Engineering Economics

Economics is defined as the study of allocation of scarce resources among unlimited ends (or wants). Our wants are unlimited or at least increasing ever and to satisfy all these wants, we need unlimited supply of productive resources which could provide necessary goods and services to the community. However, resources are scarce i.e., limited in supply and obtained at some cost. In other words, resources are scarce in relation to its needs Therefore, scarce resources should be used wisely judiciously and more effectively at optimum level, minimizing the cost and maximizing profit and benefit without compromising the quality of product or service.

All engineering decisions involve number of feasible alternatives or options. These feasible alternatives must be properly evaluated before implementing them. If there is no alternative, there is no need of economic study.

Mission of engineers is to transform the resources of nature for the benefit of the human race. Engineers translate an idea into reality. However, an idea may be technically excellent incorporating sound design, latest technology but if it does not convert into real product or service that is affordable and fit for purposes satisfying needs and requirements of its end users, clients, target group, beneficiary group, then it is not worthwhile to invest in such ventures. The products or services generated should use optimized utilization of various resources so that cost of production is not high, affordable to users and compete with similar product and services of competitors in the market.

Engineering economy involves the systematic evaluation of the economic merits of proposed solutions to engineering problems. To be economically acceptable (i.e., affordable), solutions to engineering problems must be demonstrate a positive balance of long-term benefits over long-term costs. Therefore, engineering economics deals with the methods that enable one to take economic decisions towards minimizing costs and/or maximizing benefits to business organizations.

Broad Fields of Economics

Microeconomics is the study of how households and firms make decisions and how they interact in specific markets. A microeconomist might study the effects of rent control on housing in New York City, the impact of foreign competition on the U.S. auto industry, or the effects of minimum wage law on workers' welfare. More specifically microeconomics is the branch of economics that studies decision-making by a single individual, household or firm.

On the other hand, macroeconomics is the branch of economics that studies decision-making for the economy as a whole. Macroeconomics is the study of economy wide phenomena. A macroeconomist might study the effects of borrowing by the federal government, the changes over time in the economy's rate of unemployment, or alternative policies to raise growth in national living standards. Major differences between microeconomics and macroeconomics are given below,

	Microeconomics	**Macroeconomics**
Meaning	Microeconomics is the branch of Economics that is related to the study of individual, household and firm's behavior in decision making and allocation of the resources. It comprises markets of goods and services and deals with economic issues.	Macroeconomics is the branch of Economics that deals with the study of the behavior and performance of the economy as a whole. The most important factors studied in macroeconomics involve gross domestic product (GDP), unemployment, inflation and growth rate etc.
Area of study	Microeconomics studies the particular market segment of the economy.	Macroeconomics studies the whole economy, that covers several market segments.
Scope	Microeconomics deals with various issues like demand, supply, factor pricing, product pricing, production, consumption, and more.	Macroeconomics deals with various issues like national income, distribution, employment, general price level, money, and more.
Business Application	It is applied to internal issues.	It is applied both to internal and external issues.
Significance	It is useful in regulating the prices of a product alongside the prices of factors of production (labor, land, entrepreneur, capital, and more) within the economy.	It perpetuates firmness in the broad price level, and solves the major issues of the economy like deflation, inflation, unemployment, and poverty as a whole.

Economic Systems

An economic system is a means by which societies or governments organize and distribute available resources, services, and goods across a geographic region or country. Economic systems regulate the factors of production, including land, capital, labor, and physical resources. An economic system encompasses many institutions, agencies, entities, decision-making processes, and patterns of consumption that comprise the economic structure of a given community.

There are many types of economies around the world. Each has its own distinguishing characteristics, although they all share some basic features. Each economy functions based on a unique set of conditions and assumptions. Economic systems can be categorized into three main types: market economies, command economies, and mixed economies.

1. Market Economic System

Market economic systems are based on the concept of free markets. In other words, there is very little government interference. The government exercises little control over resources, and it does not interfere with important segments of the economy. Instead, regulation comes from the people and the relationship between supply and demand.

The market economic system is mostly theoretical. That is to say, a pure market system doesn't really exist. Why? Well, all economic systems are subject to some kind of interference from a central authority. For instance, most governments enact laws that regulate fair trade and monopolies. From a theoretical point of view, a market economy facilitates substantial growth. Arguably, growth is highest under a market economic system.

A market economy's greatest downside is that it allows private entities to amass a lot of economic power, particularly those who own resources of great value. The distribution of resources is not equitable because those who succeed economically control most of them.

2. Command Economic System

In a command system, there is a dominant centralized authority – usually the government – that controls a significant portion of the economic structure. Also known as a planned system, the command economic system is common in communist societies since production decisions are the preserve of the government.

If an economy enjoys access to many resources, chances are that it may lean towards a command economic structure. In such a case, the government comes in and exercises control over the resources. Ideally, centralized control covers valuable resources such as gold or oil. The people regulate other less important sectors of the economy, such as agriculture.

In theory, the command system works very well as long as the central authority exercises control with the general population's best interests in mind. However, that rarely seems to be the case. Command economies are rigid compared to other systems. They react slowly to change because power is centralized. That makes them vulnerable to economic crises or emergencies, as they cannot quickly adjust to changing conditions.

3. Mixed Economic System

Mixed systems combine the characteristics of the market and command economic systems. For this reason, mixed systems are also known as dual systems. Sometimes the term is used to describe a market system under strict regulatory control. Many countries in the developed western hemisphere follow a mixed system. Most industries are private, while the rest, composed primarily of public services, are under the control of the government.

Mixed systems are the norm globally. Supposedly, a mixed system combines the best features of market and command systems. However, practically speaking, mixed economies face the challenges of finding the right balance between free markets and government control. Governments tend to exert much more control than is necessary.