

CEE 536
Problem Set 5
PROJECT UPDATE

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Due: October 2, 2025

Problem 1.

The target network for a project has a duration of 12 months and a budget of \$100,000. The following information is available as of Data Date = 6 months: The project is 1 month ahead of schedule but has a cost overrun of \$10,000. Draw a Cost-vs-Time graph showing possible S-shaped curves for the BCWS, ACWP, and BCWP. Identify on the graph the Cost Variance (in \$) and both Schedule Variances (in time and in \$). Label all elements of the graph clearly.

Problem 2.

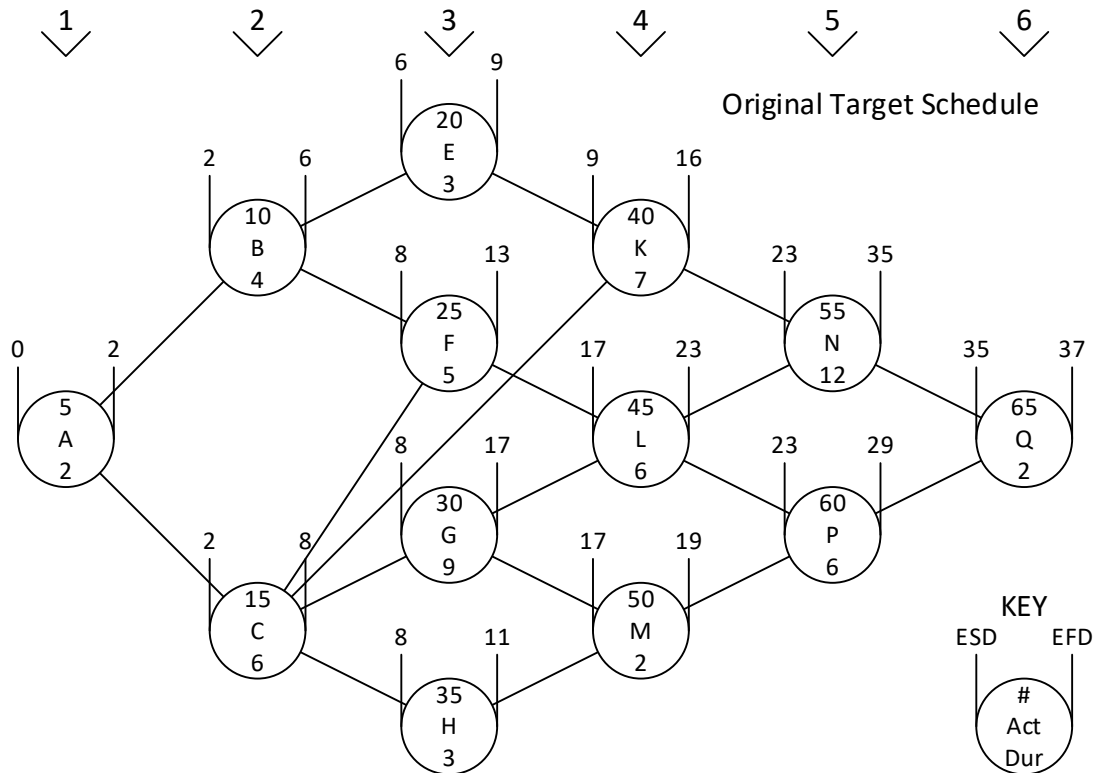
With the project data given below derive two precedence networks:

- a. The first network will show activities that have finished and the portions of the activities in progress that have been performed up to the data date. Its single finish activity will be the “Data Date” dummy activity.
- b. The second network will show the activities that have not yet started and the portions of the activities in progress that still remain to be done after the data date. Its single start activity will be the “Data Date” dummy activity.

For the updated network compute ESD, EFD, FF, and TF for each activity and identify the critical path.

PROJECT INFORMATION

1. The original target schedule of the project is shown below
2. The project has been underway for 10 days, i.e., Data Date = 10.
3. Progress Report:
(Activities not mentioned below have been or will be carried out as originally planned.)
 - 3.1. Finished Activities
 - 3.1.1. Act. A completed as planned.
 - 3.1.2. Both Act. B and C took 5 days to complete.
 - 3.1.3. Act. H took only 2 days to complete.
 - 3.2. Activities in Progress
 - 3.2.1. Act. F and G need 4 and 6 more days respectively to finish up.
 - 3.2.2. Due to deficient resource availability, activity E will not be started until day 16.
 - 3.3. Remaining Activities
 - 3.3.1. The duration of Act. L is re-estimated to be 8 days.
 - 3.3.2. A new Act. X with duration 2 days is added. It precedes Act. P and follows Act. L and M.



Notes:

Q: How should we model the delayed start of Act E in Problem 2?

A: Problem 2 states that:

3.2.2. Due to deficient resource availability, activity E will not be started until day 16.

This means that we must somehow ensure that $ESD_E = 16$.

The best way to achieve this is to model the given information directly.

This requires that we introduce a new procurement activity to the network, let us call it Act Y, that represents the time after the Data Date needed to "obtain resource for activity E".

Thus, Act Y should have a duration of 6 days and should succeed the Data-Date dummy (which starts the network) and should precede activity E.

Adding the procurement Act Y ensures that *all available information* is modeled explicitly in the network (such as the fact that the start of Activity E depends on the procurement of a resource that will take 6 days after the Data Date).

Q: Paragraph 3.2.1 in Problem 2 says "Act F and Act G need 4 and 6 more days respectively to finish up". What does this mean?

A: It means that Act. F and G need 4 and 6 more days after the Data Date, which implies that they would finish by time 14 and 16 respectively.