Summary of 23SEPT19 Class

Chapter 2 : Project

- Project **Life cycle** → four Phases
  - **Project Initiation :** Defines the phase start and authorises action
  - **Project Planning :** Defines the objectives and the work required
  - **Project Execution :** Measure, monitor and adjust as needed
  - **Project Closure :** Formal acceptance of the project deliverables, end of phase

Chapter 2 : Project - Work Breakdown Structure (WBS)

- WBS allows :
  - to visually define the scope into manageable chunks that a project team can understand → ***to define all the work needed***

  - to identifying the major functional deliverables and subdividing those deliverables into smaller systems and sub-deliverables. → ***to subdivide a project into smaller work items / tasks / activities***

  - ***to group all the activities logically***

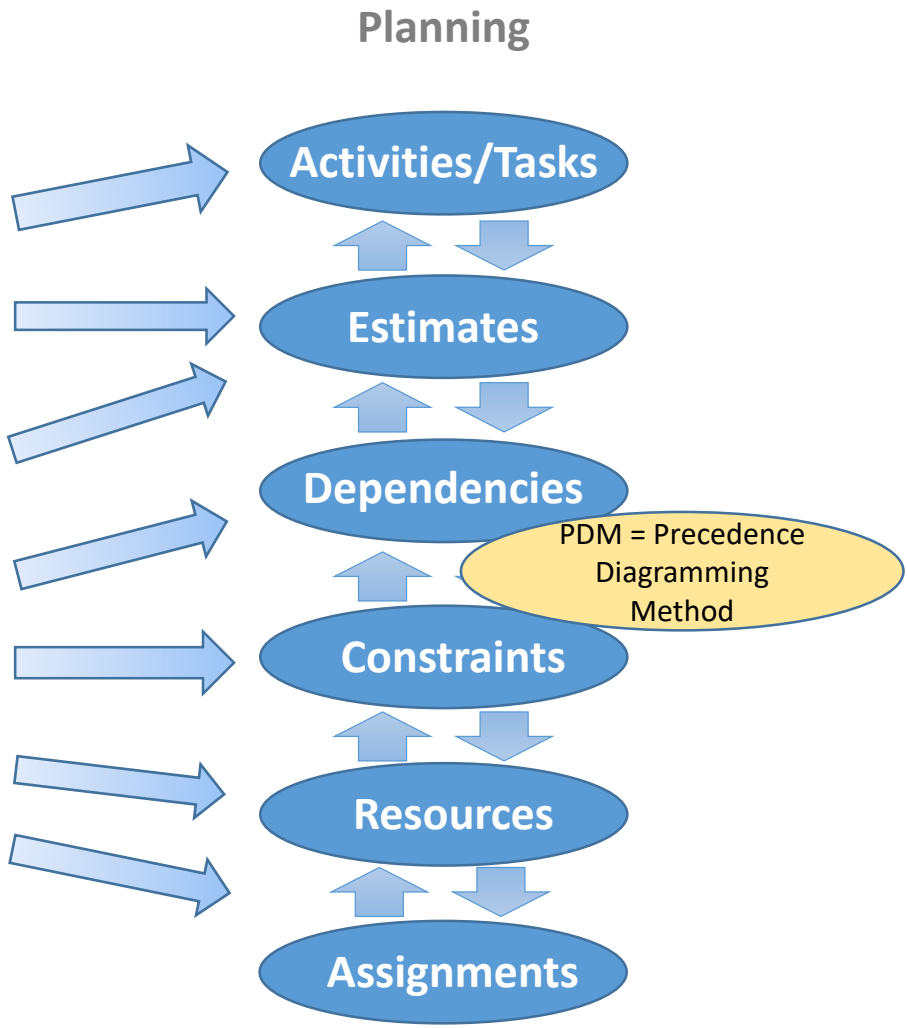
  - **to help to identify the activities**

- To develop a WBS :
  - **Top / Down**
  - **Bottow up**
  - **Mind-mapping Technique**

Chapter 3 : Time

- **Planning Definition**

❑ What needs to be done ?	→	**Tasks and Deliverables**
❑ How long will it take ?	→	**Duration or Work Estimates**
❑ When will it happen ?	→	**Start and Finish dates**
❑ In which order ?	→	**Dependencies**
❑ When must it happen?	→	**Constraints**
❑ Who is going to do it ?	→	**Resources and assignments**



Chapter 3 : Time

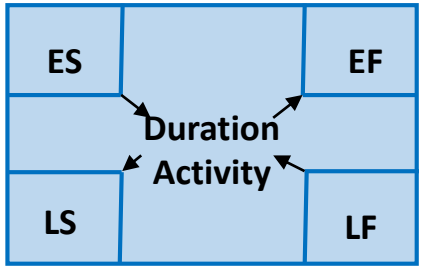
- **Planning Definition :**
  - Identify tasks or activities / key milestones / deliverables
  - Estimate the amount of time needed to execute the activity → difference between **duration** and **effort**
  - Estimation tools & techniques include :
    - **Expert judgement**
    - **Analogous estimation** (eg. past projects) : it uses parameters from previous, similar products
    - **Parametric estimation** (eg. statistical database)
    - "**Three-points estimates" (technique is called PERT (Program Evaluation and Review Technique) :**
      - **Beta distribution** → using a weighted average of 3 estimates (O = Optimistic estimate, M= Most Likely Value, P = Pessimistic estimate)
      T_E = (O+P+4×M)/6
      - **triangular distribution** → average of Optimistic / Pessimistic and Most Like Estimates :
      T_E = [O+P+M] / 3
  - Activity Sequency & Constraints
    - Identifying in what order the activities must be executed
    - Dependency : Mandatory or "hard" dependencies (constraint) or Discretionary or "soft" dependencies
    - Links :

1. **Finish-to-start (common)**
2. Finish-to-finish
3. Start-to-start
4. Start-to-finish
5. **Lag = wait time**
6. **Lead = Acceleration time**

Chapter 3 : Time

- **Planning Building** : **Critical Path Method**

  - **Identify the Critical Path :** The critical path can be identified using these parameters:



- **ES – Early Start**: earliest time to start a predetermined activity, given that prior activities must be completed first
- **EF – Early Finish**: earliest finish time for the activity → early start + duration
- **LF - Late Finish**: latest time the activity must be completed without delaying the entire project
- **LS – Late Start**: latest start date that the activity must be started without delaying the project → LF – duration

↳ The critical path is the path through the project network in which none of the activities have been delayed, that is, the path for which ES=LS and EF=LF for all activities in the path.
A delay in the critical path delays the project.

→ **Calculate forward pass** : Early start + duration = Early Finish
→ **Calculate Backward pass** : Late Finish – duration = Late Start
→ **Calculate the float per activity** : Float on any activity is calculated either by LS – ES or LF – EF.
Activities with zero float are activities on the critical path.

Chapter 3 : Time

- **Planning Building** : **Other Methods**

  - **Critical Chain Method :**
    Critical Chain Method, developed by Dr. Eliyahu M. Goldratt (1997), is **a schedule network analysis technique that takes account of task dependencies, limited resource availability & buffers**.
    This method is based on the **Theory of Constraints (TOC)**

    This method allows the project team **to place buffers** :
    - ⇨ To account for limited resources
    - ⇨ To manage uncertainty

Questions

1 – All the following are characterisitics of a project except :

a – Temporary
b – Definite beginning and end
c – Unique
d – Repeats itself every month

2 - What are the 4 phases of Project Life cycle ?

a - Initiation, Planning, Monitoring, Closure
b- Initiation, Planning, Execution, Closure
c - Initiation, Planning, Monitoring, Control
d- Initiation, Planning, Execution, Control

3 – During which life cycle phase is the detailed project schedule created:

a – Initiating
b – Before the project management life cycle
c – Planning
d – Execution

4– During Activity Sequency & Constraints, what link is the most common :

a - Finish-to-finish
b - Finish-to-start
c - Start-to-start
d - Start-to-finish

Questions

5 – The critical path in a schedule network is the path that :

a – takes the longest time to complete

b – must be done before any other tasks

c – allows some flexibility in scheduling a start time

d- is not affected by schedule slippage

6– A dependency that requires that design must be completed before manufacturing can start is an example of :

a – Discretionary or “soft” dependencies

b – Mandatory or “hard” dependencies

c – Internal or external dependency

d- Scope dependency

7– If the Optimistic estimate for a task is 12 days, pessimistic is 18 days, what is the most likely estimate :

a – 15 days

b – 13 days

c – 16 days

d- Unknown

Questions

8– To control the schedule, a PM is re-analysing the project to predict project duration. He does this by analysing the sequence of activities with the least amount of scheduling flexibility. What technique is used :

a – Critical Path

b – Flowchart

c – Precedence Diagramming

d- Work Breakdown structure

9– Lag means :

a – Amount of time a task can be delayed without delaying the project

b – Amount of time a task can be delayed without delaying the early start date of its predecessor

c – Waiting time

d- The product of a forward pass and backward pass