Chapter Fifteen
PERT
Program Evaluation and Review Techniques (PERT)

- Scheduling is the basis for the management of time on a construction project.

- Uncertainty is more easily understood by those with a background in statistics.
- When an activity is stated as having a given duration, it should be recognized that the duration is not an absolute value.

- Uncertainty in scheduling is considered in the method referred to as the Program Evaluation Review Technique (PERT)

- PERT is based on activity estimates derived from a "three time estimate," namely:

  - an optimistic estimate, the estimate of the most likely (mode) duration, and the pessimistic estimate.
The mean estimate of the activity duration can then be computed as follows:

\[ T_e = \frac{T_o + 4T_m + T_p}{6} \]

where:
- \( T_e \) = Mean value of the activity duration.
- \( T_o \) = Optimistic activity duration.
- \( T_m \) = Most likely duration.
- \( T_p \) = Pessimistic activity duration.
- Project schedules may consist of hundreds or even thousands of activities, each with a unique level of uncertainty.

- The explanation in the following discussion centers on a simplified network consisting of one chain of activities. The chain will be called the critical path.
- PERT is used very little in the construction industry.
- Despite the small amount of use, it is worthwhile to have a good understanding of this technique.
- When activity durations are assigned to activities, a best-mguess number is generally used.
- This single number assignment of a duration makes it easy to perform network calcu
- The use of PERT is more accurate in its depiction of a project as the scheduler is made very aware of the uncertainty that is associated with each activity duration estimate.

- PERT makes it possible for the scheduler to make more informed decisions about the probability of achieving stated project durations.