

Course Title:	<i>Introduction to Software Engineering</i>
Course Code:	SEN-210
Credit Hours Theory:	3
Credit Hours Lab (If Applicable):	0
Instructor Name with Qualification:	Engr. Sadaf Khalid. MS Computer Software Engineering. (Double Gold Medalist)
Course Objectives:	This course aims to develop the students' knowledge of basic software terminologies, software life cycle activities, software process models and information systems. The students will also be familiarized with the UML to model software development.
Course Learning Outcomes:	After the successful completion of course, the students will be able to: <ol style="list-style-type: none"> 1. Describe and apply the basic concepts of software engineering and workflow of software development process. 2. Analyze and solve small-scale engineering problems. 3. Design small software systems. 4. Use modern engineering tools necessary for engineering practice.
Contents (Catalog Description):	Software Engineering. Software Development Life Cycle. Software Process Models. Software prototyping. Software design using UML. System analysis. Software project management. Introduction to Software Requirements Engineering. Software Quality assurance. Software testing. User interface design.
Recommended Text Books:	<ol style="list-style-type: none"> 1. Sommerville, "Software Engineering", 7th Ed. 2. Jaffrey L. Witten, "System Analysis and Design Methods", 6th Ed. 3. Joseph Schmuller, SAMS "Teach Yourself UML in 24 Hours".
Reference Books:	<ol style="list-style-type: none"> 1. Object-Oriented Software Engineering, Using UML, Patterns, and Java, 2nd Ed. 2. <i>Software Engineering: A Practitioner's Approach /7E</i>, Roger Pressman, McGraw-Hill.

<p>Helping Web Sites:</p>	<p>-</p>
<p>General Instructions for students:</p>	<ul style="list-style-type: none"> • Be respectful and responsible. • Follow directions given in class. • Always be on time in the class. • Late attendance: NO more than FIVE MINUTES after regular class timings. • Make sure timely submission of assignments. Late assignments will NOT be acceptable. • Copied assignments will be awarded ZERO credit. • NO retake of quizzes will be practiced.
<p>Sixteen Week Lesson Plan</p>	<p>Week # 1 What is Software? What is meant by Software Engineering? Difference between Software Engineering, Computer Science and System Engineering. What is a Software Process? What is CASE? Attributes of good software. Key Challenges facing Software Engineering. Professional and Ethical Responsibilities of Software Engineers.</p> <p>Week # 2 Introducing the UML. Socio-technical systems. Emergent System Properties.</p> <p>Week # 3 UML and concept of Object-Orientation. Software Process Models. Incremental delivery and Spiral Development. Concept of Prototyping.</p> <p>Week # 4 Visualizing Classes in UML. Working with “Relationships” in UML. Software Process Activities.</p>

	<p>Week # 5 What is meant by Information System? Types of Information System. Stakeholders: Players in the Systems Game. Business drivers for today’s IS. Technology driver’s for today’s IS. Understanding “Aggregations, Composites, Interfaces, and Realizations” in UML.</p> <p>Week # 6 Principles of System Development. Information Systems Development Process. PIECES: Problem Solving Framework. What is meant by FAST? Introducing “Use Cases” in UML.</p> <p>Week # 7 System Development Methodologies. What is System Analysis? System Analysis Approaches. Working with “Use Case Diagrams” in UML.</p> <p>Week # 8 Revision</p> <p>Week # 9 <u>MIDTERM EXAMINATIONS</u></p> <p>Week # 10 What is Project Management? Project Management Life Cycle. Bar Charts and Activity Networks.</p> <p>Week # 11 Risk Management.</p> <p>Week # 12 Working with “State” and “Sequence” diagrams.</p> <p>Week # 13 Functional and Non-functional requirements. Domain requirements. User requirements. System requirements.</p>
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	<p>The Process of Requirements Discovery.</p> <p>Week # 14 Software Quality. Software Testing Strategies.</p> <p>Week # 15 Working with “Activity diagram”. Introducing basic database concepts.</p> <p>Week # 16 Data modeling using ER Diagrams. User interface design.</p> <p>Week # 17 Project presentations/ Vivas.</p> <p>Week # 18 <u>FINAL EXAMINATIONS</u></p>
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Course Learning Outcomes mapping to Program Learning Objectives:

CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAMME LEARNING OUTCOMES					
SOFTWARE ENGINEERING		INTRODUCTION TO SOFTWARE ENGINEERING			
No.	Program Outcomes	Course Learning Outcomes			
		1	2	3	4
1	Engineering Knowledge	√			
2	Problem analysis		√		
3	Design/Development of solutions			√	
4	Investigation				
5	Modern tool usage				√
6	Engineer and society				
7	Environment and sustainability				
8	Ethics				
9	Individual and Team work				
10	Communication				
11	Project Management				
12	Lifelong learning				