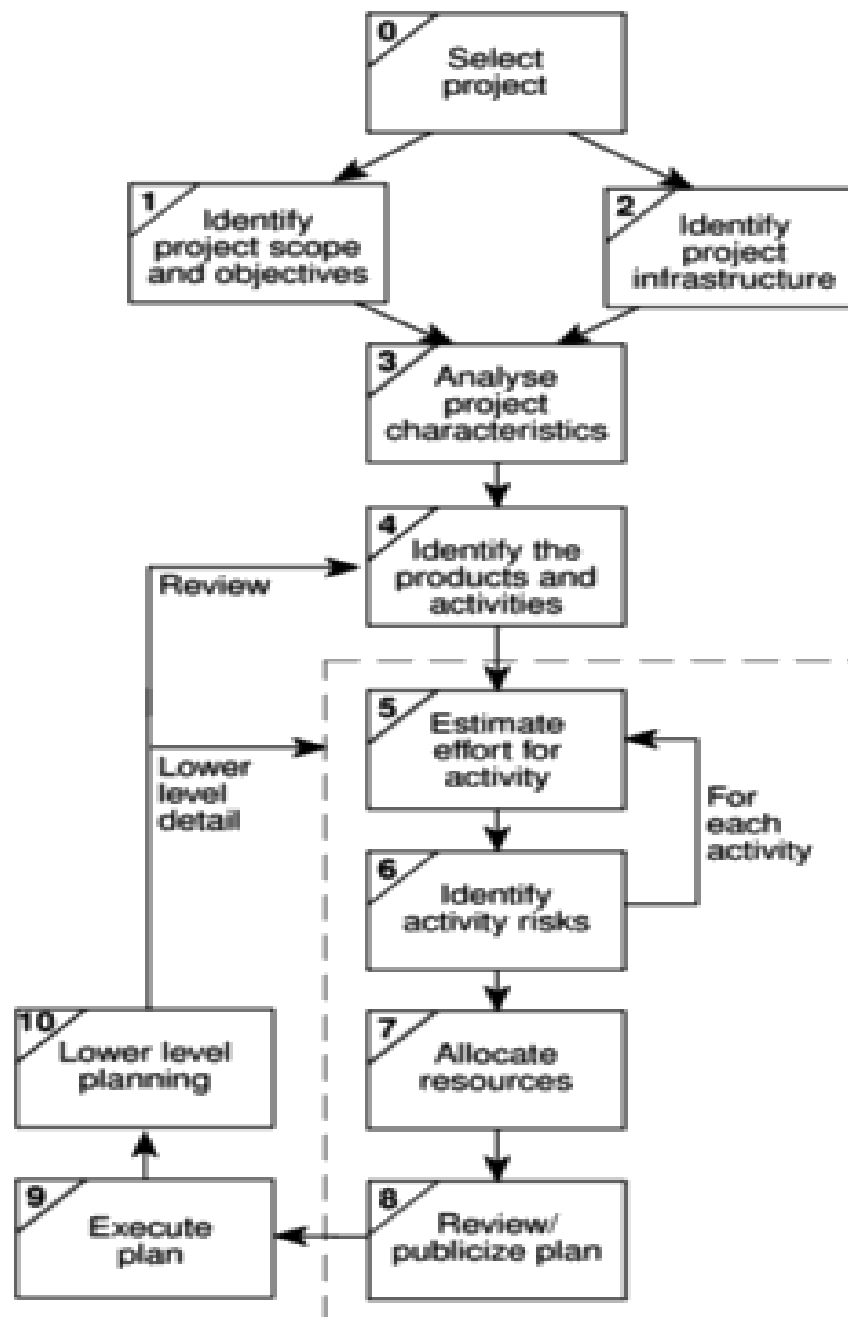


CSE 4016 Software Project Management

Activity Planning

Dr. Sandip Mal



Objective

- Produce an activity plan
- Estimate overall duration of a project
- Create a critical path and a precedence network for a project

Why Activity Planning

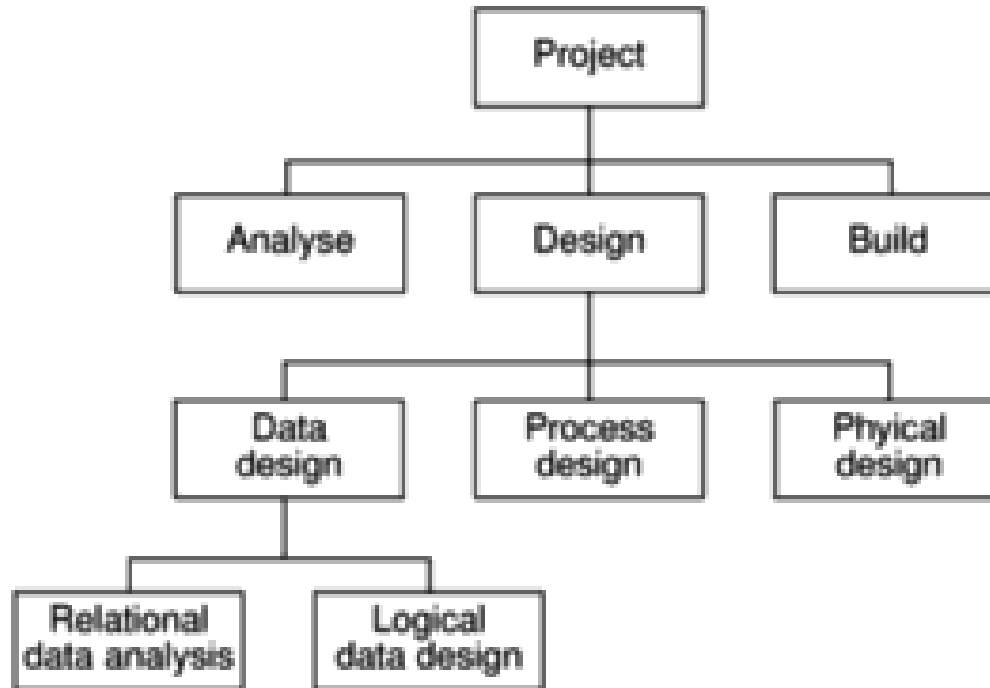
- Feasibility Assessment
- Resource allocation
- Detailed costing
- Motivation
- coordination

Activity

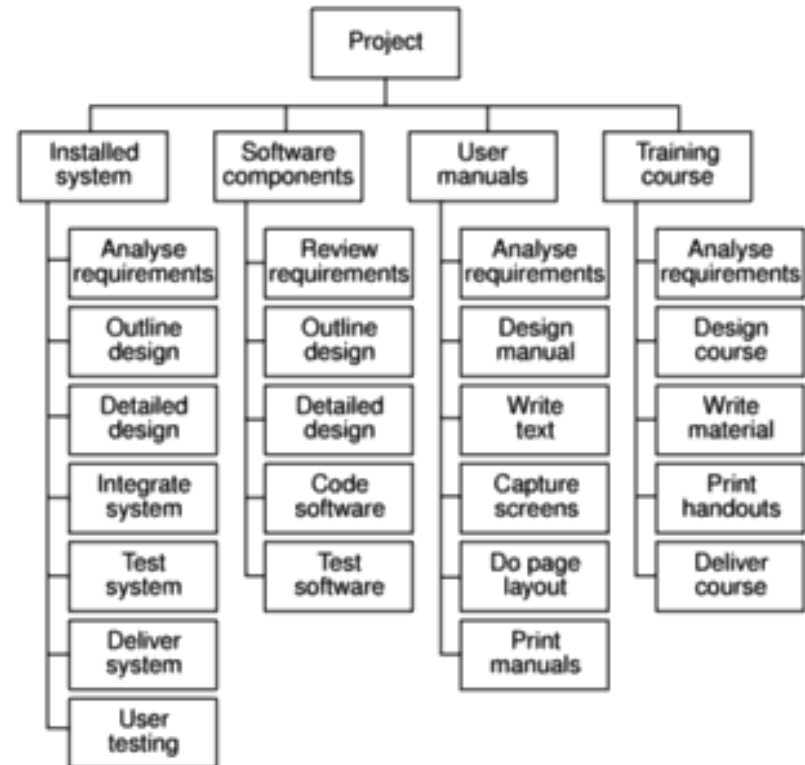
- A project is composed of a number of interrelated activities.
- A project may start when at least one of its activities is ready to start.
- A project will be completed when all of the activities it encompasses have been completed.
- An activity must have a clearly defined start and a clearly defined end point, normally marked by production of a tangible deliverable.
- If an activity requires a resource then that resource requirement must be forecastable.

Identifying Activities

- The activity based approach



- Product Based Approach
- Hybrid Approach
 - Level 1: Project
 - Level 2: Deliverables such as software, manuals.
 - Level 3: Components

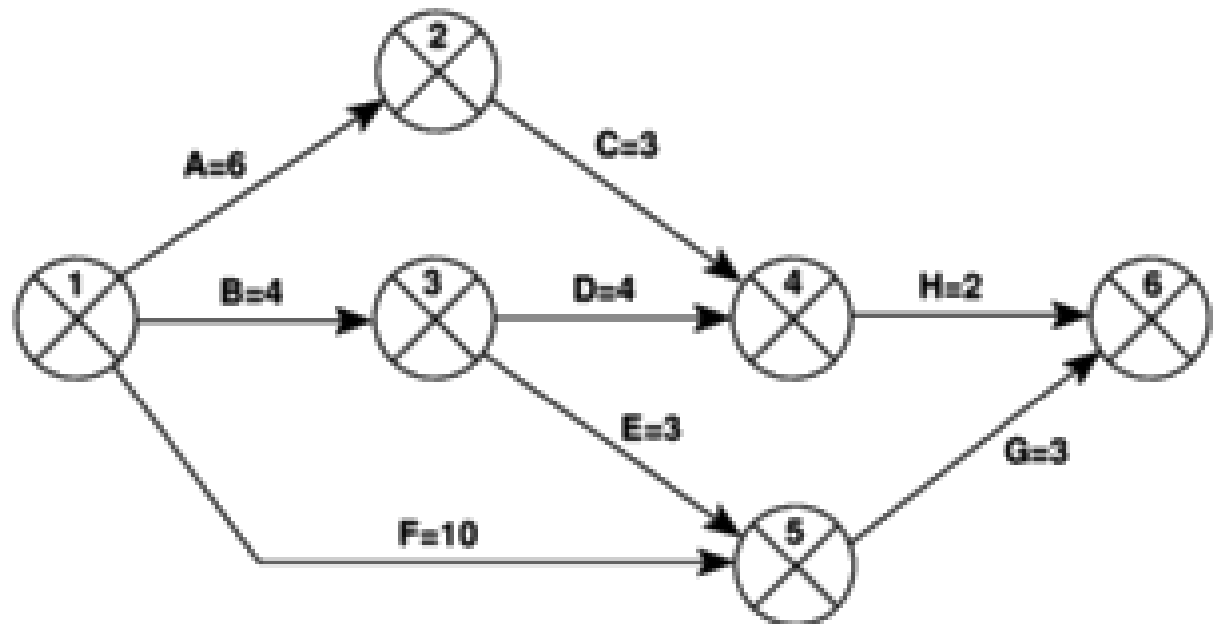
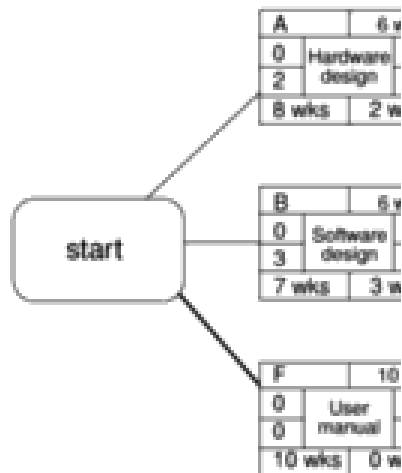


A Work Breakdown Structure based on deliverables.

<i>Activity</i>		<i>Duration (weeks)</i>	<i>Precedents</i>
A	Hardware selection	6	
B	Software design	4	
C	Install hardware	3	A
D	Code & test software	4	B
E	File take-on	3	B
F	Write user manuals	10	
G	User training	3	E, F
H	Install & test system	2	C, D

Precedence N/W

- Activity on Node
- Activity on arrow



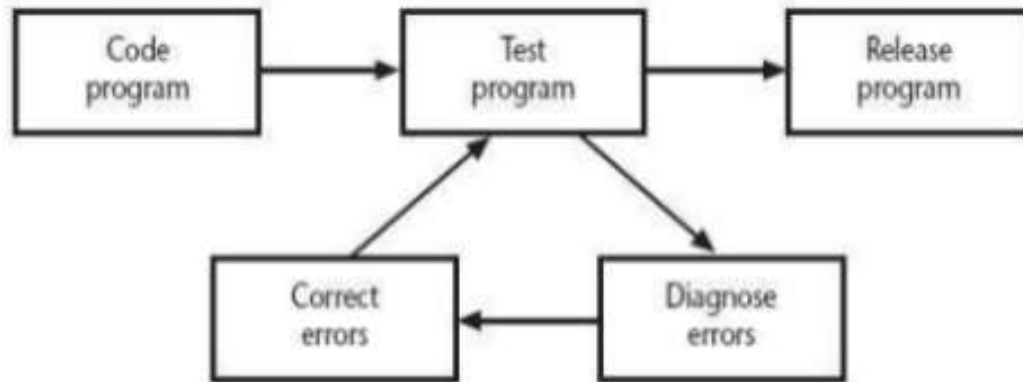
Activity on Node

A project network have only one start node and one end node.

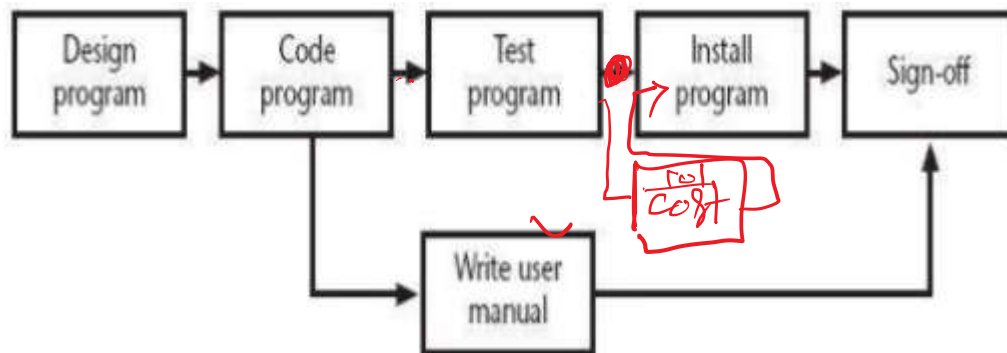
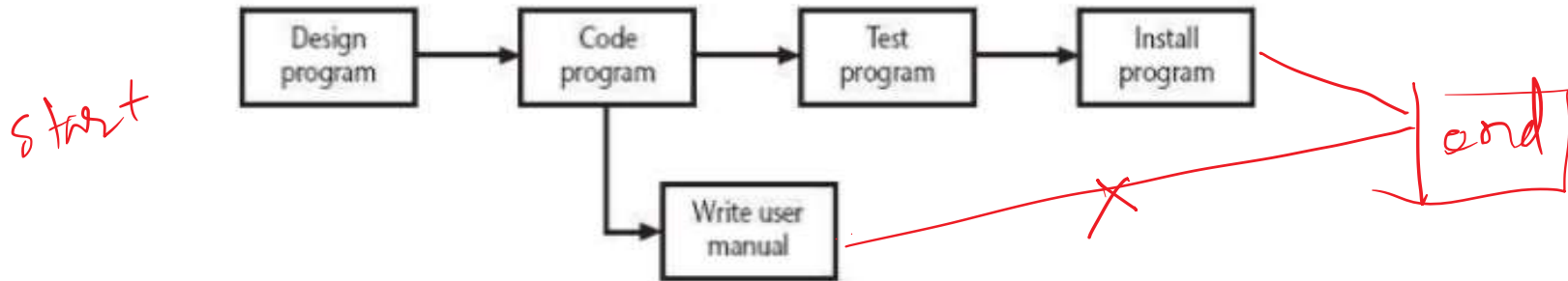
Node has duration but links have no duration.

Time moves from left to right.

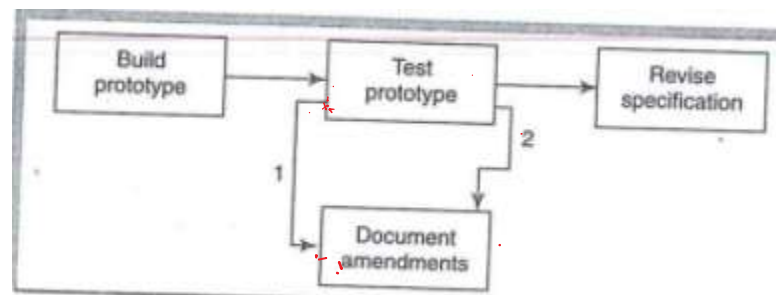
Network may not contains loops.



- A network should not contain dangles.



- Representing Lagged Activities.



Hammock Activity:

Activity which have duration zero or 'esd' and 'efd' are same. Used for representing overhead costs or other resources that will be incurred or used at a constant rate over the duration of a set of activities.

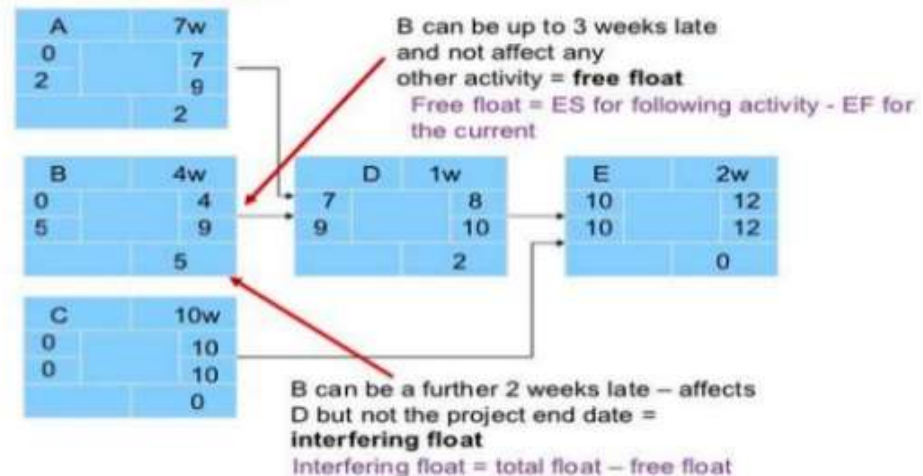
Free Float (FF)

- The by which an activity may be delayed without affecting any subsequent activity.
- It is calculated by as the difference b/w earliest completion date for the activity and the early start date of the succeeding activity.
- Simply we can say
- FF=ES for Following activity – EF for the current activity.**

Interfering Float

- It is difference b/w total float and free float.

Total float = LF - EF OR LS - ES



- 1) Total Float
- 2) Free Float
- 3) Interfering

Total Float

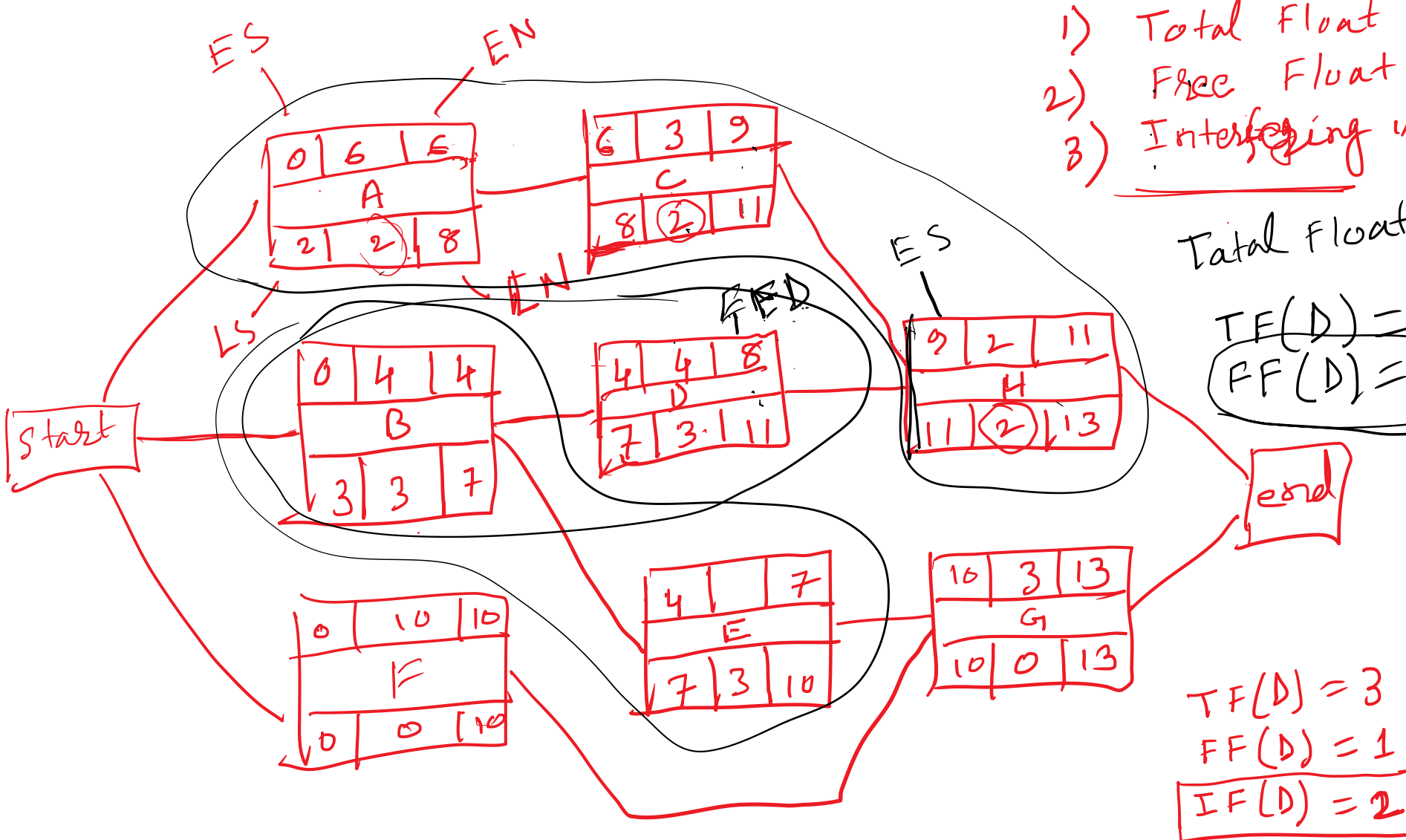
$$TF(D) =$$

$$FF(D) =$$

$$TF(D) = 3$$

$$FF(D) = 1$$

$$IF(D) = 2$$



$$TF(A) = 2$$

$$FF(A) = \text{ES of next activity} - \text{EN of current activity}$$

$$= 6 - 6 = 0$$

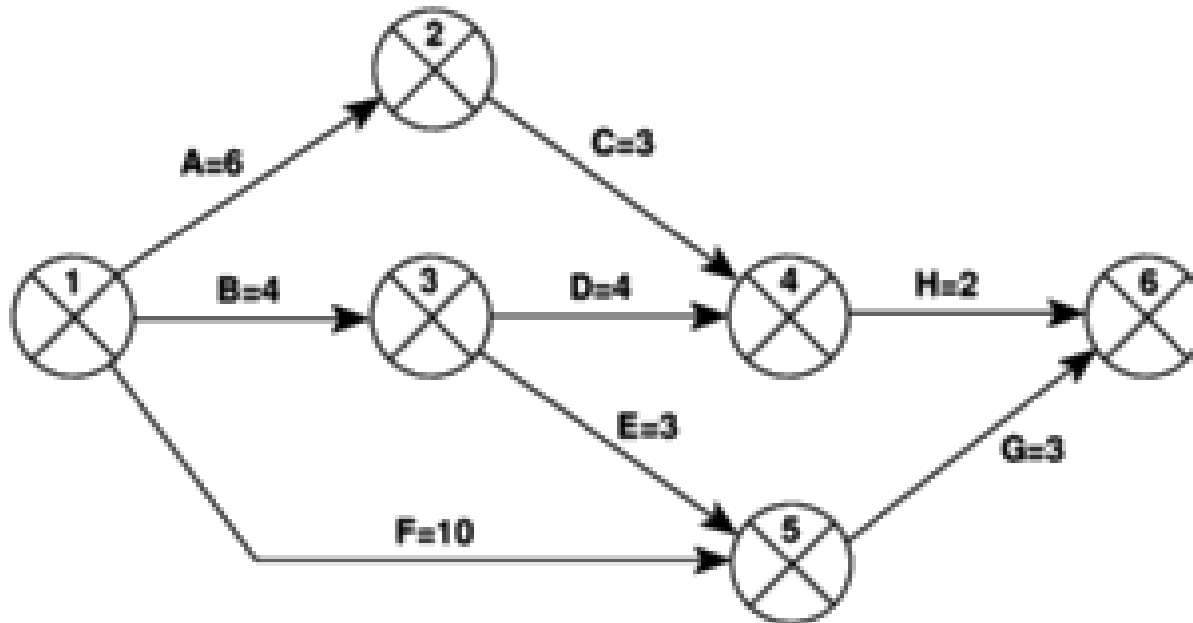
Activity on Arrow

Have one start node and one end node.

Time moves from left to right

Nodes are numbered sequentially.

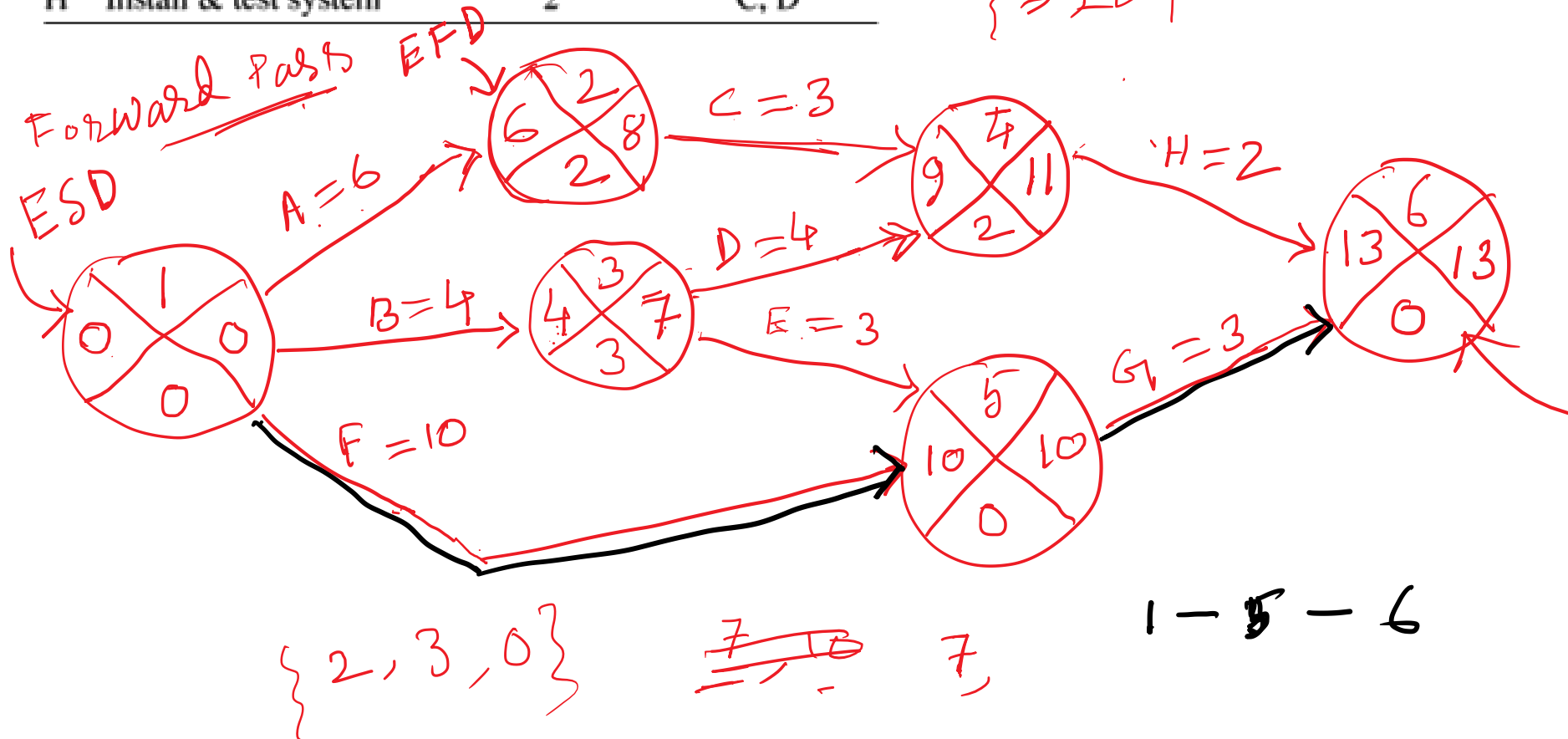
N/W should not contain loop and dangles.



Activity	Duration (weeks)	Precedents
✓ A Hardware selection	6	
✓ B Software design	4	
C Install hardware	3	A
✓ D Code & test software	4	B
✓ E File take-on	3	B
✓ F Write user manuals	10	
✓ G User training	3	E, F
H Install & test system	2	C, D

✓ Activity on node
→ Activity on arrow

duration
{ ~~9~~ ~~8~~ }



Activity	ES	EF	LS	LF	float	Duration
A	0	6	2	8	2	6
B						
C						
D	4	8	7	11	3	4
E	4	10	7	10	3	3
F						
G						
H						



Activity	ES	EF	LS	LF	float
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A	0	6	8 / 2	8	2
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B

6

9

8

11

2

✓

C

✓

D

✓

E

✓

F

✓

G

H

9

13

11

13

2

Exercise

Activity	Depends on	Duration
A		5
B	A	7
C	B	6
D	A	5
E	D	10
F	B	15
G	B	8
H	G	8
I	C	4
J	G	4
K	E,F	5
L	I,H	3

1) Design Activity on arrow n/w

2) Find critical path

3) Find project duration