GUJARAT TECHNOLOGICAL UNIVERSITY

B. E. SEMESTER: V

PRODUCTION ENGINEERING

Subject Name: **Project Management (Institute Elective-II)**

Subject Code: **152505**

Teaching Scheme				Evaluation Scheme		
Theory	**Tutorial**	**Practical**	**Total**	**University Exam (Theory) (E)**	**Mid Sem Exam (Theory) (M)**	**Practical (I)**
4	0	2	6	70	30	50

Sr. No.	**Course content**
1.	**Introduction to Project:** Definition of a Project, Sequence of Activities, Unique activities, Complex Activities, Connected Activities, One Goal, Specified Time, Within Budget, According to Specification. Defining a Program, Project parameters: Scope, Quality, Cost, Time, Resources; The scope triangle: Time, Cost, and Resource Availability, Project Classification.
2.	**Project Management:** Principles of Project Management: Defining, Planning, Executing, Controlling, Closing; Project Management Life Cycle: Phases of Project Management, Levels of Project Management; Quality Management: Continuous Quality Management Model, Process Quality Management Model; Risk Management, Risk Analysis; Relationship between Project Management and other Methodologies.
3.	**Scope of Project:** Defining the project, Condition of Satisfaction, Project Overview Statement: Parts of POS, Attachments, Joint Project Planning (JPP) Session to Develop the POS, Approval Process, Project Definition Statement.
4.	**Project Activities:** Work Breakdown Structure, Uses of WBS, Generating the WBS: Top-Down/ Bottom-Up Approach, WBS for Small Projects, Intermediate WBS for large projects; Criteria to Test for Completeness in the WBS: Measurable Status, Bounded, Deliverable, Cost/Time Estimate, Acceptable Duration Limits, Activity Independence; Approaches to Building the WBS: various approaches, Representing WBS.

5.	**Activity Duration, Resource Requirements, & Cost:** Duration: Resource Loading versus Activity Duration, Variation in Activity Duration, Methods for Estimating Activity Duration, Estimation Precision; Resources; Estimating Cost, JPP Session to Estimate Activity Duration & Resource Requirements, Determining Resource Requirements.
6.	**Fundamentals of Project Network Diagram:** Project Network Diagram, Benefits to Network- Based Scheduling, Building the Network Diagram Using the PDM, Analyzing the Initial Project Network Diagram.
7.	**Network Analysis – PERT:** Introduction to Project Evaluation and Review Technique, Event, Activity, Dummy, Network rules, Graphical guidelines for network, Common partial situations in network, numbering the events, Cycles; **Developing the Network,** Planning for network construction, modes of network construction, steps in developing network, hierarchies; **Time Estimates in PERT,** Uncertainties and use of PERT, Time estimates, Frequency distribution, Mean, Variance & standard deviation, Probability distribution, Beta distribution, Expected time; **Time Computations in PERT,** Earliest expected time, Formulation for T_E, Latest allowable occurrence time, Formulation for T_L, Combined tabular computations for T_E, T_L; Slack, Critical Path, Probability of meeting schedule date.
8.	**Network Analysis- CPM:** Introduction to Critical Path Method, Procedure, Networks, Activity time estimate, Earliest event time, Latest allowable occurrence time, Combined tabular computations for T_E and T_L, Start & Finish times of activity, Float, Critical activities & Critical path. Crashing of project network, Resource leveling and Resource allocation.
9.	**Schedules Based on Resource Availability:** Resources, Leveling Resources, Acceptability Leveled Schedule, Resource Leveling Strategies, Work Packages: Purpose of a Work Package, Format of a Work Package.
10.	**Joint Project Planning Session:** Planning the Sessions, Attendees, Facilities, Equipments, Complete Planning Agenda, Deliverables, Project Proposal.

Reference Books:

1. Effective Project Management by Robert K. Wysocki, Robert Beck. Jr., and David B. Crane; John Wiley & Sons.
2. Project Planning and Control with CPM and PERT by Dr. B.C. Punamia & K.K.Khandelwal; Laxmi Publications, New Delhi
3. Project Management by S. Choudhury, TMH Publishing Co. Ltd, New Delhi

4. Total Project Management- The Indian Context by P. K. Joy, Macmillan India Ltd., Delhi
5. Project Management in Manufacturing and High Technology Operations by Adedeji Bodunde Badiru, John Wiley and Sons.
6. Course in PERT & CPM By R.C.Gupta, DhanpatRai and Sons, New Delhi
7. Fundamentals of PERT/ CPM and Project Management by S.K. Bhattacharjee; Khanna Publishers, New Delhi.