**Network Planning Models**

- These project scheduling techniques model the project's activities and their relationships as a network. In the network, time flows from left to right.
- The two best known being CPM (Critical Path Method) and PERT (Program Evaluation Review Technique).
- Both of these techniques used an activity-on-arrow approach to visualizing the project as a network where activities are drawn as arrows joining circles, or nodes which represent the possible start and/or completion of an activity or set of activities.
- More recently a variation on these techniques, called precedence network, has become popular. This method uses activity-on-node networks where activities are represented as nodes and the links between nodes represent precedence (or sequencing) requirements.
- This latter approach avoids some of the problems inherent in the activity-on-arrow representation and provides more scope for easily representing certain situations. It is this method that is adopted in the majority of computer applications currently available. These three methods are very similar and it must be admitted that many people use the same name (particularly CPM) indiscriminately to refer to any or all of the methods.

**Formulating a network model**

The first stage in creating a network model is to represent the activities and their interrelationships as a graph. In activity-on-node we do this by representing activities as links (arrowed lines) in the graph — the nodes (circles) representing the events of activities starting and finishing.

Constructing precedence networks

• A project network should have only one start node

• A project network should have only one end node

• A node has duration

• A node represents an activity and, in general, activities take time to execute.

• Links normally have no duration

• precedents are the immediate preceding activities