



COMSATS University Islamabad

Department of Computer Science

Course Description Form (CDF)

Course Information

Course Code: **CSC291**

Credit Hours: **3(3,0)**

Lab Hours/Week: **0**

Course Title: **Software Engineering**

Lecture Hours/Week: **3**

Pre-Requisites: **None**

Course Objective

- To introduce the different software process models by illustrating its phases;
- To develop awareness of using different tools and environment supported in software engineering;
- To develop basic understanding of requirement engineering to gather requirements for developing a system;
- To create design of a system by understanding its core concepts;
- To construct the system by understanding different programming paradigms;
- To introduce the concepts of verification and validation.

Course Content

This course introduces the different software process models by illustrating its phases and principles of software engineering. Topics include Overview of Software Engineering; Software Process Models; Requirement Engineering Concepts; Software Design; Design Modeling; Software Quality Engineering; Software Project Management; Software Maintenance and Software Evolution.

Unit wise Major Topics

Unit	Topic	No of Teaching Hours
1.	Software Engineering: Overview, and Process Models.	6
2.	Requirement Engineering: Concepts, Elicitation, Analysis, Specification, Modeling and Validation.	9
3.	Software Design: Concepts, Architectures, and Modeling.	12
4.	Software Quality Engineering: Concepts, and Approaches to Software Testing.	12
5.	Overview of Software Project Management.	3
6.	Software Maintenance and Software Evolution.	3
Total Contact Hours		45

Mapping of CLOs and GAs

Sr.#	Unit #	Course Learning Outcomes	Blooms Taxonomy Learning Level	GA
CLO-1	1	Explain the concept of software engineering along with its processes and deliverables.	<i>Understanding</i>	2
CLO-2	2	Identify functional and non-functional requirements for a medium sized software system.	<i>Analyzing</i>	3
CLO-3	3	Construct appropriate design models for the structure and behavior of a medium sized software system.	<i>Applying</i>	3,4

CLO-4	4	Apply software testing and quality assurance techniques to medium sized software.	Applying	2,6	
CLO-5	5-6	Demonstrate software project management skills and maintenance process.	Applying	1,2,7	
CLO Assessment Mechanism					
Assessment Tools	CLO-1	CLO-2	CLO-3	CLO-4	CLO-5
Quizzes	Quiz 1	Quiz 2	Quiz 3	Quiz 4	-
Assignments	-	Assignment 1	Assignment 2	Assignment 3	Assignment 4
Mid Term Exam	Mid Term Exam	Mid Term Exam	Mid Term Exam	-	-
Final Term Exam	Final Term Exam				
Text and Reference Books					
Textbooks:					
1. Software Engineering: A Practitioner’s Approach, Roger S. Pressman & Bruce R. Maxim, McGraw-Hill, 2020.					
2. Engineering Software Products: An Introduction to Modern Software Engineering, Ian Sommerville, Pearson Education Limited, 2021.					
Reference Books:					
1. Software Engineering, Ian Sommerville, Pearson Education Limited, 2016.					
2. Software Engineering with UML, Bhuyan Unhelkar, CRC Press, 2018.					