8CE4-01 Project Planning and Construction Management

Credit 3 **Max. Marks: 150(IA:30, ETE:120)**

3L+0T+0P **End Term Exam: 3Hours**

SN	Course Content	Hours
1	**INTRODUCTION:** Objective, scope and outcome of the course	1
2	**FINANCIAL EVALUATION OF PROJECTS ANDPROJECT PLANNING:** Capital investment proposals, criterions to judge the worthwhile of capital projects viz. net present value, benefit cost ratio, internal rate of return, Risk cost management, main causes of project failure. Categories of construction projects, objectives, project development process, Functions of project management, Project management organization and staffing, Stages and steps involved in project planning, Plan development process, objectives ofconstruction project management.	7
3	**PROJECT SCHEDULING:** Importance of project scheduling, project work breakdown process – determining activities involved, work breakdown structure, assessing activity duration, duration estimate procedure, Project work scheduling, Sequence of construction activities, Project management techniques – CPM and PERT networks analysis, concept of precedence network analysis.	8
4	**PROJECT COST AND TIME CONTROL:** Monitoring the time progress and cost controlling measures in a construction project, Time cost trade-off process: direct and indirect project costs, cost slope, Process of crashing of activities, determination of the optimum duration of a project, updating of project networks, resources allocation.	8
5	**CONTRACT MANAGEMENT:** Elements of tender operation, Types of tenders and contracts, Contract document, Legal aspects of contracts, Contract negotiation & award of work, breach of contract, determination of a contract, arbitration.	8
6	**SAFETY AND OTHER ASPECTS OF CONSTRUCTION MANAGEMENT:** Safety measures to be followed in various construction works like excavation, demolition of structures, explosive handling, hot bitumen work. Project Management Information System – Concept, frame work, benefits of computerized information system. Environmental and social aspects ofvarious types of construction projects.	8
	Total	40

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	Recommended Texts:
1	Construction Planning & management By P S Gahlot& B M Dhir, New Age International Limited Publishers
2	Construction Project planning & Scheduling by Charles Patrick, Pearson, 2012
3	Construction Project Management Theory & practice --- Kumar Neeraj Jha, Pearson, 2012
4	Modern construction management--Harris, Wiley India.
5	Construction Management & Planning by Sengupta and Guha-Tata McGraw Hill publication.
6	Project Management – K Nagrajan – New age International Ltd.
7	Professional Construction Institute Edition.
8	Construction Project Management Planning, Scheduling and Controlling-Chitakara- Tata McGraw Hill, New Delhi
9	Construction Planning, Equipment and Methods by R. L. Peurify

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8CE4-21: Project Planning and Construction Management Lab

Credit 1 **Max. Marks: 50(IA:30, ETE:20)**

0L+0T+2P

1. Assignments on net present value, benefit cost ratio, internal rate ofreturn
2. Types of contracts – Tenders, tender form, submission and opening of tenders, measurement book, muster roll, piecework agreement and work order.
3. Drafting of tender documents, special terms andconditions
4. Drafting of tender notices for different types ofworks
5. Different models of PPP like BOT, BOOTetc.
6. Arbitration
7. Preparation of bardiagram
8. Network Analysis using PERT andCPM

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8CE4-22: Pavement Design

Credit 1 **Max. Marks: 50(IA:30, ETE:20)**
0L+0T+2P

1. **Pavement Mix Analysis**: Aggregate blending, bituminous mix design – Marshall Stability approach, concrete mix design for DLC and PQC with IS codeprovisions.
2. **Pavement Basics:** Types & comparison, vehicular loading pattern, factors affecting design and performance of pavements, sub graderequirements.
3. **Design of Flexible Pavements**: Analytical approach, flexible pavement layers, ESWL, repetitions of load, techniques of design methods, wheel load analysis, traffic analysis, stress distribution in subgrade soil, Burmister's theories, group index method, CBR approach, IRC 37 and otherguidelines.
4. **Design of Concrete Pavements**: Westergaard's approach, temperature & frictional stresses, design of expansion & longitudinal joints, design of dowel & tie bars, IRC 58 and otherguidelines.
5. **Specifications for rural roads:** Important aspects of IRC SP 020, Rural Road Manual. NRRDA publications

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