

GUJARAT UNIVERSITY

K. S. SCHOOL OF BUSINESS MANAGEMENT

[Five Years' (Full-time) Integrated Degree Course]

Semester-5 [M.Sc. (CA & IT)]

Subject Code: - KS_C_CC-353

Subject Name: - Software Engineering

Course Credit: - 3

Objective:

Learning Development Process, Select and Apply Appropriate Metrics to Estimate Understand, Analyze and Model User's Requirements, Select Appropriate Process Model apply it to All Stages of Software Development Life Cycle, Select and Apply Appropriate Design Methodology, Decide the Feasibility of Using and Applying Agile Software Size, Effort, and Cost. Prepare Project Schedule, and Monitor the Project Progress, Systems Analysis and Design, Database Management System, Algorithm and Programming knowledge

Unit No.	Course Content	Weight-age (%)
1	Software Engineering Process Models :- Introduction to Software Engineering, Prescriptive Process Models Agile Development:- Agile Process, Extreme Programming (XP), Brief Overview of Other Agile Process Models: Adaptive Software Development, Scrum Principles of Software Engineering :- Introduction; Core Principles of Process and Practice, Principles Guiding Each Framework Activity	(20%)
2	Requirements Modeling:- Requirements Engineering, Groundwork for Understanding of Software Requirements, Negotiating Requirements, Validating Requirements, Requirement Analysis, Scenario based Modeling, UML model, Data Model, Class based Model, Overview of Flow Oriented Modeling, Behavioral Modeling, Requirements Modeling for WebApps Design Concepts :- Software Quality Guidelines and attributes, Design Concepts, Design Model	(20%)
3	Architectural Design :- Architectural Styles, Architectural Design Component-Level Design :- Three Views of Component, Designing Class-Based Components, Conducting Component-Level Design, Component-Level Design for	(20%)

	WebApps, Designing Traditional Components, Component-Based Development User Interface Design :- Golden Rules of User Interface Design; User Interface Analysis and Design; Interface Analysis; Interface Design; WebApp Interface Design; Design Evaluation	
4	Quality Concepts :- What is Quality, Software Quality, Quality Control, Quality Assurance Software Review : - Overview of Review Techniques , Cost impact of Software Defect; Defect Amplification & Removal , Review Metrics and Their Use Informal Review, Formal Technical Review Software Testing :- A Strategic Approach to Software Testing; Software Testing Fundamentals; Internal and External views of Testing; Broadening the View of Testing	(20%)
5	WebApp Design :- WebApp Design Quality; WebApp Design Goals; Design Pyramid for WebApp; WebApp Interface Design; Aesthetic Design of WebApp; Content Design for WebApp; Architecture Design; Navigation Design; Component-Level Design; Object-Oriented Hypermedia Design Method Software Configuration Management :- SCM; SCM repository; SCM process; Configuration Management for web Apps Product Metrics :- Framework for Product Metrics; Metrics for Requirements Model; Metrics for Design Model; Design Metrics for WebApps; Metrics for Source Code; Metrics for Testing; Metrics for Maintenance; Overview of Project Scheduling	(20%)

Recommended Lecture Scheme: Approximately 40 to 45 hours in a semester

Recommended Practical Scheme: Not Applicable

Assignment: Minimum five assignments should be given.

Text Book:

1. Roger S. Pressman, "Software Engineering – A Practitioner's Approach", TATA McGraw Hill Publications, 7th Edition.

Reference Books:

1. Sommerville, "Software Engineering", Pearson Education, 8th Edition.
2. Waman S. Jawadekar, "Software Engineering – Principles and Practices", TMGH Publication
3. Rajib Mall, Fundamentals of Software Engineering, Prentice-Hall, 2011.

4. Jibitesh Mishra and Ashok Mohanty, "Software Engineering", PERSON
5. Subhajit Datta, "Software Engineering Concept and Application", OXFORD
6. Pankaj Jalote, "Software Engineering – A Precise Approach", Wiley India
7. Waman S. Jawadekar, "Software Engineering – A Primer", TMGH Publication
8. Shari Lawrence Pfleeger and Joanne M. Atlee, "Software Engineering – Theory and Practice", Pearson Education, 3rd Edition.

Chapter wise coverage From Textbook:

- **Unit 1 :**

Chapter 1–[1.2, 1.3, 1.4, 1.5, 1.6]

Chapter 2 – [2.3]

Chapter 3 –[3.1, 3.3, 3.4, 3.5.1, 3.5.2]

Chapter 4 –[4.2, 4.3]

- **Unit 2 :**

Chapter 5 –[5.1, 5.2, 5.3, 5.6, 5.7]

Chapter 6–[6.1, 6.2, 6.3, 6.4, 6.5]

Chapter 7–[7.2, 7.2.1,7.3,7.4, 7.5]

Chapter 8–[8.2.1, 8.3, 8.4]

- **Unit 3 :**

Chapter 9–[9.1.1, 9.3, 9.4;]

Chapter10–[10.1,10.1.1,10.1.2,10.2,10.2.2.,10.2.3,10.2.4,10.3, 10.4,10.5,10.6]

Chapter 11–[11.1, 11.2, 11.3, 11.4, 11.5, 11.6]

- **Unit 4 :**

Chapter 14,

Chapter 15–[15.1, 15.2, 15.3, 15.5, 15.6]

Chapter 17–[17.1]

Chapter 18– [18.1, 18.2]

- **Unit 5 :**

Chapter 13

Chapter 22

Chapter 23