Lecture one

1) Introduction to University and civil engineering:

A- Introduction to University:

At what do students graduate from secondary school? Was the Faculty (Collage) of Civil Engineering your first choice? Why did you decide to study civil engineering? Students at the university are called undergraduates while they are studying for their first degree. Most university courses take four years. When you finish the course and pass the examinations, you will receive a bachelor's degree. This is the first part of your study. After completing the bachelor's studies, students can continue studying to achieve a master's degree, which normally takes two years. They are then called postgraduates. The second part of your study is aimed at developing special skills in the chosen specialization and is finished by writing a thesis. Successful Masters of Science (M.Sc.) can enter doctoral study to achieve a Ph.D. degree.

Ask Yourself

What you do if you want to study? If you are not sure what you would like to study, ask yourself what you want to do with your life. What are you good at? What do you enjoy doing? It is quite hard to make such a decision at the age of 18 or 19? As the decision may really affect your life for a very long time. Do you like defining or solving practical or technical problems? Are you good at mathematics and descriptive geometry or physics? If so, then it is a good idea to think about engineering.

What is engineering?

Engineering is the science of designing things such as roads, railways, bridges, or machines. This is accomplished through knowledge, mathematics and practical experience applied to the design of useful objects or processes. Engineering is everywhere. Almost everything we use in modern life is made by engineers.
**Who is an engineer?**

An engineer is either:

a) Someone who designs or build things such as roads, railways, bridges or machines.

b) Someone who controls the engines of a ship or aircraft.

c) Someone who repairs machines or electrical equipment.

d) Someone who designs and repairs computer programs.

As you can see from the above, the word "engineer" is used in two ways in English. One usage refers to a professional engineer who has a university degree, e.g., a civil engineer and mechanical engineering; the other refers to a person who operates and maintains an engine or machine, e.g., a lift-maintenance engineer. Engineers in this sense are essentially technicians rather than professional engineers.

**B- Introduction to civil engineering:**

Civil engineer; the term civil engineer refers to an individual who practices civil engineering. Originally the term "civil" engineer worked on public works projects and was contrasted with the military engineer, who worked on armaments and defenses. Over time, civil engineering has separated a variety of fields, e.g. architectural engineering, structural engineering, electrical engineering, mechanical engineering, and what is still called civil engineering.

An interesting definition could be, "the profession of Civil Engineering is the art of directing the great sources of the power of Nature for the use and convenience of Human Kind."

In modern usage, civil engineering is a broad field of engineering that deals with the planning, construction, and maintenance of fixed structures, or public works, as they are related to earth, water, or civilization and their processes. Most civil engineering today deals with roads, railways, structures, water supply, sewer, flood control and traffic. In essence, civil engineering may be regarded as the profession that makes the world a more agreeable place in which to live.

Engineering has developed from observations of the ways natural and constructed systems react and from the development of empirical equations that provide bases for design. Civil engineering is the broadest of the engineering fields. In fact, engineering was once divided into only two fields-military and civil. Civil engineering is still an umbrella field included of many related specialties.