

## *Engineering Economics*

### **What is it all about?**

Engineering economics refers to the application of economic techniques for evaluating various design and engineering alternatives. Simply put, the primary focus of engineering economics is to assess the appropriateness of a given project, estimate its value, and justify it from an engineering standpoint. Engineers must be capable of deciding if the benefits of a proposed project would exceed its costs, and must make this comparison in a unified framework, which is what engineering economics is all about.

Satisfaction of the physical and economic environments is usually linked through production and construction processes. Engineers are therefore in a position to manipulate the relevant systems for achieving a balance in the various attributes in both the physical and economic environments, all within the bounds of limited resources. When conducting engineering economic analyses, it is usually reasonable to assume at first, for the sake of simplicity, that benefits, costs, and physical quantities are known with a high degree of confidence. Such degree of confidence is sometimes being referred to as



**Notes:**

assumed certainty. Do remember that both risk and uncertainty in decision-making activities are caused by a lack of precise knowledge regarding future conditions - estimation may not always be accurate.

## **The engineering process**

Generally speaking, the engineering process employed from the time a particular need is recognized until it is satisfied may be classified into a number of phases as shown below:

- Determination of Objectives, which involves finding out what people need and want that can be supplied by engineering.
- Identification of Strategic Factors, which are those factors that stand in the way of attaining objectives (the limiting factors).
- Determination of means (in the form of, say, engineering proposals), which involves discovering what means exist to alter strategic factors in order to overcome limiting factors.

