



Design for Manufacturability (DFM)/Value Engineering (VE) Training

2 Days

Training Description:

The main purpose for Design for Manufacturability (DFM) is to review the most economical cost decision on different manufacturing processes to meet the customer's specifications and Form, Fit and Functions (3F's). New Manufacturing Processes and new materials have been developed over the years to improve cost and material properties (Strength, Elasticity, Creep Characteristics, Aging, etc.). The workshop will discuss manufacturing processes, old and new, and discuss the benefits as well as some of drawbacks. Value Engineering is a methodology that takes into account tooling considerations to determine the overall price per part for different manufacturing processes. Design for Assembly will also be discussed since the labor content for a product is important for the overall cost-manual process, semi-automatic, or fully automatic.

Training Objective:

This 2-day DFM/DFA/VE class will teach students the benefits of different manufacturing processes and the effect of cost based on the manufacturing process and tooling consideration. The Value Engineering Methodology evaluates the different manufacturing processes, tooling consideration and labor content to establish overall cost to decide on the most economical overall price.

Skill Attainment:

The student will understand the different manufacturing processes and the benefits to each and some of the drawbacks. The student will understand the overall cost based on the manufacturing process, tooling consideration and labor content. The following topics will be taught during the class.

- Introduction to DFM/DFA/Value Engineering (VE)
- Design for Assembly-(DFA)-Manual, Semi-automatic and fully automatic
- Functional Analysis-3 F's (Form,Fit, Function)
- Design for Manufacturability - Review of Different manufacturing processes – machining, net shape processes-casting, molding, extrusion, 3D printing
- Overall Cost based on Material, Part Volume and Tooling Value Engineering (VE)
- Using DFM/DFA/VE for Cost Reduction Programs
- Tooling Considerations for different manufacturing processes
- Case Studies of DFM/VE
- Material Strength Analysis for different Manufacturing Processes