A LECTURE NOTE
ON
TH.1 INDUSTRIAL ENGINEERING & MANAGEMENT
SEMESTER -6

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Sr. Lecture Mechanical Engineering

Mechanical Engineering

GOVT. POLYTECHNIC, MALKANGIRI

CPM and PERT

Critical path method and Programme Evaluation and review technique are the scheduling techniques which are used to plan, schedule and control a project consisting of number of inter-related activities.

Objective

1) To plan, schedule & control the project consisting of number of interrelated activities.

2) To define & integrate the tasks in logical sequence.
3) The technique show the precedence relationship.
4) To focus management attention on most critical activities.
5) To know the progress of work.
6) To know Best possible use of resources.
7) Provide basis for determining man power, material & capital requirement

Characteristics

1) The project to be planned by network technique should consist of clarity reconizable jobs or operation, usually called activities.

2) The job, operation & activities mush have definite commencement & completion. The start or end of an activity called event.

3) The event must occure in a definite pattern & must be performed in a technological sequence.

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Terms

1) **Activity** – Eevery project consist of number of Job operations / Tasks which are called activities.

```
     Start                      Finish
      ◯──────────A──────────>◯
   Tail event               Head event
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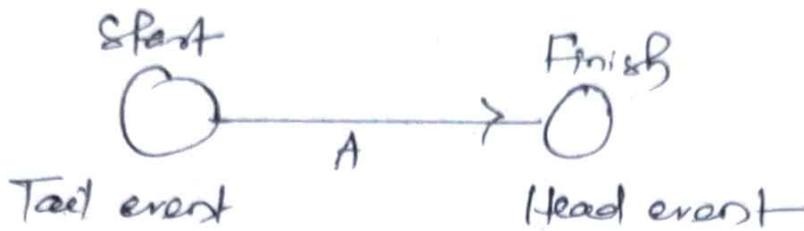
2) **Event / Node**

An event is a specific instant of time which indicate the beginning or end of the activity.

3) **Network Diagram** :– It is a pictorial representation of a project plan showing the inter-relationship between various activities in a sequence.

```
            B      ③      E
   ①──A──>②    ↑D       ⑤
            C   ④   F
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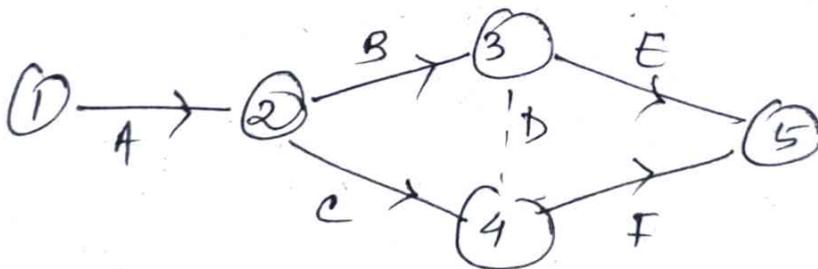
4) **Predecessor** :– An activity that must be completed before another can begin.

5) **Successor** :– An activity that cannot start untill a preceeding activity is completed.

5) **Critical path** :– The longest sequence of dependent activities that determines the shortest project deercation).

07) **Earliest start time (EST)** :- Earliest possible time at which the activity can start.

08) **Earliest finish time (EFT)** :- Earliest possible time at which the activity can finish.

09) **Latest start time ('LST)** - Latest start time by which the activity can start without delaying the date of completion of the project.

10) **Latest finish time (LFT)** - Latest finish time by which the activity can finish/completed so that the scheduled date for the completion of the project may not be delayed.

$$EFT = EST + Duration$$
$$LST = LFT - Duration.$$

11) **Float/Slack** - It means a margin of extra time by which the activity must be completed so that the scheduled date for the completion of project may not delayed.

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