Chapter Four
Estimating Durations
The method used to establish the duration of an activity will depend on:

- Size in terms of time consumption of the activity.

- The amount of accuracy that is required.
The determination of the duration of a small task might be made with confidence with only a limited evaluation.

On small commercial buildings and residential structures, most of the activities will take only a few days.

On the short duration activities just described, significant percentage of the time was devoted to allowances for mobilization.
Scheduling Issues (cont.)

The schedule may also help the project manager anticipate problems caused by:

1. Delay shop drawing approvals.
2. Delay in material deliveries.
3. The expiration of labor agreements.
4. Deficiencies in the cash position on the project.
Estimating Durations (cont.)

The duration of the activity determined by:

1. The historical data on past company projects.
2. Ask some one with experience.
3. Reference guides.
Scheduling Issues

- It is important to consider the actual scheduling of the activities.

- When using the a schedule to control a project, a decision must be made about the use of float.

- A very basic approach is to use either an (early start) schedule or a (late start) schedule.
Scheduling Issues (cont.)

The (early start) schedule and the (late start) schedules may be used to predict the cash flow requirements on the project.

The (lazy S-curve) presents the full range of options open to the project manager.
Estimating

To determine the cost accurately, the estimator should have an accurate estimate of quantities of material, equipment hours, labor hours required to complete a given project.

The soundness of the complete estimate depends on:

1. The accuracy of the quantity take-off.
2. The judicious selection of the unit costs and production rates to be used.
Types of Estimates

1. Conceptual estimates: Conceptual estimates are generally used by the prospective owner of a project to determine the approximate cost of a project before making a final decision to construct it.

2. Detailed estimates: Detailed estimates are generally prepared by contractors prior to submitting bids on competitively bid contracts or when entering lump sum or fixed-price contracts. It includes the costs of materials, labor, equipment, overhead, and profit.
Conducting a detailed estimates

- To conduct a detail estimate we begin with a thorough analysis of the various physical quantities that must be incorporated in final project.
- This information is obtained through a detailed quantities take off.

- This quantity take off is then used to develop a detailed cost estimate for the perspective project.
- Costs are generally captured separately for materials, equipment, labor, and subcontracted items.
Factors influencing choice of activity schedules

1. Scheduling should satisfy various constraints that may be imposed by the contractor or specific needs of the firm.

2. The sequencing activities depends on a variety of constraints or considerations specially physical constraints.
Factors influencing choice of activity schedule (cont.)

- Scheduling is very important for activities.
- For example, if two activities require the same piece of equipment and have similar time, it may be possible to set the schedule start times of the two activities so that they do not overlap.
Weather and the schedule

Weather considerations or other contingencies may be incorporated into a schedule.

It should be noted that the weather is a more serious consideration for the scheduler when the contract stipulates that the contract duration reflects the impact of adverse weather.

There are several techniques for the inclusion of weather and one of them is to insert one or more specific activities into the network labeled as weather delays.
Weather and the schedule (cont.)

One drawback of this technique is that schedule monitoring is made more difficult because the extra activities make the schedule appear to be artificially

One other weather-related scheduling consideration is weather the contract is administered on the basis of working days or calendar days and how weather affects the definition of working days.
Uncertain in duration estimates

When most network schedules are developed, the activity durations are assumed to be fixed at a particular duration estimate.

A contractor must compute a realistic duration or have a very good intuitive sense of the appropriate estimate to be used.