BUILDING & MECHANICAL ENGINEERING DRAWING

FORM SIX (CAPE)

CONSTRUCTION MANAGEMENT LEARNING ACTIVITY

UNIT 2B (MODULE 3)

OBJECTIVE: UNDERSTANDING THE BASIC PRINCIPLES OF CONSTRUCTION MANAGEMENT

PLANNING TECHNIQUES:

Bar charts and Network analysis

Use the link to research information on **project scheduling** and answer the following questions with specific reference to methods used in the management of a construction project.

https://www.youtube.com/watch?v=Cx7i2wXB0kA&list=PL3MO67NH2XxLUV6O3z1C0Cd6j5-uT7fRC&index=16

QUESTIONS

1. What is the purpose of creating a schedule in the management of a project?
2. Explain the term **NETWORK** and the relationship between an activity and an event.
3. What are the advantages and disadvantages in using a bar chart to show the different activities involved in a project?
4. The terms forward pass and backward pass are calculations used in project scheduling. How are these calculations useful in networks?
5. An activity within the duration of a project sometimes has a float. Explain the importance of floats in the project.
6. The critical path method is a commonly used technique in project scheduling. Why is it so important and explain the advantages of using this technique as compared to producing a bar chart

REFERENCES

CXC CAPE Building Mechanical & Engineering Revised Syllabus 2015

Online Reference:

Indian Institute of Technology, Kapur – Project scheduling

UNIT 2B (MODULE 3)

Answer Key

OBJECTIVE: UNDERSTANDING THE BASIC PRINCIPLES OF CONSTRUCTION MANAGEMENT

PLANNING TECHNIQUES: Answers to Questions on topic.

QUESTIONS

1. **What is the purpose of creating a schedule in the management of a project?**

Project schedules are mainly used to assign start and finish dates in the various activities of a project. These schedules can be time oriented or resource oriented.

The schedules serve as:

- A basis for matching resource requirement with various activities over a specific period of time
- A template to monitor and control the progress of work
- An assessment tool for mid-course correction in strategy should it be required.

2. **Explain the term NETWORK and the relationship between an activity and an event.**

The Network is a graphical representation of activities in terms of nodes and arrows to show the logical interdependency between the activities.

Network presents us with:

- A better understanding in the sequencing of activities
- Specific information of the time taken to complete the project and the basis of plans for material procurement and manpower deployment
- Setting achievable targets to complete the project within a given time.

An activity is the work involving the consumption of resources within a given time period. For example an activity A can be projected to be done in four days before the start of another activity B and six days before the start of another activity C.

An event indicates the start or completion of one or more activities. It does not consume any time or resources.

3. **What are the advantages and disadvantages in using a bar chart to show the different activities involved in a project?**

A bar chart is a graphical representation of a project on which activities are shown on a real time scale.

ADVANTAGES

- The start and end of activities are easily shown on these horizontal bars.
- A network is easily displayed by these horizontal bars showing the initial start of the project to its completion.

DISADVANTAGES

- Bar charts lacks pertinent information about the logical interdependence of activities
- The criticality of an event cannot be easily accessed which is crucial in determining the maximum use of resources.

4. **The terms forward pass and backward pass are calculations used in project scheduling. How are these calculations useful in networks?**

The forward pass is used to calculate:

- The earliest start times of each event in a network
- The minimum time estimated in completing a project

The backward pass is used:

- To calculate the latest start time of an event in the network to avoid any delay in the completion of the project on schedule.
- In the allocation of resources which if maximized can help in reducing estimated costs if events are re-assigned within the duration of the project.

5. **An activity within the duration of a project sometimes has a float. Explain the importance of floats in the project.**

The total float of an activity is the amount of time by which the start of an activity can be delayed without causing any delay in the completion of the project.

In any project the float is of major importance where the re-assignment of resources in the project can be maximized to reduce estimated costs in the completion of the project.

6. **The critical path method is a commonly used technique in project scheduling. Why is it so important and explain the advantages of using this technique as compared to producing a bar chart**.

The critical path method is used to determine the series of activities, which should not be delayed for timely completion of the project. This means that there is zero float between specific activities in the project

The critical path method technique as compared to a bar chart is more effective as it establishes:

- The longest path in the network representing the minimum time required in the completion of the project
- The duration of activities that has no float between them
- The total floats of all activities.