

**ME 665**  
**Advanced Product Design and Manufacturing**

***Course Objectives:***

Today's products have not only become more complex and sophisticated, but also have to satisfy consumers from various different perspectives in order to survive in the competitive market environment. To meet such a challenge, over the years many new design-related concepts and aids have been developed. These include concurrent engineering, value engineering, configuration management, reliability, maintainability, safety engineering, human engineering, reverse engineering, reengineering, total quality management, life cycle costing, computer-aided design, and the information technology. Professionals working in a design environment find it difficult to obtain information on these areas in a coherent and integrated form. Thus, this course is an attempt to present these modern concepts and aids in the context of the complexities of modern product development and system life-cycle engineering.

***Textbook:***

Dhillon, B. S., *Advanced Design Concepts for Engineers*. Technomic Publishing Co., 1998.

***Course Outline:***

- Introduction to Product Design (Chapter 1)
- System Life-Cycle Engineering (Handouts)
- System Design Process (Chapter 3)
- System Analysis and Design Evaluation (Handouts)
- Design Mathematics (Chapter 2)
- Design Reliability (Chapter 4 & Handouts)
- Maintainability Engineering (Chapter 5 & Handouts)
- Safety Engineering (Chapter 6)
- Human Factors (Chapter 7)
- Total Quality Management (Chapter 8)
- Value Engineering and Configuration Management (Chapter 9)
- Life Cycle Assessment and Costing (Chapter 10 & Handouts)
- System Optimization (Handouts)