


Critical Path & Critical Chain method

Critical path: A schedule planning method that determines the potential early start and early finish days & potential late start and late finish days for a project.

The activities follows a sequence (from work package) and the activity path with longest time duration is called the critical path.

ES	Duration	EF
Work package		
LS	Slack	LF
	float	

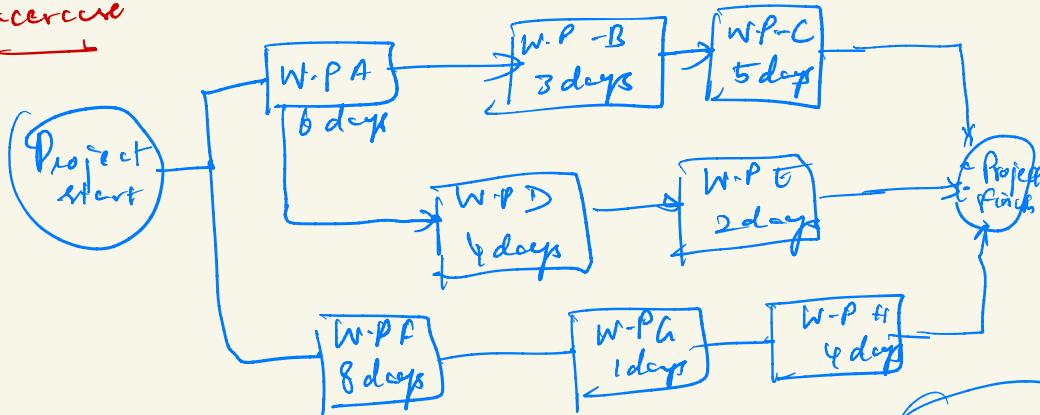
a term that describes how long the project task can be delayed without impacting other activities in the sequence & project schedule. ↓
a critical path indicator that differentiates between the latest start & latest finish days

Slack = L-S-E-S(0) L-F-E-F

Slack for critical path would be zero.

Step 1 → perform a forward path
 Step 2 → Perform a backward path
 " Identify the critical path"

Exercise



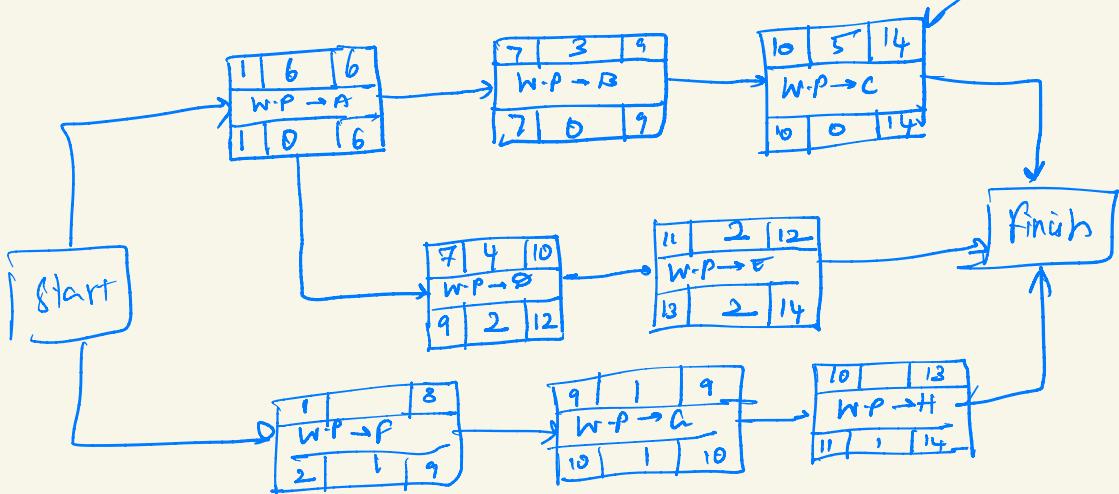
from this, we have 3 paths

$$\text{Path } \text{Start} - \text{A} - \text{B} - \text{C} - \text{Finish} = 14 \text{ days}$$

$$\text{Path } \text{Start} - \text{A} - \text{D} - \text{E} - \text{Finish} = 10 \text{ days}$$

$$\text{Path } \text{Start} - \text{F} - \text{G} - \text{H} - \text{Finish} = 13 \text{ days.}$$

This is the critical path.



Critical chain

- Buffers are used to protect the project schedule from uncertainties & delays.
- C.C focuses on resource constraints & includes built-in buffers.

Project buffer :-

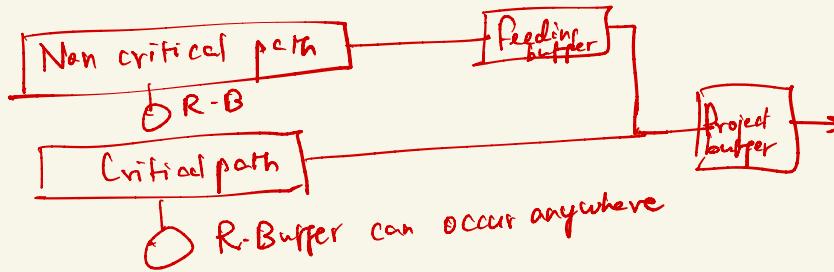
- Placed at the end of the critical chain
- Protects the project completion date from delays in critical chain activities
- Acts as a time cushion if any task on CC takes longer than expected

Feeding buffers :

- Placed at the junction where non-critical chain feed into critical chain
- Protects the critical chain from delays in non-critical paths
- Supporting paths do not impact the main path.
- Ensures that the delays in supporting paths do not impact the main path.

Resource buffers :

- Not timebased, instead a signal or alert.
- Ensures that resources are ready & available.



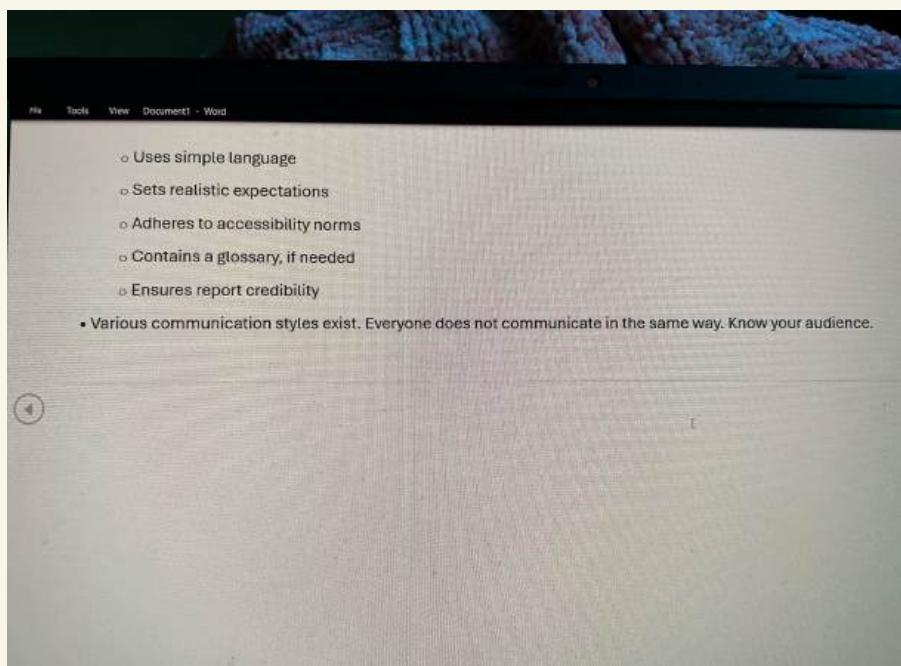
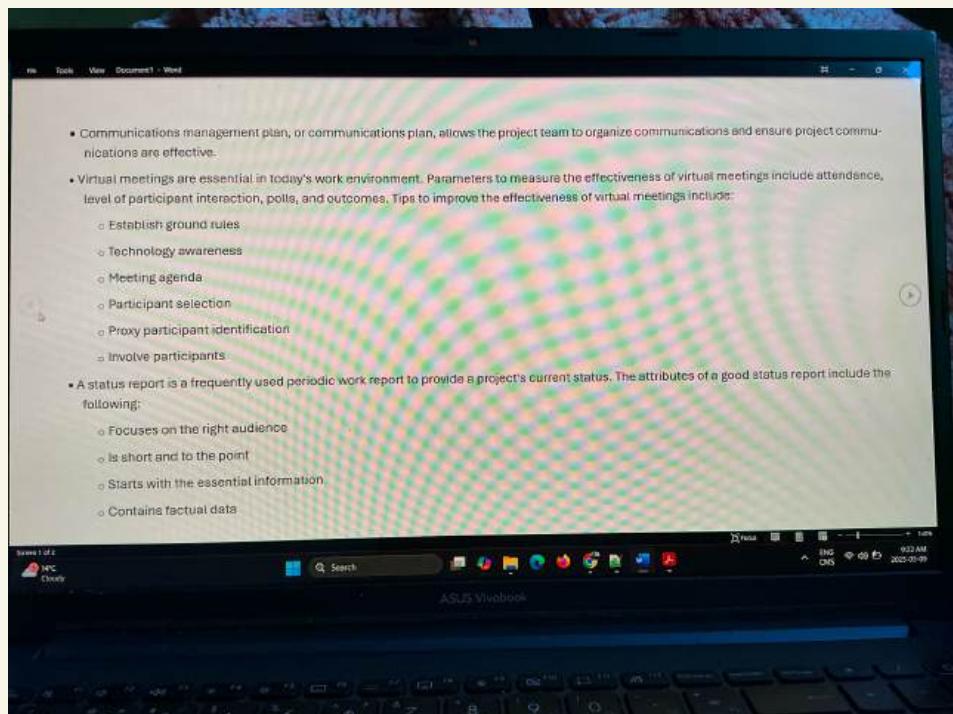
Use C.C for complex & uncertain

- High risk project
- Limited Resource availability

C.P for → Well defined
→ High level of certainty
→ Straightforward sequence of tasks

" Basically a project management technique that emphasized the resources, such as people, equipment, supplies, materials, physical space required to execute project tasks "

→ Communications Management plan



Communication

Management plan answers What, who, when, how & where
 Should have "name, version & date" ! Why

Communication item(what)	Owner (Who-Sender)	Audience (Who-Receiver)	Timing (When)	Format/medium (towards whom)	Purpose (Why)

Status report

Refer to the lab

Basically should have

- Project title, date & name/organization
- Deliverable status (Scope, schedule & budget) & its health (current and forecast). Use traffic light
- Help needed (describe as must have, should have & like to have)
- Risks (New risks & changes since last report (add/delete update))
- Issues
- Recent/Pending Decisions
- Comments