University/Academy: Arab Academy for Science, Technology & Maritime Transport
Faculty/Institute: College of Engineering & Technology
Program: B.Sc. Computer Engineering

Form no. (12): **Course Specification**

1- Course Data

Course Code:	Course Title:		Academic Year/Level:
CC515	**Software Engineering**		**4th** year / **9th** semester
Specialization:	No. of Instructional Units	Lecture	Practical
Computer Engineering	**3**	**2**	**2**

2- Course Aim

This course provides an introduction to software engineering disciplines with emphasis on: software life cycle, System Models, Requirements Specification, Architecture Requirements, Software Design, Rapid Software Development, Verification, Validation and Testing of software

3- Intended Learning Outcomes

a- Knowledge and Understanding	**Through knowledge and understanding, students will be able to:** • Describe an overview and History of Software Engineering • Define Software Process • Explain Software Process Models • Explain Requirements Engineering • Describe Requirements Definition and Specification • Explain Structured Analysis • Explain Object- Oriented Analysis • Explain Design Concepts and Principles • Explain Architectural Design • Describe Verification and Validation • Explain Software Testing
b- Intellectual Skills	**Through intellectual skills, students will be able to:** • Show an introduction to the SDLC, Structured Analysis and Design and UMLs • Demonstrate Functional and non-functional requirements • Demonstrate Data flow diagrams (level 1) • Demonstrate Data flow diagrams (level 2) • Revise Entity Relationship diagrams • Apply Use Case Diagrams and Usage Scenarios • Apply Class Diagrams and Object Diagrams • Demonstrate Package Diagrams • Demonstrate Sequence Diagrams • Demonstrate Collaboration Diagrams • Apply State Chart Diagrams • Apply Activity Diagrams • Demonstrate Component Diagrams • Demonstrate Deployment Diagrams • Demonstrate Test Cases • Apply Cyclomatic Complexity

c- Professional Skills	**Through professional and practical skills, students will be able to:** • Compare between structural analysis and object- oriented analysis and design. • Analyze case studies. • Design software systems using UML diagrams
d- General Skills	**Through general and transferable skills, students will be able to:** • Verify theory with practice • Verify with practice Exercise on half adders, full adders, Parallel Binary Adders and Comparators.

4- Course Content

Week No.1	Overview and History of Software Engineering
Week No.2	Software Process
Week No.3	Software Process Models
Week No.4	Requirements Engineering
Week No.5	Requirements Definition and Specification
Week No.6	Structured Analysis
Week No.7	7th week Exam
Week No.8	Object- Oriented Analysis
Week No.9	Object- Oriented Analysis
Week No.10	Design Concepts and Principles
Week No.11	Architectural Design
Week No.12	12th week Exam
Week No.13	Verification and Validation
Week No.14	Software Testing
Week No.15	Revision
Week No.16	Presentation of projects and Final Exam.

5- Teaching and Learning Methods

- Lectures
- Tutorials
- Reports & sheets
- Laboratories
- Seminars

6-Teaching and Learning Methods for Students with Special Needs

- Lectures
- Tutorials
- Reports & sheets
- Laboratories
- Seminars

The academic advisors of each student, as well as dedicated department TAs monitor the students' progress and solve any problem he/she may encounter.

7- Student Assessment

a-Procedures used	1-Written Examinations to assess The Intended Learning Outcomes. 2-Class Activities (Reports, Discussions, ------) to assess The Intellectual Skills.	
b- Schedule:	Assessment 1 Assessment 2 Assessment 3 Assessment 4	7th Week Written Exam 12th Week Written Exam Continuous 16th Week Final Written Exam

c- Weighing of Assessment	7th Week Examination	30 %
	12th Week Examination	20 %
	Final-term Examination	40 %
	Oral Examination	00 %
	Practical Examination	00 %
	Semester Work	10 %
	Total	100%

8- List of References:

a- Course Notes	
b- Required Books (Textbooks)	• Ian Summerville, Seventh Edition, Software Engineering, Addison Wesley, 2004. • Roger Pressman , Software Engineer: A practitioner Approach, McGraw – Hill 2005
c- Recommended Books	• Ian Summerville, Seventh Edition, Software Engineering, Addison Wesley, 2004.
d- Periodicals, Web Sites, etc.	

Course Instructor:
Prof. Dr. Amani Saad

Head of Department:
Prof. Dr. Mohamad AbouEl-Nasr

Program Manager:
Prof. Dr. Mohamad AbouEl-Nasr