Project Planning & Control

Precedence Diagramming Method (PDM), Project Monitoring & Control

Week 7

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Lesson 1
Introduction to Precedence Diagramming Method (PDM)

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Learning Objectives

• Rationale for Precedence Diagram Method

• History of PDM

• PDM Notation & Relationships

• Network Analysis using PDM

• Examples
Rationale for Precedence Diagram Method

• Consider a Pipeline Project
• Key Activities
  – Excavate
  – Lay pipe
  – Backfill
• Develop Project Network
  – How many activities?
  – What is the sequence?
NEED FOR PDM

• Above network clearly says that after completion of excavation; pipe laying will be done; After pipe laying is complete - backfilling will be done.

Does this represent real sequence ??

1. Pipe laying may start after 3 or 4 days of excavation.

2. Backfilling may start after 3 or 4 days of pipe laying.

How can we represent this ?
History of Precedence Diagram Method

- Developed in 1960s by Zachry Construction & IBM

- Attempt to get advantages of AOA’s events with a AON type representation.

- The default representation in all popular scheduling software.

- Not fully accepted by all professional schedulers as software algorithms are not standardised.
Precedence Diagram Method Notation

• AON Type Notation

• 4 Types of Relationships
  • Start to Start relationship
  • Finish to Start relationship
  • Finish to Finish relationship
  • Start to Finish relationship

• Leads & Lags
Start to Start Relationship

- **Zero lag**: Laying pipe can start no earlier than excavation.

- **Positive lag**: Laying pipe can start no earlier than one day after excavation starts.
**Finish to Start Relationship**

**Zero lag:** Installation of reinforcement can start only after the erection of forms is completed.

**Positive lag:** The striping of forms can start no earlier than 3 days after completion of concrete pouring.
Finish to Finish Relationship

- **Zero lag**: The completion of backfilling can be no earlier than the completion of laying pipe.

- **Positive lag**: Backfilling can be completed no earlier than 1 day after the laying of pipe is completed.
Start to Finish Relationship

- Shift 1 can end their work only after Shift-2 has started

- Not a common relationship – rarely used.