Construction Management By Using Microsoft Project

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ABSTRACT: Construction management is a professional practice that uses specialized, project management techniques to oversee the planning design and construction of a project from its beginning to its end. The purpose of construction management is to control a project time, cost, and quality also referred as" TRIPLE CONSTRAINTS". Generally, construction management directly deals with management of construction activity. Microsoft project is the world's most popular management software developed and sold by Microsoft. The application is designed to assist project managers in developing plans assigning resources to tasks, tracking progress, managing budgets and analysing workloads. Planning and scheduling- Proper planning and scheduling are very important to ensure that the project should be completed within a given period duration. The time calculated for the construction of Bhadra group with the help of MS-Project 2013 is 354 days. MSP helps for the optimum and effective organization of activities which helps to give the vision to complete the project in planned duration and within the Economy. As per conventional method, the project commenced on 3 nov2023 and was scheduled to be completed in 177 days.

KEYWORD: Construction management, Microsoft project, Gant chart, Bar diagram, Project management, Network diagram, Project evaluation and review techniques (PERT), Critical path method (CPM).

I. INTRODUCTION

Construction Management (CM) is a professional practice/service that uses specialized, project management techniques to oversee the planning, design and construction of a project from its beginning to its end. The purpose of CM is to control a projects time, cost, and quality, also referred as "TRIPLE CONSTRAINTS". Generally, CM directly deals with management of construction activity. CM is compatible with all projects delivery systems, including design and built, CM at risk and public partnerships. The CM is handled by construction managers. The modern construction projects are complex and risky by definition. They are managed by individuals; whose work is to deliverer projects. It is the project manager and the project team, who skillfully leads the multi functions with multi-disciplinary actions, in order to accomplish the assigned mission. Professional Construction Managers may be reserved for lengthy, large scale, high budget undertakings, which include commercial, real estates, transportation infrastructure, industrial facilities and military infrastructures which are mainly called as Capital Project.

II. METHODOLOGY

A traditional phased approach identifies a sequence of steps to be completed. In the traditional approach, five developmental components of a projects can be distinguished.

- Initiation
- Planning and designing
- Execution and construction
- Monitoring and controlling systems
- Completion

Important terms used in construction management:
Bar chart and milestone charts.
Network diagram/methods.

Bar Charts & Milestone Charts:

Simple projects can be scheduled directly in the bar chart format by experienced hands However, it is the network plans of complex projects and large-size repetitive projects that needs to be scheduled using scheduling techniques. Nevertheless, all time schedules are finally presented in the format of bar charts. Bar charts were first introduced by Hennery Gantt around 1900 AD. Bar charts represents pictorial representation in two dimensions of a project by breaking it down into a number of manageable units or activities for planning and control shown on one dimension or axis and the durations assigned to these activities on the other dimensions or axes. Bar charts were later modified to yield the milestone charts. While the bar chart represents the activities, a milestone chart represents the events which mark either the beginning or the end of an activity. The bars of the bar chart are broken into a number of pieces, each one of which represent an identifiable major event, it should be noted that each event is a point in time which the management has identified as important reference point during the completion of the project.

Network Methods:

Network diagram is an outcome of the improvements in the milestone charts. The network technique is a major advance in management science. This technique is based on the basic characteristics of all projects that all work must be done in well-defined steps. For example, for completing a foundation, the various steps are, (1) layout, (2) digging, (3) placing side boards and (4) concreting. The network technique exploits these characteristics by representing the steps of the project objective graphically in the form of a network or arrow diagram It would be difficult to find in the history of management methods any technique which has received such widespread attention as that accorded to network methods for planning, scheduling and controlling. The network techniques are called by various names such as PERT, CPM, UNESTICS, LESS, TOPS SCANS, etc. However, these and other systems have emerged from the following two major network systems.

1. PERT
2. CPM

MS Project.

Microsoft Project is the world's most popular project management software developed and sold by Microsoft. The application is designed to assist project managers in developing plans, assigning resources to tasks, tracking progress, managing budgets and analysing workloads.

Microsoft Project creates critical path schedules, although critical chain third-party add-ons is available from Prochain and Spherical Angle. Schedules can be resource levelled. The chain is visualised in a Gantt chart. Resource definitions (people, equipment and materials) can be shared between projects using a shared resource pool. Each resource can have its own calendar which defines what days and

shifts a resource is available. Resource rates are used to calculate resource assignment costs which are rolled up and summarised the resource level.

Each resource can be assigned to multiple tasks in multiple plans and each task can be assigned multiple resources. Microsoft Project schedules task work based on the resource availability as defined in the resource calendars. All resources can be defined in an enterprise resource pool. Microsoft Project creates budgets based on assignment work and resource rates. As resources are assigned to tasks and assignment work estimated, Microsoft Project calculates the cost equals the work times the rate. This rolls up to the task level, then to any summary tasks and finally to the project level. Microsoft recognizes different classes of users. These different classes of users can have differing access levels to projects, views and other data.
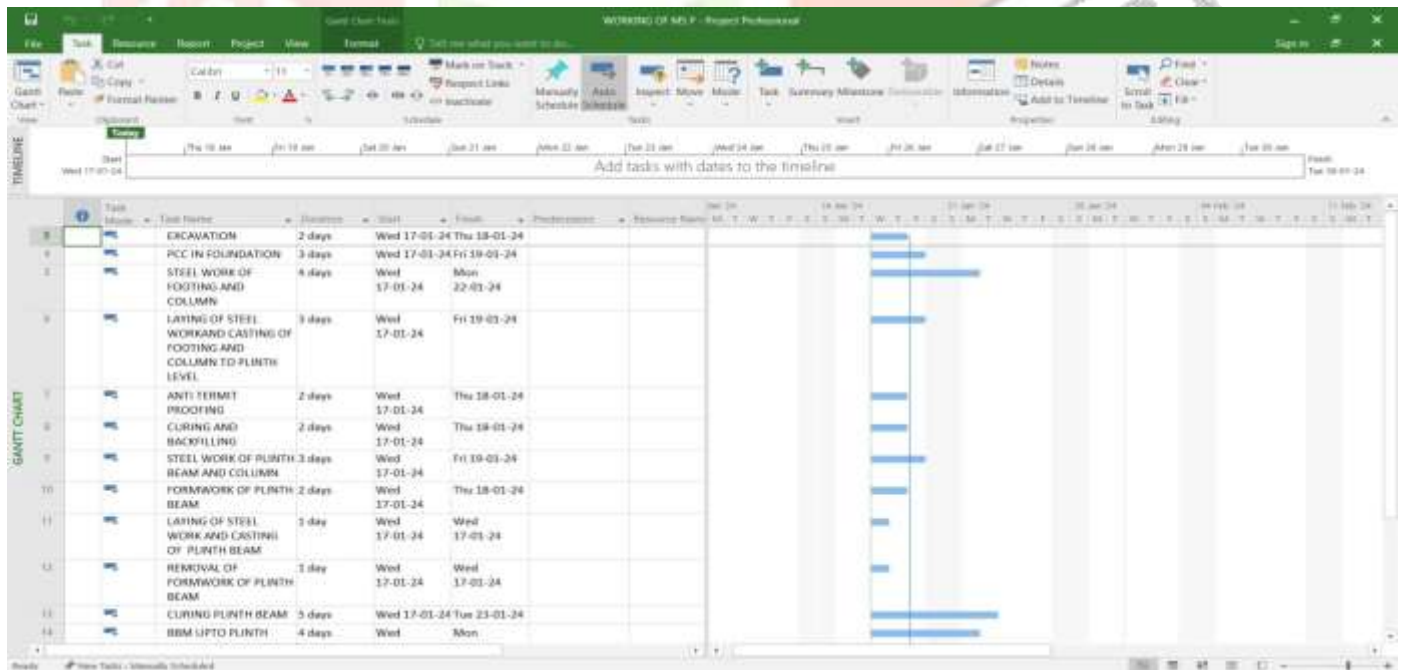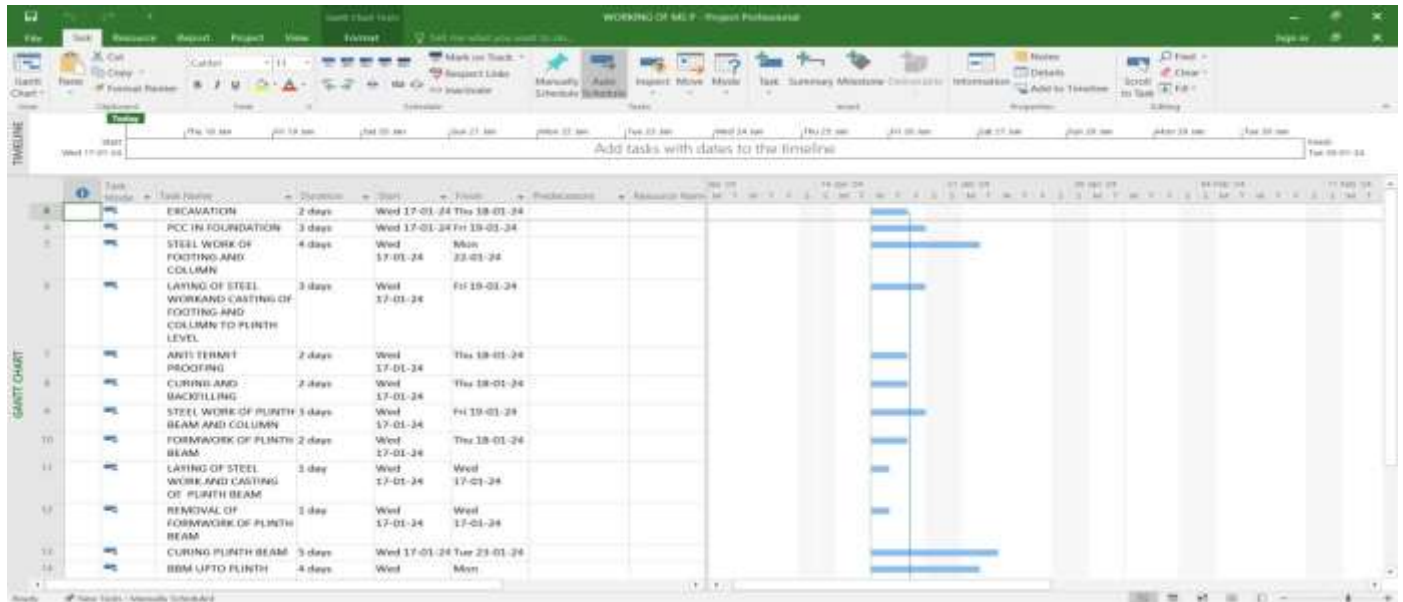
III.   RESULT

Planning and scheduling- Proper planning and scheduling are very important to ensure that the project should be completed within a given period duration. The time calculated for the construction of Bhadra group with the help of MS-Project 2013 is 354 days. MSP helps for the optimum and effective organization of activities which helps to give the vision to complete the project in planned duration and within the Economy. As per conventional method, the project commenced on 3 nov2023 and was scheduled to be completed in 177 days.

1. Actual Cost and Duration: -   Cost   = 14,36,367 Rs
                                          Duration = 177 Days. (5 month 27 days).

2. Crash Cost and Duration: -   Cost   = 16,38686.83 Rs
                                          Duration   = 137 Days (4 Month 17 days)

The project will complete within 177 days and actual cost of project 14,36,367 Rs. Computed by using MS Project Software.

f this project complete in crash time then crash duration will be 137 days and crash amount will be 16,38,686.83 Rs. Computed by using
MS Project Software.

IV.   CONNCLUSION

• Effective project management provides balance between Time, Cost, Resource.,

• Project management Software MS Project provides planning, scheduling, monitoring and controlling of small as well as large projects.

• During the execution of a project, software is helpful for promoting effective coordination.

• Implementation of MS Project software for Time and Cost Management is proven technique.

• Implementation of MS Project software for construction of Buildings for Time and Cost Management provides effective monitor and control.

• For infrastructure project like construction of Buildings, implementation of MS Project software gives better schedule to control the project.

• Time management which gives accurate planning and scheduling of project and Cost management which gives earned value management of project.

• Earned Value Management gives better financial control of overall cost of the project.

• It can be used for measuring project performance and progress in an objective manner.

V. REFERRENCES

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