



GUJARAT TECHNOLOGICAL UNIVERSITY

Syllabus for Integrated MSc, 5th Semester

Branch: Computer Science

Subject Name: Software Engineering

Subject Code: 1350301

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
				ESE(E)	PA (M)	PA (I)	ESE (V)	
4	0	2	5	70	30	20	30	150

Content:

Sr. No.	Content	Teaching Hours	Module Weightage (%)
1.	Introduction to Software and Software Engineering The Evolving Role of Software, Software: A Crisis on the Horizon and Software Myths, Software Engineering: A Layered Technology, Software Process Models, The Linear Sequential Model, The Prototyping Model, The RAD Model, Evolutionary Process Models, Agile Process Model, Component-Based Development, Process, Product and Process.	5	14%
2.	Managing Software Project Software Metrics (Process, Product and Project Metrics), Software Project Estimations, Software Project Planning (MS Project Tool), Project Scheduling & Tracking, Risk Analysis & Management (Risk Identification, Risk Projection, Risk Refinement, Risk Mitigation).	4	10%
3.	Requirement Analysis and Specification Understanding the Requirement, Requirement Modeling, Requirement Specification (SRS), Requirement Analysis and Requirement Elicitation, Requirement Engineering.	3	8%
4.	Software Design Design Concepts and Design Principal, Architectural Design, Component Level Design (Function Oriented Design, Object Oriented Design), User Interface Design, Web Application Design.	8	28%
5.	Quality Assurance and Management Quality Concepts and Software Quality Assurance, Software Reviews (Formal Technical Reviews), Software Reliability, The Quality Standards: ISO 9000, CMM, Six Sigma for SE, SQA Plan.	3	20%
6.	Advanced Topics in Software Engineering Component-Based Software Engineering, Client/Server Software Engineering, Web Engineering, Reengineering, Computer-Aided Software Engineering, Software Process Improvement, Emerging Trends in software Engineering.	5	20%



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Reference Books:

1. Roger S.Pressman, Software Engineering- A practitioner's Approach, McGraw-Hill International Editions
2. Ian Sommerville, Software engineering, Pearson education Asia
3. Robert C. "Uncle Bob" Martin , Clean Architecture: A Craftsman's Guide to Software Structure and Design

Course Outcomes:

Sr. No.	CO Statement
CO-1	Prepare SRS (Software Requirement Specification) document and SPMP (Software Project Management Plan) document.
CO-2	Apply the concept of Functional Oriented and Object Oriented Approach for Software Design.
CO-3	Recognize how to ensure the quality of software product, different quality standards and software review techniques.