep the student always in the course, and to evaluate knowledge, understanding, intellectual, and transferable skills.

6.5 Practical Exam: to measure the ability of students to design and implement a software program.

Assessment Schedule

Assessment	Week #
Mid Term Exam	**8**
Final Exam	**16**
Course Project	**3-14**
Course Work &Quizzes	**2-14**
Practical Exam	**15**

Assessment Weight

Assessment	Weight %
Mid Term Exam	**5%**
Final Exam	**70%**
Course Project	**10%**
Course Work &Quizzes	**5%**
Practical Exam	**10%**
Total	**100**

Course Work &Quizzes: (Short Exams, Assignments, Researches, Reports, Presentations, Class/Project discussion)

7 -List of references

7.1 Text Books

- Software Engineering, 8th Edition, Ian Sommerville

7.2 Internet Location :

- www.comp.lancs.ac.uk/computing/resources/IanS/
- www.sei.cmu.edu/

8- **Required Facilities**

8.1 Tools/Software

- Primavera , MS Project
- Rational Rose
- .NET, MS SQL server

9- Course Matrices

9.1- Course Content/ILO Matrix

Course Contents	a1	a2	a3	a4	b1	b2	b3	b4	b5	c1	d1	d2	d3	d4	d5
Software Engineering Concepts & Historical Perspective	√														
Software Life Cycle Paradigms	√	√		√											
Software project management	√	√			√			√							
The software process			√		√				√						
System models			√												
Software Requirements Definition			√			√									
UML										√					
Architecture design							√								
Course project											√	√	√	√	√

9.2- Learning Method /ILOs Matrix

Learning Methods	a1	a2	a3	a4	b1	b2	b3	b4	b5	c1	d1	d2	d3	d4	d5
Lectures	√	√	√	√	√	√	√	√	√	√					
Tutorial Exercises					√	√	√	√	√	√					
Practical Lab					√	√	√	√	√	√					
Discussion					√	√	√	√	√	√	√	√	√	√	√

9.3 Assessment Methods /ILOs Matrix

Assessment Methods	a1	a2	a3	a4	b1	b2	b3	b4	b5	c1	d1	d2	d3	d4	d5
Mid Term Exam	√	√	√	√	√	√	√	√	√	√					
Final Exam	√	√	√	√	√	√	√	√	√	√					
Course Project	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Course Work &Quizzes	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Practical Exam	√	√	√	√	√	√	√	√	√	√					

Course Coordinator: Prof.Dr. Ahmed El-Abbassy **( )**
Head of Department: Dr. Farouk Shabaan **( )**
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