

**(By Prof. Ashish Deshmukh)**

## **Design & Manufacturing**

Whether your future rests in entrepreneurial ventures or in a large company, NMIMS' Mechanical Engineering program with the specialization in Product Design and Manufacture, provides students with in-depth knowledge of engineering design, new product manufacturing, and the business skills required for new product success. Gain the skills necessary to develop your compelling ideas into innovative and cost-effective new products.

The 21<sup>st</sup> Century today, more than ever, requires engineers who can seamlessly design new products and efficiently present them to willing customers. The specialization in Product Design and Manufacture is meticulously curated to train modern engineers to generate compelling new ideas. They are also inculcated with the the passion and leadership skills to manifest those ideas into the practical design to be eventually mass produced as innovative and cost-effective new products.

As companies today are pushing the boundaries of good design, new challenges in the product development process arise with regards to continuous improvement and updates, and increasing market profits. This creates a focus on product life-cycle components, as companies will then lay acute emphasis on life-cycle commitments. In such a scenario, they are responsible for the functionality during the extent of the product's life-cycle, i.e. functional products.

One of these life-cycle components is manufacturing; therefore, companies search for new success avenues during manufacturability evaluation already in prevalent engineering design. Efforts have been done to support early engineering design, as this phase sets constraints and opportunities for manufacturing. These efforts have turned into design and manufacturing methods.

A further step in improving life-cycle focus during early engineering design is to replicate successful results and valuable experience from previous projects. However, because results and experiences created during project work are often not documented for reuse – only remembered by some people – the need of the hour is emphasis on design support.

Knowledge engineering (KE) is a methodology for creating knowledge-based systems, for example, systems that enable replication of prior success. This chronicling will enable both

explicit and tacit corporate knowledge, rendering automated generation and evaluation of new engineering design solutions during early product development.