COURSE TITLE	**:**	**PROJECT MANAGEMENT AND SOFTWARE ENGINEERING**
COURSE CODE	**:**	**5132**
COURSE CATEGORY	**:**	**C**
PERIODS/WEEK	**:**	**4**
PERIODS/SEMESTER	**:**	**52**
CREDITS	**:**	**4**

TIME SCHEDULE

MODULE	TOPICS	PERIODS
1	Phases of Software Development	**13**
2	Requirements Analysis and Design	**13**
3	Software Implementation and Testing	**13**
4	Software Project Management	**13**

Course General Outcomes:

Sl.	G.O	On completion of this course the student will be able :
1	1	To understand the need of software engineering
	2	To know the phases of Software Development
	3	To understand various Lifecycle models
2	1	To understand requirement analysis and specifications
	2	To understand preparation of SRS document
	3	To understand Design Concepts
3	1	To understand software coding guidelines
	2	To understand software testing
4	1	To know Software Project Management
	2	To understand CMMI

Specific Outcomes:

MODULE – I Phases of Software Development

1. To Understand Phases and Life cycle models of Software Development
    1. Define software engineering and its importance
    2. Explain emergence of software engineering
    3. Describe Software Process
    4. State Phases of software development
    5. Describe Feasibility study
    6. Describe Requirement Analysis
    7. Describe Design phase
    8. Describe Implementation phase
    9. Describe testing phase
    10. Describe Maintenance phase
    11. Describe Life Cycle Models- Classical waterfall, Iterative, prototyping, Spiral and Agile
    12. Compare Life cycle models

MODULE – II Requirements Analysis and Design

1. To Comprehend the Requirements Analysis and Design
    1. Describe Software Requirement Analysis and its need
    2. Describe Requirements specification
    3. Describe the desirable characteristics of an SRS
    4. Explain structure of an SRS document
    5. Explain Data Flow Diagrams
    6. Explain the role of Software Architecture
    7. Describe how to plan for a Software Project
    8. Define Software Design
    9. Describe software design concepts
    10. Explain Function Oriented Design and its Complexity Metrics
    11. Explain Object Oriented Design and its Complexity Metrics
    12. Describe Detailed Design

MODULEIII Software Implementation and Testing

1. To Understand Software Implementation and Testing
    1. Explain Programming principles and coding guidelines
    2. Describe the method of incrementally developing code
    3. Explain how to manage the evolving code
    4. Define Software Testing
    5. Explain unit testing and Code Inspection
    6. Explain the testing concepts and testing process
    7. Design Test case and Test plan
    8. Describe Black-box testing
    9. Describe White box testing

MODULE – IV Software Project Management

1.1 To Understand the importance of Software Project Management
- 1.1.1 Explain Software Project Management Framework
- 1.1.2 Describe methods to Estimate project time and cost
- 1.1.3 Describe about Resource Management
- 1.1.4 Describe how Project Risks can be identified, analyzed, mitigated, and monitored
- 1.1.5 Describe how project quality can be ensured and managed
- 1.1.6 Describe about Configuration Management
- 1.1.7 Describe change management
- 1.1.8 Explain about CMMI, different levels and need of accreditation

CONTENT DETAILS

Module I: Phases and Life cycle models of Software Development

Software Engineering – importance – emergence - Phases of software development - Feasibility study, Requirement Analysis, Design, Implementation, Testing, and Maintenance phases
Software Life Cycle Models - Classical waterfall, Iterative, prototyping, Spiral, and Agile - Compare Life cycle models

Module II: Requirements Analysis and Design

Requirement Analysis – Analysis process, Requirements specification, desirable characteristics of an SRS, structure of an SRS document, Data Flow Diagrams - Role of Software Architecture and Architecture Views - Planning for a Software Project
Software Design - Software design concepts - Function Oriented Design and its Complexity Metrics - Object Oriented Design and its Complexity Metrics - Detailed Design.

MODULE III: Software Implementation and Testing

Software Coding - Programming principles and coding guidelines - method of incrementally developing code - managing the evolving code
Testing - Unit testing and Code Inspection - Testing concepts and testing process - Design of Test case and Test plan - Black-box testing - White box testing

MODULE IV: Software Project Management

Software Project Management Framework - methods to estimate project time and cost, Resource Management, Identification, Analysis, mitigation, and monitoring of Project Risks - Ensuring Project quality and quality management, Configuration Management, Change management, CMMI, different levels and need of accreditation

TEXT BOOK(S):

1. Software Engineering, A Precise Approach: Pankaj Jalote, Wiley India-2010
2. Software Project Management : Saikat Dutt /S. Chandramouli, Pearson-Second Edition

REFERENCE :

1. Software Engineering : Ian Sommerville, Pearson,Nineth Edition
2. Software Engineering a practitioners approach – Roger S Pressman,Seventh Edition
3. Project Management Absolute Beginner's Guide : Greg Horine , Pearson, Second Edition