डॉ सुचित्रा देवी

शिक्षक शिक्षा विभाग

एन ए एस कॉलेज संबद्ध (चौधरी चरण सिंह विश्वविद्यालय मेरठ)

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पेपरCC14

एजुकेशनल मैनेजमेंट एडमिनिस्ट्रेशन एंड लीडरशिप

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स्पेसिफिक ट्रेंड्स इन एजुकेशनल मैनेजमेंट

**Program evaluation and review techniques*

The program (or project) evaluation and review technique (PERT) is a statistical tool used in project management, which was designed to analyze and represent the tasksinvolved in completing a given project.

First developed by the United States Navy in 1958, it is commonly used in conjunction with the critical path method (CPM) that was introduced in 1957.

PERT is a method of analyzing the tasks involved in completing a given project, especially the time needed to complete each task, and to identify the minimum time needed to complete the total project. It incorporates uncertainty by making it possible to schedule a project while not knowing precisely the details and durations of all the activities. It is more of an event–oriented technique rather than start– and completion–oriented, and is used more in these projects where time is the major factor rather than cost. It is applied on very large–scale, one–time, complex, non–routine infrastructure and on Research and Development projects.

PERT offers a management tool, which relies "on arrow and node diagrams of activities and events: arrows represent the activities or work necessary to reach the events

PERT and CPM are complementary tools, because "CPM employs one time estimation and one cost estimation for each activity;

PERT may utilize three time estimates (optimistic, expected, and pessimistic) and no costs for each activity. Although these are distinct differences, the term PERT is applied increasingly to all critical path scheduling.

PERT event: a point that marks the start or completion of one or more activities. It consumes no time and uses no resources. When it marks the completion of one or more activities, it is not "reached" (does not occur) until all of the activities leading to that event have been completed.

predecessor event: an event that immediately precedes some other event without any other events intervening. An event can have multiple predecessor events and can be the predecessor of multiple events.

successor event: an event that immediately follows some other event without any other intervening events. An event can have multiple successor events and can be the successor of multiple events.

Besides events, PERT also knows activities and sub–activities:

PERT activity: the actual performance of a task which consumes time and requires resources (such as labor, materials, space, machinery). It can be understood as representing the time, effort, and resources required to move from one event to another. A PERT activity cannot be performed until the predecessor event has occurred.

PERT sub–activity: a PERT activity can be further decomposed into a set of sub–activities.

3. Sub–activities have all the properties of activities; in particular, a sub–activity has predecessor or successor events just like an activity. A sub–activity can be decomposed again into finer–grained sub–activities.

PERT has defined four types of time required to accomplish an activity:

optimistic time: the minimum possible time required to accomplish an activity (o) or a path (O), assuming everything proceeds better than is normally expected

pessimistic time: the maximum possible time required to accomplish an activity (p) or a path (P), assuming everything goes wrong (but excluding major catastrophes).

most likely time: the best estimate of the time required to accomplish an activity (m) or a path (M), assuming everything proceeds as normal.

expected time: the best estimate of the time required to accomplish an activity (te) or a path (TE), accounting for the fact that things don't always proceed as normal (the implication being that the expected time is the average time the task would require if the task were repeated on a number of occasions over an extended period of time).

PERT supplies a number of tools for management with determination of concepts, such as:

float or slack is a measure of the excess time and resources available to complete a task. It is the amount of time that a project task can be delayed without causing a delay in any subsequent tasks (free float) or the whole project (total float). Positive slack would indicate ahead of schedule; negative slack would indicate behind schedule; and zero slack would indicate on schedule.

critical path: the longest possible continuous pathway taken from the initial event to the terminal event. It determines the total calendar time required for the project; and, therefore, any time delays along the critical path will delay the reaching of the terminal event by at least the same amount.

critical activity: An activity that has total float equal to zero. An activity with zero float is not necessarily on the critical path since its path may not be the longest.

lead time: the time by which a predecessor event must be completed in order to allow sufficient time for the activities that must elapse before a specific PERT event reaches completion.

Source

Internet

Social media