COM 424 Module 3 Lecture Notes

In these notes, you will read about why project time management is very important. Time is one-third of the three factors in project success.

Delivering projects on time is one of the biggest challenges faced by a project manager. This is partly caused by the fact that time has the least amount of flexibility; we cannot stop it or slow it down. Scheduling issues is one main reason for conflicts, especially during the execution phase.

Network diagrams are one of the tools used by project managers to effectively control their project. Network diagrams consist of nodes and branches that show all the activities, show the sequence or order in which the activities occur, and show the precedence relationship between the activities. This assists in the development of the project schedule. As a result, network diagrams are the preferred techniques for showing activity sequencing. The two main formats are the arrow and precedence diagramming methods.

One of the methods of network diagramming is the arrow diagramming method, also known as ADM, which can be implemented as either activity-on-arrow, or AOA, or activity-on-node, or AON, network diagrams. For the AOA method, the activities are represented by the arrows and the nodes or circles are the starting and ending points of activities. For the AON method, the nodes are the activities and the arrows are connectors showing the dependencies. Both methods show start-to-finish and finish-to-start dependencies.

The critical path method, or CPM, is a network diagramming technique, which is used to predict total project duration. The critical path for a project is the longest path through the network and provides the earliest time that the project can be completed. The reason the longest path is critical is because if any delay occurs on that path, the entire project will be delayed. The critical path also has the least amount of slack or float. Slack or float is the amount of time an activity may be delayed without delaying a succeeding activity or the project finish date.

Program evaluation and review technique, or PERT, is a network analysis technique to estimate project duration when there is a high degree of uncertainty about the individual activity times. PERT uses probabilistic time estimates to calculate a duration estimate based on using optimistic, most likely, pessimistic estimates of activity durations, or a three-point estimate.

The PERT weighted average duration is calculated as the optimistic time plus four times the most likely time plus the pessimistic time all divided by six. For example, if the optimistic time is eight days, the most likely time is ten days; and if the pessimistic time is twenty-four days, the PERT weighted average would be eight plus four times ten plus twenty-four, or eight plus forty plus twenty-four, or seventy-two divided by six, or twelve days.