



Shoubra Faculty of
Engineering

Model No.12

Course Specifications : Software Engineering

University : Benha university

Faculty : Shoubra Faculty of Engineering

Department : Electrical Engineering Department

1- Course Data

Course Code : ECE 456C Course Title : Software Engineering Study Year : Fourth Year

Specialization :

Teaching Hours:

Lecture : 4

Tutorial : 2

Practical :

2- Course Aim

For students undertaking this course, the aims are to:

2.1- Provide the techniques, tools, and skills needed to develop and maintain high quality software products.

2.2- Provides the techniques, tools, and skills needed for securing and management of software projects.

3- Intended Learning Outcomes of Course (ILOS)

a- Knowledge and Understanding

On completing this course, students will be able to:

a- 1 - Identify the principles of software engineering, processes and software project management. (a4, a7)

a- 2 - Understand the different techniques of modeling system requirements. (a5, a8)

a- 3- Understand the different methodologies for developing and testing software products. (a5, a17)

a- 4 - Explore modern trends in information technology and its fundamental role in business enterprises. (a2, a7, a19)

b- Intellectual Skills

At the end of this course, the students will be able to:

b- 1 - Think in a creative and innovative way in solving problems and design solutions for information systems. (b3)

b- 2 - Judge engineering and management decision methods considering balanced cost, benefits, safety, quality, reliability, and environmental impact. (b9, b10)

b- 3 - Select and apply appropriate computing methods, design techniques and tools for modeling and analyzing computer systems. (b14, b17)

c- Professional Skills

On completing this course, the students are expected to be able to:

c- 1 - Create and/or re-design a process, component or system conforming the intended requirements. (c1, c3)

c- 2 - Use management tools to plan, organize, control, and close the software project. (c9, c10)

c- 3 - Use appropriate specialized computer software, computational tools and design packages throughout the phases of the life cycle of system development. (c6, c15)

d- General Skills

At the end of this course, the students will be able to:

- d- 1 - Communicate effectively. (d3)
- d- 2- Effectively manage tasks, time, and resources. (d6)
- d- 3 - Demonstrate efficient IT capabilities. (d4)

4- Course Contents

No.	Topics
1	Introduction to Software Engineering
2	Software Processes
3	Software Project Management
4	Software Requirements
5	System Modeling
6	Object-oriented Analysis Design
7	User Interface Design
8	Rapid Software Development
9	Component-based Software Engineering
10	Software Evolution
11	Verification & Validation
12	Software Testing
13	Quality Management

5- Teaching and Learning Methods

- 5.1- Lectures
- 5.2- Practical training / laboratory
- 5.3- Seminar / workshop
- 5.4- Class activity
- 5.5- Case study
- 5.6- Assignments / homework

6- Teaching and Learning Methods of Disables

6.1- لا يوجد

7- Student Assessment

a- Student Assessment Methods

1	Assignments to assess knowledge, intellectual skills and professional and practical skills.
2	Quiz to assess knowledge, intellectual skills and professional and practical skills.

3	Mid-term exam to assess knowledge, intellectual skills and professional and practical skills.
4	Oral exam to assess professional, practical, general and transferable skills
5	Final exam to assess knowledge, intellectual skills and professional and practical skills.

b- Assessment Schedule

No.	Assessment	Week
1	Assignments	2, 5, 9, 11
2	Quizzes	4, 6, 10, 12
3	Mid-term exam	8
4	Oral Exam	14
5	Final exam	15

c- Weighting of Assessments

Assessment	Weight
Mid_Term Examination	10 %
Final_Term Examination	60 %
Oral Examination	10 %
Project	10 %
Semester work	10 %
Other types of assessment	0 %
Total	100 %

8- List of References

a- Course Notes

- 1- Handouts prepared by the instructor.

b- Books

- 1- Sommerville, Software engineering, 11th edition, 2013

c- Recommended Books

- 1- Pressman, "Software Engineering: A Practitioner's Approach, 6/e", 2005.
- 2- Jeff Hedrington, Systems Analysis and Design in a Changing World,(4th Edition) , 2006

d- Web Sites

- 1- <http://www.sei.cmu.edu/>
- 2- <http://www.mediafire.com/?465np7d1p7nez>

- **Course Coordinator :** Assoc. Prof / Abdulwahab Alsammak

- **Head of Department :** Prof/ Sayed Abo-Elsood Sayed Ward

Model No.11A Course Specifications : Software Engineering

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Department : Electrical Engineering Department

Matrix of Knowledge and Skills of the course

No.	Topics	week	Basic Knowledge	Intellectual Skills	Professional Skills	General Skills
1	Introduction to Software Engineering	1	a1	b1		d1
2	Software Processes	2	a1, a2	b1	C1	d1, d3
3	Software Project Management	3	a1	b2	C2	d1, d2
4	Software Requirements	4	a1, a2	b1, b3	c1, c3	d1, d3
5	System Modeling	5	a2	b3	c1, c3	d1, d3
6	Object-oriented Analysis & Design	6	a2, a4	b1, b3	c1, c3	d1, d3
7	User Interface Design	7	a2, a4	b1, b3	c1, c3	d1, d3
8	Mid Term Exam	8				
9	Rapid Software Development	9	a1, a4	b1	c3	d1, d3
10	Component-based Software Engineering	10	a3	b3	c1, c3	d1, d3
11	Software Evolution	11	a4	b1	c1	d1, d3
12	Verification & Validation	12	a3	b2,b3	c1,c2, c3	d1, d2
13	Software Testing	13	a1, a2, a3	b2	c3	d3
14	Quality Management	14	a1, a4	b2	c2, c3	d2, d3
15	Final Exam	15				

Matrix of Course Aims and ILO's

Course Aims	a1	a2	a3	a4	b1	b2	b3	c1	c2	c3	d1	d2	d3
Provides the techniques, tools, and skills needed to develop and maintain high quality software products.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Provides the techniques, tools, and skills needed for securing and management of software projects.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Course ILOS VS Program ILOS:

	A2	A4	A5	A7	A8	A17	A19	B3	B9	B10	B14	B17	C1	C3	C6	C9	C10	C15	D3	D4	D6
A1		✓		✓																	
A2			✓		✓																
A3			✓			✓															
A4	✓			✓			✓														
B1								✓													
B2									✓	✓											
B3											✓	✓									
C1													✓	✓							
C2																✓	✓				
C3															✓			✓			
D1																			✓		
D2																					✓
D3																				✓	✓

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