# SOFTWARE PROJECT MANAGEMENT
## Lecture Plane/Syllabus
## for
B.Tech (CSE)

**UNIT-I: Introduction and Software Project Planning**

Fundamentals of Software Project Management (SPM), Need Identification, Vision and Scope document, Project Management Cycle, SPM Objectives, Management Spectrum, SPM Framework, Software Project Planning, Planning Objectives, Project Plan, Types of project plan, Structure of a Software Project Management Plan, Software project estimation, Estimation methods, Estimation models, Decision process.

**UNIT-II: Project Organization and Scheduling**

Project Elements, Work Breakdown Structure (WBS), Types of WBS, Functions, Activities and Tasks, Project Life Cycle and Product Life Cycle, Ways to Organize Personnel, Project schedule, Scheduling Objectives, Building the project schedule, Scheduling terminology and techniques, Network Diagrams: PERT, CPM, Bar Charts: Milestone Charts, Gantt Charts.

**UNIT-III: Project Monitoring and Control**

Dimensions of Project Monitoring & Control, Earned Value Analysis, Earned Value Indicators: Budgeted Cost for Work Scheduled (BCWS), Cost Variance (CV), Schedule Variance (SV), Cost Performance Index (CPI), Schedule Performance Index (SPI), Interpretation of Earned Value Indicators, Error Tracking, Software Reviews, Types of Review: Inspections, Desk checks, Walkthroughs, Code Reviews, Pair Programming.

**UNIT-IV: Software Quality Assurance and Testing**

Testing Objectives, Testing Principles, Test Plans, Test Cases, Types of Testing, Levels of Testing, Test Strategies, Program Correctness, Program Verification & validation, Testing Automation & Testing Tools, Concept of Software Quality, Software Quality Attributes, Software Quality Metrics and Indicators, The SEI Capability Maturity Model CMM), SQA Activities, Formal SQA Approaches: Proof of correctness, Statistical quality assurance, Clean room process.

**UNIT-V: Project Management and Project Management Tools**

Software Configuration Management: Software Configuration Items and tasks, Baselines, Plan for Change, Change Control, Change Requests Management, Version Control, Risk Management: Risks and risk types, Risk Breakdown Structure (RBS), Risk Management Process: Risk identification, Risk analysis, Risk planning, Risk monitoring, Cost Benefit Analysis, Software Project Management Tools: CASE Tools, Planning and Scheduling Tools, MS-Project.

**Ref. Books:**

3. Software Project Management by M. Cotterell
4. Information Technology Project Management
5. Management Information and Control by
6. Software Project Managemnet by S. A. Kelkar

# SOFTWARE PROJECT MANAGEMENT

## Lecture Plane

B.Tech (CSE)

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| | Software Project Planning, Planning Objectives, Project Plan Types of project plan | 3 | | | | |
| | Structure of a Software Project Management Plan, | 4 | | | | |
| | Software project estimation, Estimation methods | 5 | | | | |
| | Estimation models, Decision process. | 6 | | | | |
| **Unit 2** | Project Elements, Work Breakdown Structure (WBS) Types of WBS , Functions, Activities and Tasks, | 7 | | | | |
| | Project Life Cycle and Product Life Cycle Ways to Organize Personnel | 8 | | | | |
| | Project schedule, Scheduling Objectives, Building the project schedule, | 9 | | | | |
| | Building the project schedule, Scheduling terminology and techniques, | 10 | | | | |
| | Network Diagrams: PERT, CPM, Bar Charts: Milestone Charts, Gantt Charts | 11 | | | | |
| **Unit 3** | Dimensions of Project Monitoring & Control, Earned Value Analysis, | 12 | | | | |
| | Earned Value Indicators: Budgeted Cost for Work Scheduled (BCWS), | 13 | | | | |
| | Cost Variance (CV), Schedule Variance (SV), Cost Performance Index (CPI), Schedule Performance Index (SPI), | 14 | | | | |
| | Interpretation of Earned Value Indicators, Error Tracking, Software Reviews, Types of Review: Inspections, | 15 | | | | |
| | Desk checks, Walkthroughs, Code Reviews, and Pair Programming. | 16 | | | | |
| **Unit 4** | Testing Objectives, Testing Principles, Test | 17 | | | | |

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| | Plans, | | | | | |
| | Test Cases, Types of Testing, Levels of Testing, Test Strategies | 18 | | | | |
| | Program Correctness, Program Verification & validation, Testing Automation & Testing Tools, | 19 | | | | |
| | Concept of Software Quality, Software Quality Attributes, | 20 | | | | |
| | Software Quality Metrics and Indicators, The SEI Capability Maturity Model CMM), | 21 | | | | |
| | SQA Activities, Formal SQA Approaches: Proof of correctness, Statistical quality assurance, Clean room process. | 22 | | | | |
| **Unit 5** | Software Configuration Management: Software Configuration Items and tasks, Baselines, | 23 | | | | |
| | Plan for Change, Change Control, Change Requests Management, | 24 | | | | |
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| | Risk Management Process: Risk identification, Risk analysis, | 26 | | | | |
| | Risk planning, Risk monitoring, Cost Benefit Analysis, | 27 | | | | |
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