

MB303.4: Software Project Management

Learning Objectives:

- To introduce software project management and to describe its distinctive characteristics
- To discuss project planning and the planning process
- To show how graphical schedule representations are used by project management
- To discuss the notion of risks and the risk management process

Unit – I: INTRODUCTION:

Introduction to Software Project Management - Project, importance, Software projects versus other types of project, Contract management & technical project management, Activities covered by software project management- Plans, methods and methodologies, categorizing software projects, Stakeholders, Setting objectives, The business case, Project success and failure, Management control.

Project Evaluation and Programme Management – Introduction, A business case, Project portfolio management , Evaluation of individual projects, Cost–benefit evaluation techniques, Risk evaluation, Programme management ,Managing the allocation of resources within programmes, Strategic programme management, Creating a programme, Aids to programme management , Some reservations about programme management, Benefits management.

An Overview of Project Planning- Introduction to Step Wise project planning.

Unit – II: PROJECT APPROACH:

Selection of an Appropriate Project Approach – Introduction, Build or buy, Choosing methodologies and technologies, Choice of process models, Structure versus speed of delivery , The waterfall model, The spiral model, Software prototyping , Other ways of categorizing prototypes, Incremental delivery, Agile methods, Atern/Dynamic Systems Development Method, Extreme programming (XP), Managing iterative processes, Selecting the most appropriate process model

Software Effort Estimation - Introduction, Where are estimates done? ,Problems with over- and underestimates, The basis for software estimating, Software effort estimation techniques, Bottom-up estimating, The top-down approach and parametric models, Expert judgment, Estimating by analogy, Albrecht function point analysis, Function points Mark II, COSMIC full function points , COCOMO 13: a parametric productivity model.

Activity Planning –Introduction, The objectives of activity planning, When to plan, Project schedules, Projects and activities, Sequencing and scheduling activities, Network planning models ,Formulating a network model, Adding the time dimension, The forward pass, The backward pass, Identifying the critical path, Activity float, Shortening the project duration, Identifying critical activities, Activity-on-arrow networks.

Unit – III: RISK MANAGEMENT:

Risk Management – Introduction, Risk, Categories of risk, A framework for dealing with risk, Risk identification, Risk assessment, Risk planning, Risk management, Evaluating risks to the schedule, Applying the PERT technique, Monte Carlo simulation.Critical chain concepts

Resource Allocation- Introduction, The nature of resources, Identifying resource, requirements Scheduling resources, Creating critical paths, Counting the cost, Being specific, Publishing the resource schedule, Cost schedules, The scheduling sequence.

Monitoring & Control –Introduction, Creating the framework, Collecting the data , Visualizing progress, Cost monitoring, Earned value analysis, Prioritizing monitoring, Getting the project back to target, Change control.

Unit – IV: SOFTWARE ENVIRONMENT:

Managing Contracts - Types of contract, Stages in contract placement, Typical terms of a contract, Contract management, Acceptance.

Managing People in Software Environments- Introduction, Understanding behavior, Organization behavior a background, Selecting the right person for the job, Instruction in the best methods, Motivation, The Oldham–Hackman job characteristics model ,Stress, Health and safety, Some ethical and professional concerns.

Working in Teams – Introduction, Becoming a team, Decision making, Organizational structures, Coordination dependencies Dispersed and virtual teams, Communication genres,

Communication plans, Leadership.

Unit – V: QUALITY OF SOFTWARE:

Software Quality – Introduction, The place of software quality in project planning, The importance of software quality, Defining software quality, ISO 9126 , Product versus process quality management, Quality management systems, Process capability models, Techniques to help enhance software quality, Testing, Quality plans

An Overview of PRINCE 2

SUGGESTED READING:

1. Bob Hughes and Mike Cotterell, Software Project Management , Tata McGraw Hill, 5th Edition, 2010.
2. Walker Royce, Software Project Management: A Unified Framework Addison Wesley, 1998.
3. Rajib Mall, Fundamentals Of Software Engineering, PHI Learning Pvt. Ltd.

Learning outcomes: On the completion of the course the student will be able to:

- Evaluate and Plan Project
- Analysing the risk involved in implementing the Project
- How to allocate the resources & manage people working on projects.