Unit-I
**Introduction to Software project Management:** Software projects, Contract management and technical project management, Activities covered by software project management, key objectives of effective management, plans, methods & methodologies, problems associated with software projects management control.

Unit-II

**Project Planning: Business Planning:** determining objectives; forecasting demand for product proposal writing requirement analysis, legal issues; Technical Planning: Lifecycle models, types of plans, plan documentation methods: PERT & CPM, Gantt charts, work breakdown structures. Standards, planning for risk management and control Capacity planning.

Unit-III


Unit-IV

**Monitoring & Control:** Creating the framework, collecting the data, Visualizing progress, Cost monitoring, Earned value analysis, Prioritizing monitoring, Change control. Managing people & organizing teams: Team organization, recruiting and staffing, Technical leadership, avoiding obsolescence training.

Unit-V

**Future Software Project Management:** Modern Project Profiles, Next generation Software economics, modern process transitions.

**Case Study:** The command Center Processing and Display system- Replacement (CCPDS-R)

References:

2. Thayer, Software Engineering Project Management, 2ed, wiley India
3. Conway, Software Project Management, Wiley India
Unit-I

Unit-II

Unit-III
Software Quality Assurance Metrics and Measurement: Software Quality Metrics, Product Quality metrics, Process Quality Metrics, Metrics for Software Maintenance, Examples of Metric Programs, Software Quality metrics methodology, Establish quality requirements, Identify Software quality metrics, Implement the software quality metrics, analyze software metrics results, and validate the software quality metrics, Software quality indicators, Fundamentals in Measurement theory.

Unit-IV
Software Testing: Functional vs, Structural testing, Test planning and preparation, Test executions, Result Checking and measurement, Test Automation.

Unit-V
Quantifiable Quality Improvement: QA monitoring and measurement, Analysis and follow up actions, Implementations, Integration and tool support, Models for Quality Assessment, Generalized and product specific models, Risk Identification for quantifiable quality improvement, Traditional statistical analysis techniques, New techniques for risk identification, Software Reliability Engineering: Reliability Analysis Using IDRM (Input Domain Reliability Model) & SRGM (Software Reliability Growth Model), TBRM (Tree based reliability model) for reliability analysis and improvement.

References:
1. Tian, Software Quality Engineering, Wiley IndiaPub
3. Pressman, Software Engineering, TMH Pub
5. Musa, Software Reliability Engineering, TMH Pub
6. Wieczorek, Software Quality, Springer
UNIT - I

UNIT - II

UNIT – III

UNIT – IV
Formal Models and specifications: Formalizing the architecture of a Specific system , formalizing an architectural style and architectural design space , Requirements for Architecture – Description languages Tools for architectural design : Universal connector language , automated support for architectural design , observations about environments for architectural design.

UNIT-V

References:
1. Shankar Kambhampaty, Service Oriented Architecture, Wiley India
2. Buschmann , Pattern oriented Software Architecture Vol 1. , Wiley India
4. Shaw , Software Architecture , PHI
UNIT-1

**Software Testing Fundamentals** – Testing objectives, Testing lifecycles, Test cases, human error, testing and debugging, general principles of testing, test metrics, Agile methodology and Its Impact on Testing, Verification and Validation. Failure, Error, Fault, and Defect

UNIT-2

**Testing Approaches** - Static testing, structured group examination static analysis, Control flow and data flow Testing, Determining Metrics, Dynamic Testing, Black Box testing, equivalence Class Partioning, Boundary Value Analysis, state transition test, cause effect graphing and decision table technique and used case testing and Advanced black box and white box techniques techniques Gray box testing, intuitive and Experience based

UNIT –3

**Software Reliability** - Reliability models, Reliability measures, verification and validation planning, Top down versus bottom up Testing Functional Vs Structured Testing, mutation testing, Test planning and Management, Testing process, Maturity Models.

UNIT –4

**Types of Testing** - Concept of Unit Testing, Domain testing, Concept of Integration Testing, System testing acceptance testing, Alpha &Beta testing, Installation Testing, Usability Testing, Regression testing, Performance testing, Load testing, Stress testing, Security testing, Gorilla testing, Syntax Based Testing.

UNIT-5


**References:**
2. Limaye, Software Testing, TMH Pub
4. k.v.k.k.prasad, Software testing concepts Tools, Dreamtech press
Unit-I

Unit-II

**System Design:** Breaking into Subsystems, Concurrency Identification, Management of data store, Controlling events between Objects, Handling Boundary Conditions.

**Object Design:** Object Design Steps, Designing a Solution, Choosing Algorithms & data structures, Defining Classes and delegation of responsibilities to Methods. Inheritance Adjustment, Association, Object Representation, Design Optimization, Design Documentation

Unit-III

**Object Modeling:** Advance Modeling Concepts, Multiple Inheritance, Generalization as an Extension, Generalization as a Restriction, Metadata, Constraints.

**Dynamic Modeling:** Events, State and State Diagram, Advance Concepts in Dynamic Modeling, Concurrency.

**Functional Modeling:** Functional Models, Data Flow Diagrams, Features of a DFD, Design flaws in DFD, Relationship between Object, Dynamic, and Functional Models

Unit-IV
Implementation Modeling: Fine –tuning classes, Fine –tuning Generalization, Realizing Associations, Testing, OO languages, Implementation Structure, Implementing Functionality, Relational Database Schema for Object Modes, Object Classes to Database Tables, Mapping Associations to Tables, Mapping Generalizations to Tables, Interfacing to Database, Object Mapping with Databases.

Unit-V
References:
1. Rambaugh, Object Oriented Modeling and Design with UML, Pearson Edu.
2. Simon Bennett, Steve McRobb and Ray Farmer, Object Oriented system Analysis and Design Using
   UML, TMH
3. Docherty, Object Oriented Analysis & Design with UML, Wiley India