

## **Software Project Management**

**Course Title:** Software Project Management

**Course No:** CSC415

**Nature of the Course:** Theory + Lab

**Semester:** VII

**Full Marks:** 60+20+20

**Pass Marks:** 24+8 + 8

**Credit Hrs:** 3

### **Course Description:**

This course familiarizes students with different concepts of software project management mainly focusing on project analysis, scheduling, resource allocation, risk analysis, monitoring, control and software configuration management.

### **Course Objectives:**

The main objective of this course is to provide knowledge of different concepts of software project management so that students will be able to understand and handle various projects including very high risky and innovative projects using different project management skills.

### **Course Contents:**

#### **Unit 1: Introduction to Software Project Management (5 Hrs.)**

Software engineering problem and software product, software product attributes, Definition of a Software Project (SP), SP Vs. other types of projects activities covered by SPM, categorizing SPs, Project management cycle, SPM framework, types of project plan.

#### **Unit 2: Project Analysis (8 Hrs.)**

Introduction, strategic assessment, technical assessment, economic analysis: Present worth, future worth, annual worth, internal rate of return (IRR) method, benefit-cost ratio analysis, including uniform gradient cash flow and comparison of mutually exclusive alternatives.

#### **Unit 3: Activity Planning and Scheduling (7 Hrs.)**

Objectives of activity planning, Work breakdown structure, Bar chart, Network planning model: Critical path method (CPM), Program evaluation and review technique (PERT), Precedence diagramming method (PDM), Shortening project duration, Identifying critical activities.

#### **Unit 4: Risk Management (4 Hrs.)**

Introduction, nature and identification of risk, risk analysis, evaluation of risk to the schedule using Z-values.

#### **Unit 5: Resource Allocation (4 Hrs.)**

Identifying resource requirements, resource allocation, resource smoothing and resource balancing.

#### **Unit 6: Monitoring and Control (4 Hrs.)**

Introduction, collecting data, visualizing progress, cost monitoring, earned value analysis, project control.

**Unit 7: Managing Contracts and people (5 Hrs.)**

Introduction, types of contract, stages in contract, placement, typical terms of a contract, contract management, acceptance, Managing people and organizing terms: Introduction, understanding behavior, organizational behavior: a back ground, selecting the right person for the job, instruction in the best methods, motivation, working in groups, becoming a team, decision making, leadership, organizational structures, conclusion, further exercises.

**Unit 8: Software quality assurance and testing (5 Hrs.)**

Testing principles and objectives, test plan, types and levels of testing, test strategies, program verification and validation, software quality, SEI-CMM,SQA activities, QA organization structure, SQA plan.

**Unit 9: Software Configuration Management (3 Hrs.)**

Introduction, need, basic configuration, management function, baseline, configuration management responsibilities.

**Laboratory / Project Work:**

Students should prepare a project report using different concepts of software project management. The project can be done in groups with at most four members in each group. Each group can select a case study and apply the concepts of software project management focusing on project analysis, scheduling, risk analysis, resource allocation, testing.

**Text Book:**

1. Software Project Management by Bob Hughes and Mike Cotterell, Latest Publication

**Reference Books:**

1. "Introduction to Software Project Management & Quality Assurance", Darrel Ince, I. Sharp, M. Woodman, Tata McGraw Hill
2. "Software Project Management: A Unified Framework", Walker Royce, Addison-Wesley, An Imprint of Pearson Education
3. "Managing the Software Process", Watts S. Humphrey, Addison-Wesley, An Imprint of Pearson Education