CEE 536
REPETITIVE SCHEDULING METHOD

PROBLEM SET 11

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Due: **Monday December 8, 2025**

Schedule the installation of 5 similar equipment units. The activities involved in each machine's installation are as follows:

| Act | T | Preceded by |
|---|---|---|
| A | 2 | - |
| B | 3 | A |
| C | 4 | A |
| D | 1 | C |
| E | 2 | C |
| F | 2 | B, D |
| G | 1 | F, E |

Each activity is performed by a different crew.

- Construct a precedence network for the installation of a single machine and perform a forward pass to calculate the early start and finish times for each activity and the lag for each link.
- Construct an RSM production diagram for the installation of all 5 machines that allows all crews to work continuously and without interruption.
- Identify on the RSM production diagram the project duration and indicate graphically the controlling sequence of activities that determines its magnitude. Indicate the control links (using vertical dashed arrows), the controlling points and controlled points.
- Write a list with the names and locations of the activities on the controlling sequence, for example, A1-…-G5.
- Suppose that the above solution becomes the target schedule. Indicate graphically on the RSM production diagram the critical activities on the controlling sequence and the critical activities that are resource critical (i.e., those activities that if delayed during construction, they will delay the completion of the project).
- Write a list with the names and locations of the critical activities (separate those on the controlling sequence from those that are resource critical).
- After reviewing the schedule, your supervisor informs you that due to shortage of skilled personnel the crew assigned to activity D must be halved (i.e., the duration of D must become 2 days per machine). Construct a second RSM diagram for the installation of all 5 machines based on this constraint. What is the effect of this change to the project duration? Explain.