

Th 2. CONSTRUCTION MANAGEMENT

Name of the Course: Diploma in Civil Engineering			
Course code:		Semester	6th
Total Period:	60	Examination	3 hrs
Theory periods:	4P/week	Class Test:	20
Maximum marks:	100	End Semester Examination:	80

A. RATIONALE

The course aims to prepare students to be an effective team member in a construction organization setup. This necessitates managerial skills in managing materials, time and human resources. Also, the course helps the students to build concepts of disasters and explore about manmade disasters at national as well as international level with quality measuring indices and vulnerability atlas of India.. The course has been designed to cater to these needs.

B. COURSE OBJECTIVES

On completion of the course students will be able to-

1. Develop schedules for construction project
2. Realize significance of organizational behavior towards successful functioning
3. Explain the important terminology related to materials management, site management, equipment management and labor management
4. Understand construction quality indicators and their measurement
5. Apply methods to measure and monitor progress of work
6. Realize significance of safety requirement and regulations at workplace
7. Understand the importance and usage of the Vulnerability Atlas of India in construction Projects.

C. TOPIC WISE DISTRIBUTION

Chapter	Name of topics	Hours
1	Introduction To Construction Management	04
2	Constructional Planning	07
3	Materials and Stores Management	04
4	Construction Site Management	05
5	Construction Organisation:	06
6	Construction Labour and Labour Management:	06
7	Equipment Management	06
8	Quality Control	05
9	Monitoring Progress	06
10	Safety Management In Construction	05
11	Role of Vulnerability Atlas of India in construction projects	06

D. COURSE CONTENTS:

- 1 **Introduction To Construction Management**
 - 1.1 Aims and objectives of construction management.
 - 1.2 Functions of construction management.
 - 1.3 The construction team components- owner,engineer,architect,contractor-their functions and interrelationship and jurisdiction.
 - 1.4 Resources for construction management-men,machines,materials,money

- 2** **Constructional Planning**
- 2.1 Importance of Construction Planning
- 2.2 Developing work breakdown structure for construction work
- 2.3 Construction Planning stages-Pre-tender stage, Post-tender stage.
- 2.4 Construction scheduling by Bar charts-preparation of Bar Charts for simple construction works.
- 2.5 Preparation of schedules for labour materials,machinery, finance for small works
- 2.6 Limitation of Bar charts
- 2.7 Construction scheduling by network techniques-defination of terms ,PERT and CPM techniques, advantages and disadvantages of two techniques, network analysis, estimation of time and critical path, application of PERT and CPM techniques in sample construction works.
- 3** **Materials and Stores Management**
- 3.1 Classification of Stores-storage of stock.
- 3.2 Issue of materials-indent , invoice, bin card
- 4** **Construction Site Management**
- 4.1 Job Lay out-Objectives, Review plans, specifications, Lay out of equipments.
- 4.2 Location of equipment, organizing labour at site.
- 4.3 Job lay out for different construction sites.
- 4.4 Principle of storing material at site.
- 5** **Construction Organization:**
- 5.1 Introduction – Characteristics, Structure, importance.
- 5.2 Organization types-line and staff, functions and their characteristics
- 5.3 Principles of organization- meaning and significance of terms- control, authority, responsibility, job & task.
- 5.4 Leadership-necessity, styles of leadership, role of leader
- 5.5 Human relations-relations with subordinates, peers, Supervisors, characteristics of group behavior, mob psychology, handling of grievances, absenteeism, labour welfare.
- 5.6 Conflicts in organization-genesis of conflicts, types-intrapersonal, interpersonal, intergroup, resolving conflicts.
- 6** **Construction Labour and Labour Management:**
- 6.1 Preparing Labour schedule
- 6.2 Essential steps for optimum labour output
- 6.3 Labour characteristics
- 6.4 Wages & their payment
- 6.5 Labour incentives
- 6.6 Motivation- Classification of motives, different approaches to motivation.
- 7** **Equipment Management**
- 7.1 Preparing the equipment schedule
- 7.2 Identification of different alternative equipment
- 7.3 Importance of Owning & operating costs in making decisions for hiring & purchase of equipment
- 7.4 Inspection and testing of equipment
- 7.5 Equipment maintenance
- 8** **Quality Control**
- 8.1 Concept of quality in construction
- 8.2 Quality Standards- during construction, after construction, destructive & non destructive methods.

- 9 Monitoring Progress**
- 9.1 Programme and progress of work
- 9.2 Work study
- 9.3 Analysis and control of physical and financial progress corrective measures.
- 10 Safety Management In Construction**
- 10.1 Importance of safety
- 10.2 causes and effects of accidents in construction works
- 10.3 Safety measures in worksites for excavation, scaffolding, formwork, fabrication and erection, demolition.
- 10.4 Development of safety consciousness
- 10.5 Safety legislation- Workman's compensation act, contract labour act.
- 11 Role of Vulnerability Atlas of India in construction projects**
- 11.1 Introduction to Vulnerability Atlas of India, Concepts of natural hazards and disasters and vulnerability profile of India. Definition of disaster related terms.
- 11.2 Earthquake hazard and vulnerability, Magnitude and intensity scales of earthquake, seismic zones, earthquake hazard maps, types of structures and damage classification, effects in housing and resistant measures.
- 11.3 Wind / Cyclone hazard and vulnerability, wind speed and pressures, wind hazard and cyclone occurrence maps, storm surveys and cyclone resistant measures.
- 11.4 Flood hazard and vulnerability, Flood hazard and Flood prone areas of the country, General protection of habitants and flood resistant construction.
- 11.5 Landslides, Tsunamis and Thunderstorm hazards and vulnerability, Landslide & Thunderstorm incidence maps, Measures against Tsunami hazards.
- 11.6 Housing vulnerability risk tables and usage of vulnerability atlas of India, Inclusion of vulnerability atlas in Tender documents.

E. COURSE COVERAGE UPTO INTERNAL ASSESSMENT

Chapters 1, 2, 3, 4, 5

F. RECOMMENDED BOOKS

Sl. No	Name of Authors	Titles of Book	Name of Publisher
1	M. R. Samal & R.L. Sahoo	Construction Management	Kalyani Publication
2	PS Gahlot & B M Dhir	Construction planning and management	New age international Publishers
3	Robert L Peurifoy & William B Ledbetter	Construction Planning equipment and methods	TMH Education
4	Dr. U K Shrivastava	Construction planning and management	Galgotia Publications
5	SC Sharma	Construction equipment and its management	Khanna Publishers
6	B Sengupta & H Guha	Construction management and planning	TMH Education
7	Vulnerability Atlas of India:- Published By BMTPC of India		