

(By Prof. Prashob PS)

Need for Design & Manufacturing

As a field of professional focus, Mechanical Engineering distinctly emerged during the Industrial Revolution in Europe in the 18th Century. Albeit, its origins go back several thousand years across the globe. During the 19th century, innovation in physics led to mechanical engineering as a science. And the industry has since then continuously pushed the boundaries of innovation.

A special area of focus within Mechanical Engineering is the module on Design and Manufacturing. For an engineer, it's always important to stay up to date on new developments. But when it comes to Design and Manufacturing, there are few things to be carefully considered .

Design Engineer: For an engineer, design means something unique, not simply creating a new product or modifying an existing one. This design focuses on the manufacturing of components with an end goal in mind to make a better product which is both aesthetically pleasing as well as absolutely utilitarian. These products are designed by incorporating different techniques, involving, computer-aided mechanics and optimization techniques.

Manufacturing Engineer: This role extends to the selection of a particular manufacturing process; dimensional drawing of proposed products; and the curation of cost-effective and efficient materials. Finally, there is the application, with the complying of all necessary the standards. With the implementation of these methods, standardized and acceptable products can be developed.

Design for Manufacturing (DFM) and Design for Assembly (DFA) are two different techniques which are commonly used in the Mechanical Engineering industry. Initially, a proposed product visually represented before it can reach the manufacturing and assembly stage. The use of aforementioned techniques are vital to engineers during the planning stage. These two techniques make encourage collaboration and teamwork to prevent multiple revisions, design changes and encourages focus on individual components.

New research, technology and applications are emerging in the field of Design and Manufacturing which includes Additive Manufacturing and Bio-design. Mechanical Engineers develop various methods involve the synthesis of mechanical systems, engineering analysis and cost analysis. As a member of the research and development team, an engineer looks for optimum design and is always on the quest for different engineering domains .

The opportunities for a Mechanical Engineer are limitless and always evolving.