



**GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY,
EAST DELHI CAMPUS,
SURAJMAL VIHAR-110092**

Semester: 4th			
Paper code: AIDS206/AIML206/IOT206	L	T/P	Credits
Subject: Software Engineering	3	0	3
Marking Scheme			

1. Teachers Continuous Evaluation: As per university examination norms from time to time
2. End term Theory Examination: As per university examination norms from time to time

INSTRUCTIONS TO PAPER SETTERS: Maximum Marks: As per university norms

1. There should be 9 questions in the end term examination question paper
2. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions.
3. Apart from Question No. 1, the rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, students may be asked to attempt only 1 question from each unit.
4. The questions are to be framed keeping in view the learning outcomes of course/paper. The standard/ level of the questions to be asked should be at the level of the prescribed textbooks.
5. The requirement of (scientific) calculators/ log-tables/ data-tables may be specified if required.

Course Objectives:

1. To familiarize students with basic Software engineering methods and practices and their applications.
2. To explain layered technology in software engineering
3. To teach software metrics and software risks.
4. To familiarize students with software requirements and the SRS documents.
5. To facilitate students in software design.

Course Outcomes:

CO1 Understand software systems of the real world and their life cycle.

CO2 Design the software solutions per the SRS requirement and proper tools.

CO3 Estimate software development cost and its maintenance.

CO4 Deploy various testing techniques to test software.

CO/PO	PO01	PO02	PO03	PO04	PO05	PO06	PO07	PO08	PO09	PO10	PO11	PO12
CO1	3	2	2	2	3	1	1	1	1	1	1	2
CO2	2	2	2	2	3	-	-	-	-	-	1	2
CO3	2	2	2	2	3	-	-	-	-	-	1	2
CO4	3	2	2	2	3	-	-	-	-	-	1	2



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Course Overview:

Software Engineering comprises the core principles consistent in software construction and maintenance: fundamental software processes and life cycles, mathematical foundations of software engineering, requirements analysis, software engineering methodologies, and standard notations, principles of software architecture and re-use, software quality frameworks and validation, software development, and maintenance environments and tools. It's an introduction to the object-oriented software development process and design.

UNIT I: [8]

Introduction to Software- Nature of Software, Introduction to Software Engineering, Software Engineering Layers, Software Myths, The Software Processes, Project, Product, Process Models: A Generic Process Model, Waterfall Model, Incremental Process Models, Evolutionary Process Models, Spiral Model. COCOMO Model. UML diagrams -Sequential, Class Diagram, Activity Diagram, Component Diagram, Use-Case Diagram, State Machine Diagram.

UNIT II: [8]

Requirements Engineering- Functional and Non-Functional Requirements, The Software Requirements Document, Requirements Specification, Requirements Engineering, Requirements Elicitation and Analysis, Requirement Validation, Requirement Management, DFD, Data Dictionary. Introduction to ER diagrams

UNIT III: [8]

Software Design- Design concepts and principles - Abstraction - Refinement - Modularity Cohesion coupling, Architectural design, Detailed Design Transaction Transformation, Refactoring of designs, Object-oriented Design User-Interface Design. Software Testing: White-Box Testing, Black Box Testing. Stress Testing. Alpha, Beta, and Acceptance Testing. Debugging.

UNIT IV: [8]

Software Maintenance and Management- Software Maintenance, Types of Maintenance, Software Configuration Management, Overview of RE-engineering Reverse Engineering, Reliability: Failure and Faults, Reliability Models. Quality and Risk Management: Product Metrics, Software Measurements, Metrics for Software Quality, Risk Management: Software Risks, Risk Identification, Risk Projection, Risk Refinements, Risk Mitigation Monitoring and Management (RMMM). Overview Of Quality Management. CMM, ISO 9000, and Six Sigma.

Text Books:

1. Roger S. Pressman (2011), Software Engineering, A Practitioner's Approach, 7th edition, McGraw Hill International Edition, New Delhi.
2. Sommerville (2001), Software Engineering, 9th edition, Pearson Education, India.



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References:

1. K. K. Aggarwal, Yogesh Singh (2007), Software Engineering, 3rd edition, New Age International Publishers, India.
2. Lames F. Peters, Witold Pedrycz (2000), Software Engineering an Engineering approach, John Wiley & Sons, New Delhi, India.
3. Shely Cashman Rosenblatt (2006), Systems Analysis and Design, 6th edition, Thomson Publications, India