



# GUJARAT TECHNOLOGICAL UNIVERSITY

Master of Engineering Syllabus

Subject Code : 3726501

Subject Name : CONSTRUCTION PROJECTS MANAGEMENT AND SAFETY

WEF Academic Year :	2023-24
Semester :	II
Category of the Course :	CORE

<b>Prerequisite :</b>	Construction basics, scheduling and management aspects
<b>Rationale :</b>	For civil Engineers construction activities are the core of the technical expertise. Project Management techniques needs to be considered in order to effective management of construction projects

## Course Scheme :

Teaching Scheme			Total Credits	Assessment Pattern and Marks				Total Marks
L	T	PR		C	Theory		Practical	
			ESE (E)		PA(M)	ESE (V)	PA (I)	
3	0	2	4	70	30	30	20	150

## Course Content:

Sr. No.	Course Content	No. of Hours	% of Weightage
1	<b>Project Management:</b> Basic forms of organization with emphasis on Project and matrix structures; project life cycle, planning for achieving time, cost, quality, project feasibility reports based on socio-techno-economic environmental impact analysis, project clearance procedures and necessary documentation for major works like dams, multistoried structures, ports, tunnels, Qualities, role and responsibilities of project manager, Role of Project Management Consultants, Enterprise Resource Planning (ERP)	6	20
2	<b>Cost Control Monitoring and Accounting</b> The Cost Control Problem - The Project Budget - Forecasting for Activity Cost Control - Financial Accounting Systems and Cost Accounts - Control of Project Cash Flows - Schedule Control - Schedule and Budget Updates - Relating Cost and Schedule Information.	6	15
3	<b>Quality Control during construction</b>	6	15



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	Quality Concerns in Construction - Organizing for Quality - Work and Material specifications - Total Quality Control - Quality Control by Statistical Methods - Statistical Quality Control with Sampling by Attributes- Statistical Quality Control with Sampling by Variables		
4	<b>Organization and Use Of Project Information</b> Types of Project Information - Accuracy and Use of Information - Computerized Organization and Use of Information -Organizing Information in Databases - Relational Model of Databases - Other Conceptual Models of Databases - Centralized Database Management Systems - Databases and Applications Programs - Information Transfer and Flow. Software related to management QE pro basics	6	15
5	<b>Safety Engineering:</b> <ol style="list-style-type: none"> <li>a) Causes of Accidents on various sites, safety measures and safety policies to be adopted, determination of safety parameters, personal protective equipment. Workmen Compensation Act, Minimum wages act</li> <li>b) Type of Industrial Hazards-Nature, Causes and Control Measures, Hazard Identifications And Control Techniques - HAZOP, FMEA, FMECA. -Cost of Construction Injuries-Legal Implications</li> <li>c) Safety Organization –Safety Policy, Safety Record Keeping, Safety Culture, Safety and First Line Supervisors, Middle Managers, Top Management Practices, Sub contractual obligation, Project Coordination and Safety Procedure</li> <li>d) Safety in various construction operations- Excavation- under- water works-under- pinning &amp; shoring Ladders &amp; Scaffolds- Tunneling- Blasting- Demolition- Pneumatic caissons- confined Space Temporary Structures. Indian Standards on construction safety- National Building Code Provisions on construction safety.</li> <li>e) Safety in material handling and equipment’s-Safety in storage &amp; stacking of construction materials.</li> <li>f) Safety in these of construction equipment’s- Vehicles, Cranes, Tower Cranes, Lifting gears, Hoists &amp; Lifts, Wire Ropes, Pulley blocks, Mixers, Conveyors, Pneumatic and hydraulic tools in construction. Temporary power supply.</li> </ol>	18	35
<b>Total</b>		<b>42</b>	<b>100</b>

**Reference Book:**

1. Construction Project Management Theory & practice---Kumar Neeraj Jha, Pearson,2012
2. Construction Management Fundamentals by Knutson,Schexnayder,Fiori, Mayo,Tata McGraw Hill, 2<sup>nd</sup> Edition, 201
3. Modern construction management--.Harris, Wiley India.
4. Construction Management and Planning by Sen Gupta and Guha-Tata Mc Graw Hill Publication.



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5. Project Management–K Nagrajan– New age International Ltd.
6. Work study–Currie.
7. Professional Construction Management Barrie-Paulson-McGraw Hill Institute Edition.
8. Project Management –Ahuja H.N.–John Wiely, NewYork.
9. ConstructionProjectManagementPlanning,SchedulingandControlling-Chitakara- Tata Mc Graw Hill, New Delhi
10. Dale H .Besterfiled, etal., “Total Quality Management “,PearsonEducation,Inc.2003.(Indian reprint2004).ISBN 81- 297-0260-6.
11. Evans.J.R.&Lindsay.W,M“The Managementand Control of Quality”,(5thEdition), SouthWestern(ThomsonLearning), 2002 (ISBN 0-324-06680-5).
12. Feigenbaum. A.V.“Total Quality Management”, McGraw-Hill,1991.

### Course Outcome:

After Completion of the Course, Student will able to:

No	Course Outcomes	RBT Level*
01	Carryout life cycle analysis of Construction Project	AN
02	Carryout Cost control and Accounting of Construction Project	AP
03	Able to keep site management quality control	AP
04	Keep safety measures at construction site	AP

\*RM: Remember, UN: Understand, AP: Apply, AN: Analyze, EL: Evaluate, CR: Create

### Suggested Course Practical List:

1. Life Cycle Analysis
2. Cost controlling and economy
3. Quality control aspect
4. Safety Implementation
5. Application of softwares
6. Case studies

### List of Laboratory/Learning Resources Required:

1. Ms Project , QE Pro software

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