

SE211	Software Requirement Engineering (3 CH)	WK5 Engineering Design	Focus: CCP/CEP	SE
<b>Pre-Requisite:</b> SE201 (Software Engineering) <b>Instructor:</b> Mr. Muhammad Huzaifa Shah Office # CS-19, Third Floor, New Academic Block, GIK Institute <b>Email:</b> <a href="mailto:huzaiifa.shah@giki.edu.pk">huzaiifa.shah@giki.edu.pk</a> <b>Office Hours:</b> 2:00 pm - 5:00 pm (Monday/Wednesday) <b>T/A:</b> Engr. Hamza Asad   <b>Email:</b> <a href="mailto:hamza.asad@giki.edu.pk">hamza.asad@giki.edu.pk</a>				
<b>Course Introduction</b>				
The objective of this course is to provide students with a comprehensive understanding of acquiring, eliciting, and managing software requirements effectively. Emphasis is placed on developing the skills necessary to work in collaboration with clients and address the needs of end-users who interact with the system. The course focuses on the elicitation, specification, validation, and management of software system requirements. Additionally, it explores iterative prototyping techniques to enhance user interaction design and refine system requirements.				
<b>Mapping of PLOs and CLOs</b>				
Sr. No	Course Learning Outcomes <sup>+</sup>	WA PLOs*	SA PLOs*	Bloom’s Taxonomy
CLO_1	Investigate and model the user requirements and the problem to be solved for the software to be designed and developed.	PLO1	Knowledge for Solving Computing	C3
CLO_2	Document effective requirements in Software Requirements Specification (SRS) using clear, unambiguous requirements.	PLO9	Individual and Teamwork	C3
CLO_3	Read, understand and critically analyze the technical and professional literature on Software Engineering.	PLO12	Lifelong Learning	C4
*Please add the prefix “Upon successful completion of this course, the student will be able to”				
<b>CLOs Assessment Mechanism</b>				
Assessment Tools	CLO_1	CLO_2	CLO_3	
Quizzes	0%	0%	0%	
Assignments	0%	0%	100%	
Project	0%	100%	0%	
Mid Term	30%	0%	0%	
Final Term	70%	0%	0%	
<b>Grading Policy</b>				
Assessment Item	Weightage			
Quizzes	5%			
Assignments	10%			
Projects	15%			
Mid Term	30%			
Final Term	40%			
<b>Text and Reference Books</b>				
<ul style="list-style-type: none"><li>Requirements Engineering: Laying a Firm Foundation (1<sup>st</sup> Ed.), By James A. Crowder – Springer (2022) ISBN: 978-3-030-91077-8</li><li>Software Requirement Engineering (3<sup>rd</sup> Ed.), By Karl Wiegers – Microsoft Press (2013) ISBN: 978-0-7356-7961-0</li></ul>				
<b>Administrative Instructions</b>				
<ul style="list-style-type: none"><li>Attendance as per institute’s policy.</li><li>No retake of quizzes.</li><li>Late submission of assignment/quiz/project is not acceptable.</li><li>For course project, the team should consist of at most 4 students.</li></ul>				
<b>Computer Usage</b>				
<ul style="list-style-type: none"><li>Students are encouraged to use software tools such as Rational Rose for UML etc.</li></ul>				

### Weekly Lecture Breakdown

Week 01	<ul style="list-style-type: none"> <li>- Introduction to Software Requirements Engineering (RE): Essential Software Requirement, Good Requirements, Characteristics and Benefits of Requirement Engineering</li> <li>- Motivation, Professional s/w development</li> </ul>
Week 02	<ul style="list-style-type: none"> <li>- Software ethics</li> <li>- Kinds of Software Requirements (Functional Requirements, Non-Functional Requirements, and its types with examples)</li> </ul>
Week 03	<ul style="list-style-type: none"> <li>- Kinds of Software Requirements (Domain, Inverse, Design, and Implementation Requirements), Examples, Case Studies</li> <li>- Requirements from the User/Customer's Perspective, Issues Related to System Contract Requirements and Requirement Problems</li> </ul>
Week 04	<ul style="list-style-type: none"> <li>- Process Models, Traditional &amp; Agile Requirements Engineering</li> <li>- Documenting Requirements, Guidelines for writing requirement, quality measurements</li> </ul>
Week 05	<ul style="list-style-type: none"> <li>- Processes, Process Models and Requirement Engineering Process and Steps</li> <li>- Actors and Stakeholders in the Requirements Engineering Process, Process and Process Improvement for Requirements Engineering</li> </ul>
Week 06	<ul style="list-style-type: none"> <li>- Process Improvement, Capability Maturity Model Basics of Knowledge Acquisition, Knowledge Acquisition Techniques</li> <li>- Requirements Elicitation and Problems during Elicitation Techniques, Steps of Requirement Elicitation, Dealing with Customers: Elicitation Techniques</li> </ul>
Week 07	<ul style="list-style-type: none"> <li>- Specific Elicitation Techniques Including the Interviewing, Scenarios, Prototyping and Participant Observation</li> <li>- Requirements Analysis, Incomplete Requirements, Inconsistent requirements, Analysis checklists</li> </ul>
Week 08	<ul style="list-style-type: none"> <li>- Requirements Analysis and Negotiation (Interaction Matrices) Social and Cultural Issues in Requirements Engineering</li> <li>- Revision</li> </ul>
Week 09	<ul style="list-style-type: none"> <li>- Requirements Errors, Impact of Requirements Errors, Error Prevention in Requirements</li> <li>- Setting Requirements Priorities: Why Prioritize Requirements? Play With Priorities, A Prioritization Scale</li> </ul>
Week 10	<ul style="list-style-type: none"> <li>- Prioritizing Based on Value, Cost, Requirements Validation and Requirements Validation Techniques</li> <li>- Requirements Management, Stable and Volatile Requirements Management, Requirements Identification Techniques</li> </ul>
Week 11	<ul style="list-style-type: none"> <li>- Change Management, Change Management Policies and Change Management Procedures Requirements Traceability</li> <li>- Classifications of Requirements Traceability, Traceability Information, Policies, and Techniques</li> </ul>
Week 12	<ul style="list-style-type: none"> <li>- Writing Requirements, Problems in the Requirements Writing Activities</li> <li>- Requirements Document, Importance and Contents of Requirements Document</li> </ul>
Week 13	<ul style="list-style-type: none"> <li>- Requirements Management Principles and Practices, Baseline, Procedures, Requirements Version Control, Tracking Requirements Status</li> <li>- Modeling Requirements</li> </ul>

Week 14	<ul style="list-style-type: none"> <li>- Validating the Requirements: Requirements Review and Inspection, Requirements Review Challenges, Acceptance Criteria</li> </ul>
Week 15	<ul style="list-style-type: none"> <li>- Prototype Categories (Throwaway, evolutionary, paper and electronic), evaluation, Risks</li> <li>- Requirements Creeping, Managing Scope Creep, The Change Control Process</li> </ul>

Version	Fall 2025
Revision Date	24 <sup>th</sup> January, 2025
Knowledge Group (KG) Head	Ahsan Shah, Lecturer FCSE
KG Head Signature	AHSAN SHAH