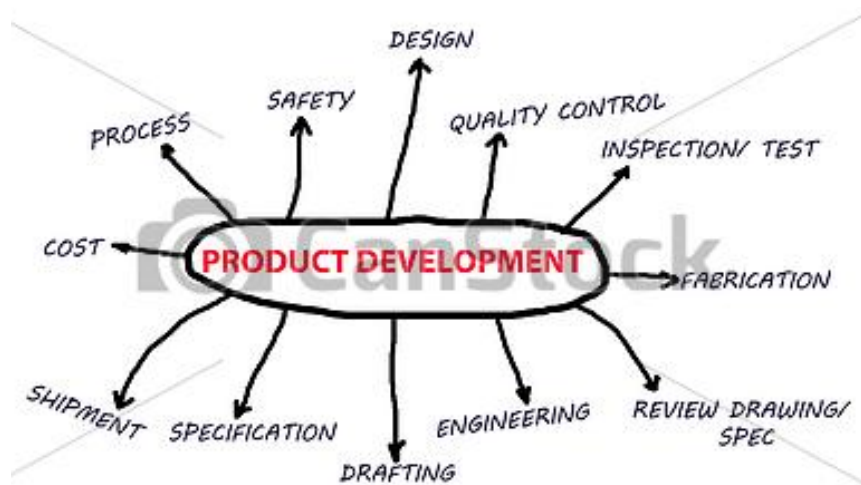


## Development and Design of Products

Nowadays there are too many demands on products and production process, therefore product development is an interdisciplinary activity requiring contribution from nearly all function of a company. As shown in the figure below, safety, cost, design, fabrication, shipment etc. of a product must be treated already in the early stage of the product development process. There are some techniques and processes to be used by engineers in the product development activities. Two of those techniques are Design for Manufacturing DFM and Design for Environment DFE.



### Design for Manufacturing DFM

Manufacturing costs of a product are strongly influenced by its design, material selection and requirements of tolerances and surface roughness. Taking into consideration the manufacturing of a product already in the early stage of product development will make the product easier and cheaper to manufacture at the same time it can be more ergonomic for production. We can also say that Design for manufacturing is the concurrent consideration of what a product is and how it is made, in order to insure quality, minimize costs and maximize flexibility



## Design for Environment DFE

Each product has impacts on the environment during its life cycle. All from materials, transportations, manufacturing processes, distributions, use, and recovery of a product will pollute the air, the water and the land. One of the most challenging tasks for the engineers of today is to reduce or eliminate environment impacts of engineered products. Design for Environment' (DFE) is an umbrella term describing techniques used to incorporate an environmental component into products and services before they enter the production phase.



### *Samir Khoshaba*

Samir Khoshaba is lecturer at Linnaeus University in Sweden. He mainly teaches machine design courses, but he also teach product development and strength of material when it needs. Besides teaching he is supervising degree projects and other student projects. Samir is Program Director for Bachelor program of Mechanical Engineering. He is also the international coordinator at Mechanical Engineering Department. Samir is very active in the international arena; he has visited and taught in more than 20 international Universities.