CAD/CAM (21-342)
Advanced Manufacturing Laboratory
Department of Industrial Engineering
Sharif University of Technology

Session # 3

Course Description

- Instructor
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- Class time
  - Saturday- Monday 10:30-12:00

- Course evaluation
  - Mid-term (25%)
  - Final exam (40%)
  - Quiz (5%)
  - Exercise (30%)
Course Description (Continued ...)

- **Mid-term session:**
  - Monday: 8th Ordibehesht 1393, 10:30 ~ 12:30

- **Final Exam:**
  - Saturday: 24th Khordad 1393, 15:00 ~ 17:30

- **Reference:**
  - Benhabib, Beno; “Manufacturing: Design, Production, CAD/CAM, and Integration”, 2003, Marcel Dekker Inc, New York

- **Contents:**
  - Introduction to CAD/CAM/CAE systems (5 sessions)
  - Components of CAD/CAM/CAE systems (2 sessions)
  - Geometric modeling systems (3 sessions)
  - Optimization in CAD (5 sessions)
  - Rapid prototyping and manufacturing (3 sessions)
  - Virtual engineering (2 sessions)
  - Product Life Cycle Cost Model (2 sessions)
  - Computer-Based Design and Features/Methodologies of Feature Representations (5 sessions)
  - Feature-Based Process Planning and Techniques (3 sessions)
  - Collaborative Engineering (2 sessions)
Course Description (Continued..)

- Introduction to CAD/CAM/CAE systems (5 sessions)
- Definition of CAD/CAM/CAE
- Integrating the Design and manufacturing processes (Case study)
- Using CAD/CAM for product development (a practical example)

Introduction to CAD/CAM/CAE systems
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- Definition of CAD/CAM/CAE
  - CIM is aimed at tying the separate “Island of automation” together to form a smoothly running efficient system
  - CIM is often said to be more of a business philosophy than a computer system

- Integrating the Design and manufacturing processes (Case study)
Integrating the Design and manufacturing processes (Case study)

- CAD/CAM/CAE overlaid on product cycle
  - Quality (Q), Delivery time (T), Cost (C)

- Design specification call for four spaces
  - Compact disk drive
  - Cassette player
  - Receiver
  - Storage compartment of compact disks

- The next step is to determine the dimensions of the cabinet

- The next step is to determine the material to be used for the cabinet

- The next step is to determine the thickness of each shelf and the door on the side walls
Integrating the Design and manufacturing processes (Case study)

- CAD/CAM/CAE overlaid on product cycle
  - The designer then considers the method to be used in assembling the shelves and the sides and the walls
  - To make the cabinet each part shape is arranged on the raw material
  - Waste can be reduced by arranging the parts efficiently on the wood
  - When prepared, the parts should be assembled