Design

Design as a process can take many forms depending on the object being designed and the individual or individuals participating.

In the context of the applied arts, engineering, architecture and other such creative endeavors, design is both a noun and a verb.

- Design in its verb context is the process of originating and developing a plan for an aesthetic and functional object, which usually requires considerable research, thought, modeling, iterative adjustment and re-design.
- As a noun, design is used both for the final plan of action (a drawing, model or other description), or the result of following that plan of action (the object produced).


Engineering Design

Engineering Design is a Path from a Specific Need to a Final Product

- Requires Knowledge in the Design Domain
- Requires a Process or Structure
- Divided into Phases
- The Design Domain Knowledge, the Structure, and the Phases may vary, but the goal is the same - a Successful Product

Typical Design Process

- Recognition of Needs
- Problem Definition
- Information Gathering
- Conceptualization
- Analysis and Initial Evaluation
- Prototype Building, Testing, and Evaluation
- Design Refinement
- Communication of Design

Product Life Cycle

- Specification Development
- Conceptual Design
- Product Design
- Product Production
- Product Service
- Product Retirement

Concentrate on the First Three - The Design Process

Analysis

- Close examination: the examination of something in detail in order to understand it better or draw conclusions from it
- Separation into components: the separation of something into its constituents in order to find out what it contains, to examine individual parts, or to study the structure of the whole
- Assessment: an assessment, description, or explanation of something, usually based on careful consideration or investigation

Design & Analysis

- Are complementary skills
- Design: create, build, construct, invent, …
- Analysis: examine, explain, deconstruct, understand, evaluate, …