

DEAR STUDENT – YOU MAY ALSO USE THIS GUIDELINE TO ASSIST YOU

The following seven steps can be followed to construct the popular and most commonly used AON network:

- (1) List all the activities/work packages of the subproject/project, with the time duration of each.
- (2) Indicate the followers or precedent activities of each activity.
- (3) Draw the network according to the sequence of activities by using lines between the nodes. The nodes (AON) represent the beginning and the completion of one entire activity. Use the following notation for each node:

ES ACT EF

LS DUR LF

TS FS

ES = Earliest start time

EF = Earliest finish time

LS = Latest start time

LF = Latest finish time

TS = Total slack

FS = Free slack

ACT = Activity code (eg A, B, C, etc)

DUR = Activity duration in days, weeks

(4) Determine the critical path. This is the longest route through the network when all the possible routes are followed from the beginning to the end of the network. Add the time duration of each activity to calculate the critical path. This path is crucial since the entire project and its resource allocations will be based on it. The critical path may not be compromised, and penalties may be applicable if the project is extended beyond the project duration as indicated by the critical path. The ES and LS times and the EF and LF times of activities on the critical path are the same (because there is no slack on the critical path).

(5) Slack may be available on activities which are not on the critical path. The way to calculate the slack is to work from left to right through the network by calculating the ES and EF times. If an activity has two or more predecessors, the activity with the largest EF will determine the ES of the

follower activity, since the activity may not start unless all preceding activities are completed.

(6) Work from right to left through the network in calculating the LF and LS times. If an activity has more than one follower, then the smallest follower LS will determine the LF of the preceding activity (working from right to left).

(7) The difference between ES and LS is the total slack available at that activity before the total project will be delayed. FS is the amount of slack available before any follower activity will be disrupted/delayed. FS is calculated by determining the difference between EA and the largest ES of all the following activities.