

Project Planning & Control

Time-Cost Trade-off (Crashing)

Week 5

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Lesson 1

Fast-Tracking vs. Crashing, Relationship between Activity Direct Cost & Activity Duration - Assumptions

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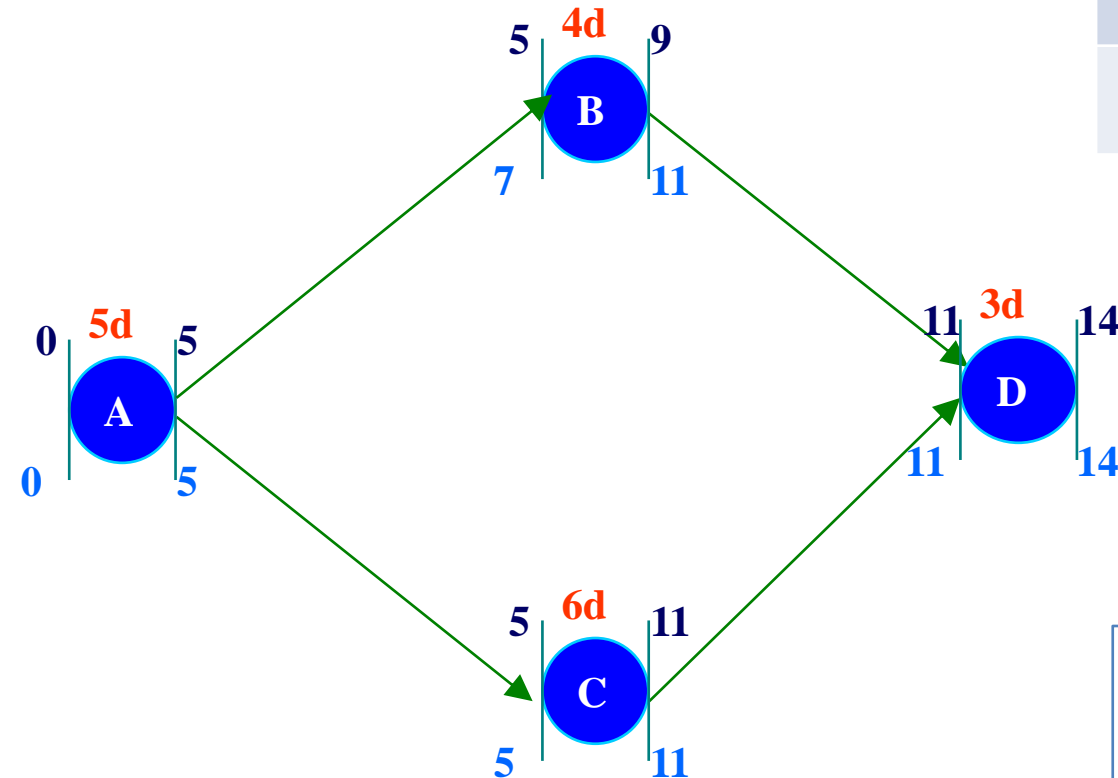


Learning Objectives

- Fast-tracking vs Crashing
- Relationship between activity direct cost & activity duration – Assumptions
- Procedure for finding minimum direct cost for crashed project durations
- Influence of indirect cost and relationship between total cost and project duration

Consider the ABCD Project

Activity	Duration	Predecessor
A	5	-
B	4	A
C	6	A
D	3	B,C



Current duration : 14 days

Expected duration : 10 days

How can it be done ?

Reducing Project Duration

- **Fast-Tracking**

- Performing activities in parallel in order to reduce project duration

- **Crashing**

- Reducing duration of activities in order to reduce project duration

Change of execution sequence or duration will have cost implication.

Time-Cost Trade-Off analysis is used to find the minimum overall project cost for a specified project duration

Focus is on Crashing

Terminology

CRASHING

Reducing activity time by
expending additional resources

Normal Duration

Normal activity duration

Crash Duration

Minimum duration

Normal Cost

Cost of completing activity in
normal duration

Crash Cost

Cost of completing activity in
minimum duration

Activity Duration Reduction

- Construction Method Selection
- Alternate Construction Materials
- Working Multiple Shifts
- Overtime work (Late hours or Weekends)
- Bringing in Higher Capacity Equipment
- Additional Workers or Equipment

Reducing duration will require additional expenditure

Activity: Time vs Cost - Relationship

