Course Title:	***Software Requirements Engineering***
Course Code:	**SEN-307**
Credit Hours Theory:	**2**
Credit Hours Lab (If Applicable):	1
Instructor Name with Qualification:	Dr Awais Majeed – PhD (Informatics)
Course Objectives:	To understand issues in requirements engineering and to apply them for elicitation, specification, modeling and analysis of software requirements.
Learning Outcomes:	1. An understanding of the importance of following a systematic requirements engineering process 2. The ability to effectively gather and analyze software requirements for the development of cost-effective and efficient technical solutions. 3. Use of supporting tools for managing requirements and effectively handling change requests 4. Documenting effective requirements in Software Requirements Specification (SRS) using clear, unambiguous requirements 5. Using system modeling techniques for requirements analysis and requirements presentation.
Contents (Catalog Description):	This course introduces students to the process of requirements engineering and helps them understand important issues in requirements engineering. It will also help them to learn and apply the RE concepts for elicitation, specification, modeling and analysis of software requirements. Important topics include Requirement engineering types, Requirements management and validation of requirements.
Recommended Text Books:	1. Requirements Engineering, 2nd Edition by Elizabeth Hull, Ken Jackson and Jeremy Dick.
Reference Books:	
Helping Web Sites:	
General Instructions for students:	There is 0 tolerance for plagiarism. Attendance is mandatory. You must meet all deadlines and there will be penalties for missing the deadlines. Students are required to take all the tests. No makeup tests will be given under normal circumstances. 75% attendance is mandatory. Latecomers will be marked as absent.

Sixteen Week Lesson Plan	Week#	Topics Covered
	1	**Introduction to Requirements Engineering** Definitions, role in SDLC, layered model, Modelling and RE, AS-IS vs TO-BE, RE process a & activities, Requirements verification and validation
	2	**Purpose and Nature of Requirements** Definitions, Types of requirements, Functional Requirements, Non-Functional Requirements
	3	**Requirements Inception** Problem Analysis, Business Requirements, Five Steps for Problem Analysis, Vision and Scope Document
	4	**Requirements Elicitation** Goals, Risks, and Challenges, Sources of Requirements, Requirements Elicitation Tasks, Elicitation Problems
	5	**Elicitation Techniques** Analysis of Existing Systems, Interviews, Brainstorming, Joint Application Design (JAD), Prototyping, Use Cases, Agile approaches
	6	**System Modelling for Requirements Analysis-II** Goal modelling techniques (i*, KAOS etc), examples case studies
	7	**System Modelling for Requirements Analysis-II** Actor Role Models, Role Activity Diagrams (RADs)
	8	**System Modelling for Requirements Analysis-III** Case studies, examples and class activity
	9	Midterm Exam
	10	**Non-Functional Requirements for Software Quality**
	11	**Requirements Specification & Documentation** Introduction to Requirements Specification, Structuring Requirement, Requirements Specification Document, IEEE 830 Standard, Relationship of IEEE 830 and ISO/IEC 12207, writing better requirements.
	12-13	**Management of Requirements** Introduction to Management, Requirements Management Problems , Managing Requirements in an Acquisition Organization, Supplier Organizations, Product Organizations
	14	**Requirements validation**

	15-16	**Requirements Traceability** Elementary Traceability, Satisfaction Arguments, Requirements Allocation, Reviewing Traceability, The Language of Satisfaction Arguments, Rich Traceability Analysis, Rich Traceability for Qualification, Implementing Rich Traceability, Design Documents, Metrics for Traceability
	17	**Tools for RE/ RE for Agile Development**
	18	**Final Exams**

CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAMME LEARNING OUTCOMES													
SOFTWARE ENGINEERING		SOFTWARE PROJECT MANAGEMENT											
No.	Program Outcomes	Course Learning Outcomes											
		1	2	3	4	5							
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												