

Construction Management EG 3106 CE

Year: III
Semester: I

Total: 6 Hrs./week
Lecture: 5 Hrs./week
Tutorial: 1 Hr./week
Practical: Hrs./week
Lab: Hrs./week

Course Description

This course focuses on management of construction works. This course imparts knowledge on organization, Management, labor relations, safety, accounts, procurement of works, contract management, planning, scheduling, monitoring and control, and managing construction works.

Course Objectives

After completion of this course, students will be able to:

1. Familiarize the need of organization, and account;
2. Describe construction management;
3. Plan and schedule different activities of construction project;
4. Familiarize with monitoring and control, labor relations, and safety in construction works;
5. Familiarize with the procurement of works and contract administration; and
6. Plan and schedule resources required in construction project.

Course Content

Unit 1: Organization and Management

[8 Hrs.]

- 1.1 Definition and need of organization
- 1.2 Types of organization - Line organization, Line and staff organization, and Matrix organization.
- 1.3 Definition and importance of Management
- 1.4 Principles of Management
- 1.5 Human Resource Management
- 1.6 Motivation
- 1.7 Definition and Need of Construction Management

Unit 2: Bookkeeping and Account

[6 Hrs.]

- 2.1 Definition of Bookkeeping
- 2.2 Need and Importance of Accounting
- 2.3 Principle of Double Entry - Personnel account, Property or Real account, and Nominal account
- 2.4 Introduction to Journal, Ledger and Final account

Unit 3: Project Planning and Scheduling

[12 Hrs.]

- 3.1 Definition and Characteristics of Project
- 3.2 Definition and Steps of Planning
- 3.3 Importance of Planning
- 3.4 Construction Site Planning
- 3.5 Work Breakdown Structure

- 3.6 Bar Chart with advantages and disadvantages, Linked Bar Chart, and Milestone Bar Chart
- 3.7 Definition of Scheduling, Preparation of Construction Schedule and its advantages
- 3.8 Preparation of Schedule of Resources (Material/Labor/Equipment and Finance)

Unit 4: CPM and PERT [14 Hrs.]

- 4.1. Introduction to CPM
- 4.2. Elements of Network
- 4.3. Network Rules
- 4.4. Definition of the Terms: Network Diagram, Activity, Event, Forward Pass, Backward Pass, and Critical Path.
- 4.5. Introduction to activity on arrow (A-O-A) method with one example.
- 4.6. Computation of four schedule dates, four floats, critical path, and determination of project duration using (A-O-N) method.
- 4.7. Introduction to PERT with one example.

Unit 5: Contract Administration [14 Hrs.]

- 5.1 Definition of Contract, and Definition of Contract Administration
- 5.2 Essentials elements of a Valid Contract
- 5.3 Types of Contract: Unit Price Contract/Lump Sum Contract/Cost Plus Contract
- 5.4 Definition of Tender Notice, and Information to be given in Tender Notice
- 5.5 Difference between Tender Document and Contract Document
- 5.6 Bid Bond and Performance Bond
- 5.7 Conditions of Contract
- 5.8 Supervision of work undertaken by a Contractor
- 5.9 Duties and Responsibilities of a Site Supervisor
- 5.10 Site Order Book
- 5.11 Materials at Site Account
- 5.12 Muster Roll
- 5.13 Measurement Book
- 5.14 Running Bill and Final Bill
- 5.15 Completion Report
- 5.16 Relation between Owner, Consultant, and Contractor

Unit 6: Monitoring and Quality Control [7 Hrs.]

- 6.1 Introduction to Monitoring
- 6.2 Purpose of Monitoring
- 6.3 Definition of Quality
- 6.4 Characteristics of Quality
- 6.5 Elements of Control: Quality control/Cost control/Schedule control
- 6.6 Stages of Quality Control

Unit 7: Construction Equipment [8 Hrs.]

- 7.1. Advantages of using Construction Equipment
- 7.2. Equipment for Excavation
- 7.3. Equipment for Concrete Mixing
- 7.4. Equipment for Transportation and Compaction
- 7.5. Equipment for Lifting of Materials and Parts

Unit 8: Safety and Labor Relation [6 Hrs.]

- 8.1 Introduction to Accidents

- 8.2 Causes of Accidents
- 8.3 Importance of Safety
- 8.4 Safety Measures
- 8.5 Meaning and Purpose of Labor Union
- 8.6 Labor Act 2074

Tutorial Works

Bookkeeping and Account	[05 Hrs.]
CPM and PERT	[10 Hrs.]

References:

1. Adhikari, R. P., Construction Management.
2. Shrestha, S.K. and Adhikari, I. A text book of Project Engineering, Chandeswori Publication.
3. Shrestha, S.M. and Shrestha, S. Management-I, Akshalok Prakashan, Kathmandu, Nepal.
4. Bhattarai D. Construction Plant Management. P.U. Printers Battisputali, Kathmandu, Nepal.
5. Chitkara K, Construction Project Management. Tata McGraw-Hill Education Private Limited, New Delhi, India
6. Dutta, B. N., Estimating and Costing.
7. DeCenzo, D.A. and Robbins, S.P. Personnel/Human Resource Management, Third Edition. Prentice-Hall of India, New Delhi.

Evaluation Scheme

The questions will cover all the chapters in the syllabus. The evaluation scheme will be as indicated in the table below:

Chapter	Title	Hrs.	Mark distribution*
1	Organization and Management	08	08
2	Bookkeeping and Account	06	08
3	Project Planning and Scheduling	12	12
4	CPM and PERT	14	16
5	Contract Administration	14	12
6	Monitoring and Quality Control	07	08
7	Construction Equipment	08	08
8	Safety and Labor Relation	06	08
	Total	75	80

* There may be minor deviation in marks distribution.