



National Computing Education Accreditation Council
NCEAC



NCEAC.DOC.001-E

COURSE DESCRIPTION

NAME OF INSTITUTION	Lahore Garrison University
PROGRAM (S) TO BE EVALUATED	Computer Science , Spring 2022

Course Description : --

Course Code	CSC361								
Course Title	Software Engineering								
Credit Hours	3+0								
Prerequisites by Course(s) and Topics	N/A								
Assessment Instruments with Weights (homework, quizzes, midterms, final, programming assignments, lab work, etc.)	SESSIONAL (Quizzes, Assignments, Presentations) =25 % Midterm Exam =25 % Final Exam = 50%								
Course Coordinator	Taimoor Hassan								
URL (if any)	N/A								
Current Catalog Description	N/A								
Textbook (or Laboratory Manual for Laboratory Courses)	Software Engineering 8E by Ian Sommerville, Addison Wesley; 8th Edition								
Reference Material	Software Engineering: A Practitioner's Approach by Roger S. Pressman, McGraw-Hill Science/Engineering/Math; 7th Edition								
Course Goals	At the end of this course, students will be able to: • Describe various software engineering processes and activities • Apply the system modeling techniques to model a medium size software system • Apply software quality assurance and testing principles to medium size software system. • Discuss key principles and common methods for software project management such as scheduling, size estimation, cost estimation and risk analysis.								
Course Learning Outcomes (CLOs):	<table><tr><td>At the end of the course the students will be able to:</td><td>Domain</td><td>BT Level*</td></tr><tr><td>* BT= Bloom's Taxonomy, C=Cognitive domain, P=Psychomotor domain, A= Affective domain</td><td></td><td></td></tr></table>			At the end of the course the students will be able to:	Domain	BT Level*	* BT= Bloom's Taxonomy, C=Cognitive domain, P=Psychomotor domain, A= Affective domain		
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Topics Covered in the Course, with Number of Lectures on Each Topic (assume 15-week instruction and one-hour lectures)	Week	Lecture	Topics Covered
	Week 1	1	Overview of SE, SE diversity, Importance, Well Engineer Software
		2	SE Practice & Myths, SE Ethics,
	Week 2	3	Software Process Activities, Software Development Life Cycle (SDLC)
		4	Software process Models: Waterfall Model, Waterfall with prototype, V model
	Week 3	5	Operational specification model, Prototyping Model, Transformational Model,
		6	Incremental Model, Iterative Model, Spiral Development, RAD Model
	Week 4	7	Specialized Process Models: Component based development, The Formal Methods Models, Aspect Oriented Model
		8	Unified Process Model, What Is Agility? Agility Principles
	Week 5	9	Agile Development : Scrum agile development
		10	Agile Development: Extreme Programming (XP), Crystal Methods
	Week 6	11	Requirement Engineering Process, Requirement elicitation, Requirement analysis, Functional and Non-Functional Requirements
		12	Requirement Engineering: Requirement specification, Requirement validation, SRS document
	Week 7	13	Requirement Engineering: Scenarios and Use Cases
		14	System Modeling: Process, Unified Modeling Language (UML), Context and process models, Interaction Models, Structural Models
	Week 8	1 hours	Mid Term
	Week 9	15	Architectural Design: Process, Design Decisions, Views
		16	Architectural Design: Architectural patterns, Application architectures
	Week 10	17	Design and Implementation: Process, Object Oriented design using UML diagrams, Use Case diagram,
		18	Design and Implementation: Class diagram, activity diagram
	Week 11	19	Design and Implementation: sequence diagram , state diagram
		20	Design and Implementation: Open Source development
	Week 12	21	Software Testing: Process, Important of Software Testing, Software Testing Strategies
		22	Software Testing Types: Unit testing, integration testing, Acceptance testing
	Week 13	23	Software Testing Techniques: White-box testing Black-box testing
		24	Software Quality Assurance, User satisfaction, Elements of SQA,SQA Goals Six-Sigma for Software Engineering, CMMI
	Week 14	25	Software Evolution: Process, Software Maintenance
		26	Software project management: Management activities i.e. Planning, Risk Management, Configuration Management
	Week 15	27	Reliability Engineering
		28	Business Aspects of Software Engineering
	Week 16	29	Project Demonstration & Viva
		30	Project Demonstration & Viva
	Week 17	2 hours	Final Term
Laboratory Projects/Experiments Done in the Course			
Programming Assignments Done in the Course			

Instructor Name Taimoor Hassan

Instructor Signature

Date