

By working on projects, engineers are generally faced with two questions.

- Is this project oblique design technically feasible?
  - Is this project oblique design economically feasible?
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- It is easy for engineers to answer first question due to their strong engineering knowledge.
  - It is difficult to answer second question due to their poor financial knowledge.
  - Both things are equally relevant.
    - Will it work?
    - Will it pay?
  - Successful engineers design mean
    1. Technically sound
    2. Economically beneficial
  - Benefits should exceed cost associated with it.

### Definition:

“It is the systematic evaluation of projects, benefits and cost”

Or

“Quantification of benefits or costs”

### Cost Estimating:

- It is the process by which present and future costs of engineering projects are forecasted.
- Most of time engineering projects are unique so, passed dates is difficult to duplicate but can be utilized.
- Cost estimation involves the economic analyses of different possible options.
- It involves people from engineering finance, marketing, manufacturing and top management.
- Cost estimation results can be used in
  1. Making bids of the quotation.
  2. Price selection or determining the sale prize.
  3. Awarding or evaluating contracts.
  4. Making plans for further improvement.

## The fundamental approach:

### Top down approach:

- In this approach historical data is used from same engineering projects.
- This data is used to calculate cost and revenue.
- Modification can be made in these estimate due to variations in scale of projects and other factors.

### Bottom up approach:

- In this approach project is divided into small and manageable units.
- Cost and other economic effects of these small and manageable units.
- Cost and other economic effects of these small and manageable units are calculated.
- All costs are then added to obtain on overall cost of the project.