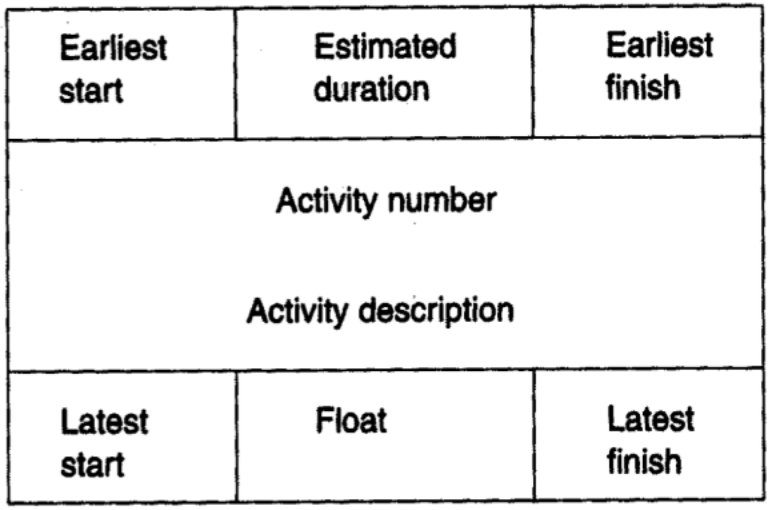
INST0031
Systems Management

Seminar 3

- Activity on Node
- Total Float (Slack)
- Free Float (Slack

Activity on Node



- Forward Path:

  Earliest start = Preceding activity earliest finish

  Earliest finish = Earliest start + estimated duration

- Backward Path:

  Latest finish = Succeding activity latest start

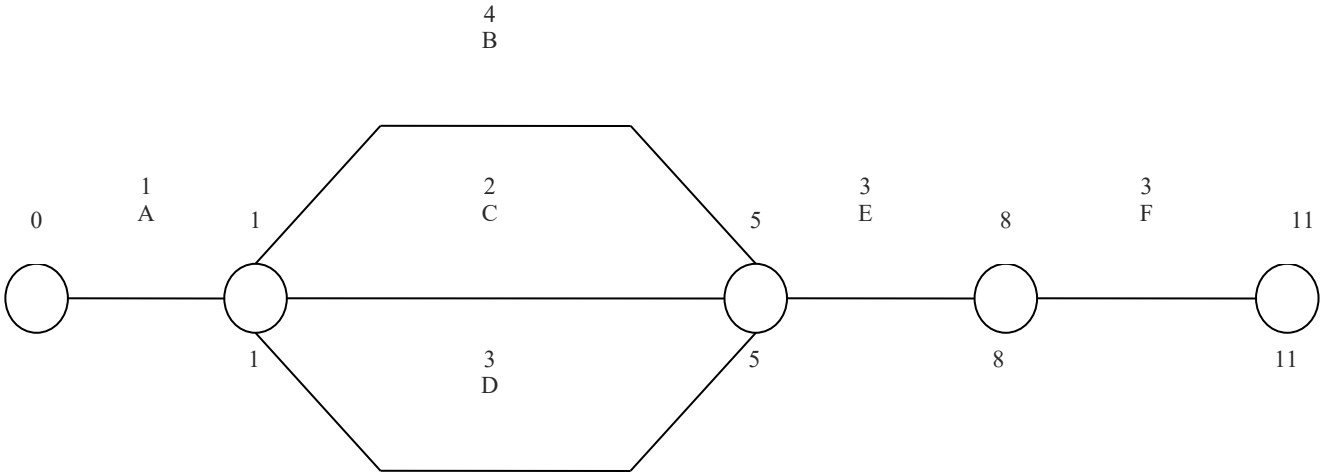
  Latest start = Latest finish – activity duration

- Float (Slack) = Latest finish – Earliest finish

Exercise 2 – Convert to Activity on Node

- *Draw a Network diagram and determine the Critical Path and duration of the project (in days) for the following data.*

Activity	Durations (Days)	Preceding Activity
A	1	-
B	4	A
C	2	A
D	3	A
E	3	B,C,D
F	3	E



Exercise 6 – Activity on Arrow

- *Draw the Network diagram and determine the Critical Path and duration of the project (in days).*

Activity	Activity	Durations (Days)	Resources used	Preceding Activity
A	Cut material	1	Machine A	-
B	Drill material	3	Machine B	A
C	Cut material	2	Machine A	B
D	Shape material	3	Machine C	B
E	Cut material	1	Machine A	D
F	Polish material	4	Machine D	C,E

- *What is the most that activity **C** could be increased by to have no affect on the overall duration of the project? Could activity **B** be increased by 2 days and have no affect on the overall duration of the project? What level of slack is available on activity **D** ?*

Exercise 6

- Change your diagram to activity on node

Exercise 7 – Activity on Arrow

Activity	Durations (Days)	Resources used	Preceding Activity
A	2	Machine A	-
B	3	Machine B	A
C	1	Machine C	A
D	4	Machine D	C
E	5	Machine A	D
F	2	Machine E	B
G	3	Machine C	B
H	5	Machine B	F,G
I	2	Machine A	H
J	3	Machine E	E,I

- *If the cost per day is **£2000**, what is the overall cost of the project? Could activity **E** be increased by 2 days and have no affect on the duration of the project? What is the most that activity **D** can be increased by to have no affect on the overall duration of the project*

Exercise 7

- Change it to activity on node

Total Float (Slack) and Free Float (Slack)

- Total Float = Total float is the amount of time an activity can be delayed **without delaying the project completion date. On a critical path, the total float is zero.**

  Total Float = Late Finish date – Early Finish date

- Free Float = Free float is the amount of time an activity can be delayed **without delaying the Early Start of its successor activity.**

  Free Float = ES of next Activity – EF of current Activity

- **Smallest ES of next Activity in case there are more than one successor activities**