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BUS412: Project Management

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Module 5 Assignment

Short Answer (4 to 5 sentences)

1. Describe three advantages of using activity networks for project scheduling.

Activity networks, such as the critical path method (CPM), offer several advantages for project scheduling. Firstly, they provide a visual representation of the project timeline and activities, making it easier to identify potential bottlenecks or delays. Secondly, they allow for the estimation of project duration, resource requirements, and cost, helping to ensure that the project is completed within budget and on time. Finally, activity networks enable project managers to adjust schedules in response to changes in project requirements or unexpected events, allowing for greater flexibility and adaptability in project planning and execution. Overall, the use of activity networks can lead to more efficient and effective project scheduling, ultimately resulting in better project outcomes.

2. Define the critical path in a project. Why is it important to understand what it is and what affects it?

The next step is to link activity duration estimates and begin construction of the critical path. Critical path calculations link activity durations to the preconstructed project activity network. This point is important: the project network is first developed using activity precedence logic, then, following task duration estimates, these values are applied in a structured process to each activity to determine overall project length. In addition to allowing us to determine how long the project is going to take, applying time estimates to the network lets us discover activity float (which activities can be delayed and which cannot), the latest and earliest times each activity can be started or must be completed, and the latest and earliest times each activity can be completed.

3. Define the Critical Path Method (CPM). Both chapters might assist with this question.

The Critical Path Method (CPM) is a project management technique used to identify the most critical tasks in a project and their impact on the overall project schedule. It involves breaking down the project into smaller, manageable tasks and creating a network diagram that outlines the dependencies between each task. By analyzing the network diagram, project managers can identify the critical path, which is the sequence of tasks that must be completed on time in order to ensure that the project is completed within the desired timeframe. The CPM can

also help project managers identify areas where resources can be optimized and costs can be minimized to ensure project success.

4. Define Program Evaluation and Review Technique (PERT). Both chapters might assist with this question.

The Program Evaluation and Review Technique (PERT) is a project management technique used to analyze and manage the tasks and activities involved in completing a project. It involves breaking down the project into smaller, manageable tasks and creating a network diagram that outlines the dependencies between each task. PERT uses statistical techniques to estimate the time and resources required for each task, as well as the probability of completing the project within a given timeframe. By analyzing the network diagram, project managers can identify the critical path, which is the sequence of tasks that must be completed on time in order to ensure that the project is completed within the desired timeframe. The PERT can also help project managers identify areas where resources can be optimized and costs can be minimized to ensure project success.

5. The two most common methods for constructing activity networks are Activity-on-Arrow (AOA) and Activity-on-Node (AON). Briefly compare and contrast the two. Both chapters might assist with this question.

Activity-on-Arrow (AOA) and Activity-on-Node (AON) are two methods for constructing activity networks in project management. AOA represents activities as arrows and events as circles, while AON represents activities as nodes and events as arrows. AOA is primarily used in construction projects, while AON is used in other types of projects such as software development. AON is generally considered easier to understand and use than AOA. Finally, both methods use critical path analysis to identify the most critical tasks and ensure the project is completed on time.

6. The text describes four methods for reducing the critical path. Describe two of these.

It is common when constructing an activity network and discovering the expected duration of the project to look for ways in which the project can be shortened. To do this, start with an open mind to critically evaluate how activity durations were estimated, how the network was originally constructed, and to recognize any assumptions that guided the creation of the network. Reducing the critical path may require several initiatives or steps, but they need to be internally consistent (that is, their combined effects do not cancel each other out) and logically prioritized. One method is to eliminate the tasks on the critical path which means, that some of the tasks that are found on the critical path can be eliminated if they are not necessary or can be moved to noncritical paths with extra slack that will accommodate them. The second method is overlap sequential tasks.

7. What is a Gantt chart? Describe two benefits of using them for project management.

Developed by Harvey Gantt in 1917, Gantt charts are another extremely useful tool for creating a project network. Gantt charts establish a time-phased network that links project

activities to a project schedule baseline. They can also be used as a project tracking tool to assess the difference between planned and actual performance. One benefit is, that the Gantt charts are very easy to read and comprehend, because these activities are linking in the network, it is possible to identify predecessor and successor activities. Another benefit is that they allow for updating and project control which allows project teams to readily access project information activity by activity.

8. What do we mean by 'crashing a project'? What are two reasons for crashing a project?

At times it is necessary to expedite a project, accelerating development to reach an earlier completion date. The process of accelerating a project is referred to as crashing. Crashing a project directly relates to resource commitment and the more resources we are willing to expend, the faster we can push the project to its finish. One reason for crashing a project would be that the initial schedule may be too aggressive and under this circumstance, we may schedule the project with a series of activity durations so condensed that they make the crashing process inevitable. A second good reason would be, that the project has slipped considerably behind schedule.

9. The text describes six techniques for crashing a project/accelerating it. Describe two of them.

One techniques for crashing a project/accelerating would be to improve the productivity of existing project resources. Improving the productivity of existing project resources means finding efficient ways to do more work with the currently available pool of personnel and other material resources. Some ways to achieve these goals include improving the planning and organization of the project, eliminating any barriers to productivity such as excessive bureaucratic interference or physical constraints, and improving the motivation and productivity of project team members. Another option for accelerating project activities is to promote methods intended to change the working method employed for the activity, usually by altering the technology and types of resources employed. For example, many firms have switched to computer-based project scheduling techniques and saved considerable time in the process. Changing working methods can also include assignment of senior personnel, or hiring contract personnel or subcontractors to perform specific project functions.