Reverse Engineering

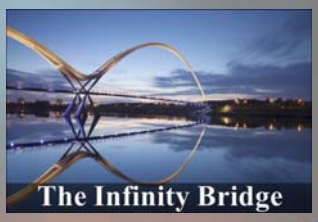
Mechanical Design and Engineering

Reverse Engineering

- Many products, system, and services that enrich of standard of living are largely the result of design activities of engineers.

Reverse Engineering

- It is principally this design activity that distinguishes engineering from science and research; the engineer is a designer, a creator, or a “builder”.



Reverse Engineering

- The Design Process is an exciting and challenging effort, and the engineer-designer relies heavily on graphics as a means to create, record, analyze ad communicate to others design concepts and ideas.
- The ability to communicate verbally, symbolically and graphically is essential.

Reverse Engineering

- The design team processes through five stages in the design process.

- 1) Identification of problem, need, or “customer.”
- 2) Concepts and ideas
- 3) Comprise solutions
- 4) Models and/or prototypes
- 5) Production and/or working drawings.

Reverse Engineering

- Step 2: Concepts and Ideas
- New ideas for engineers and designers can come from anything. However there is an old saying in the engineering industry:

“Good design is to borrow. Genius design is to steal”

Reverse Engineering

- It is encouraged to look at existing designs, products and work and study existing manufacturers' patents and nature.
- Then think in way these existing designs can be used and modified in your own.



Reverse Engineering

- To use an existing design in your new one you must understand how it works.
- Dismantling, evaluating and studying how parts go together is referred to **Reverse Engineering.**

Reverse Engineering

- Sophisticated reverse engineering involves evaluating a product using a machine called a coordinate measuring machine (CMM).

The machine is an electromechanical device containing a probe on one end. The probe measures he object and then places all the pertinent information into a CAD database where is can be manipulated.

Reverse Engineering

- Functional Decomposition: Studying a product that is no longer performing to the manufacturer's existing or upgraded standards.

- How could you expand/ change the design to guarantee better performance?
- What could you do to expand the life of the product?
- How can you make it more efficient?
- How can you make it more cost efficient?