

B.Sc. (Data Science)
Discipline Specific Elective (DSE)
Semester V
BSDB33503T: Software Project Management

Total Marks: 100
External Marks: 70
Internal Marks: 30
Credits: 4
Pass Percentage: 40%

Objective

To understand the fundamental principles of Software Project management. This course will enable students to comprehend the fundamentals of managing and optimizing the software development process , Contract Administration, Costing and Budgeting.

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

1. The syllabus prescribed should be strictly adhered to.
2. The question paper will consist of three sections: A, B, and C. Sections A and B will have four questions from the respective sections of the syllabus and will carry 10 marks each. The candidates will attempt two questions from each section.
3. Section C will have fifteen short answer questions covering the entire syllabus. Each question will carry 3 marks. Candidates will attempt any ten questions from this section.
4. The examiner shall give a clear instruction to the candidates to attempt questions only at one place and only once. Second or subsequent attempts, unless the earlier ones have been crossed out, shall not be evaluated.
5. The duration of each paper will be three hours.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt any two questions each from the sections A and B of the question paper and any ten short questions from Section C. They have to attempt questions only at one place and only once. Second or subsequent attempts, unless the earlier ones have been crossed out, shall not be evaluated.

Section - A

Unit -I Software Project Management, Project Evaluation and Planning - Activities in Software Project Management, Overview of Project Planning, Stepwise planning, Software processes and process models.

Unit -II Estimation and Budgeting of Projects, Cost Benefit Analysis, Cash Flow Forecasting, Cost-Benefit Evaluation Techniques, Risk Evaluation. Project costing, COCOMO 2, Staffing pattern, Effect of schedule compression.

Unit -III: Project Sequencing and Scheduling Activities, Scheduling resources, Critical path analysis, Network Planning, Risk Management, Managing Risks, Risk Planning and Control.

Unit -IV: Project Monitoring and Control- Collecting Data, Visualizing Progress, Cost Monitoring, review techniques, project termination review, Earned Value analysis.

Section -B

Unit -V: Configuration Management: Software Configuration Management (SCM) – Baselines, SCM Process; Version Control; Change Control; Configuration Audit; Status Reporting; Goals of SCM.

Unit VI: Team Development: Basic Concepts; Organization Types – Centralized-control team organization, Decentralized-control team organization, Mixed-control team organization; Dispersed and Virtual Teams, Communication Plans, Leadership.

Unit -VII: Agile Software Development: Scrum, Extreme Programming , Lean development, Kanban, DevOps. People Management- Introduction, Understanding Behavior, Organizational Behavior, Selecting the Right Person for The Job. Managing knowledge in Agile projects.

Unit -VIII: Software Quality Assurance: Software Quality Assurance Activities; Software Quality Standards – ISO Standard, Capability Maturity Model (CMM), Comparison between ISO 9001 & SEI CMM.

Suggested Readings

1. Zykov SV, Singh A, Agile Enterprise Engineering: Smart Application of Human Factors: Models, Methods, Practices, Case Studies, Springer.
2. Royce, Software Project Management, Pearson Education. 1968
3. Ian Sommerville, Software Engineering, Seventh Edition, Pearson Education. 2005
4. R.S. Pressman, Software Engineering: A Practitioner's Approach, Sixth Edition, Tata McGraw-Hill, 2009