Product Planning & Development
(21-423)
Advanced Manufacturing Laboratory
Department of Industrial Engineering
Sharif University of Technology

Session #2

Course Description

- **Instructor**
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- **Recommended prerequisite**
  - Manufacturing process I (21-418)

- **Class time**
  - Sunday-Tuesday 18:00-19:30

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

- **Mid-term session:**
  - Wednesday: 9th Ordibehesht 1394, 16:30 ~ 18:30
- **Final Exam:**
  - Monday: 1st Tir 1394, 09:00 ~ 11:30
- **Reference:**

Course Description (Continued..)

- **Contents:**
  - Product development in the changing Global world
  - Stages of Product Development
  - The Structure of the Product Design Process
  - Early design: Requirement definition and conceptual Design
  - Trade-off analyses: Optimization using cost and utility Metrics
  - Detailed design: Analysis and Modeling
  - Design Review: Designing to Ensure Quality
  - Production System: Strategies, planning, and methodologies
  - Production System Development
  - Planning and Preparation for Efficient Development
  - Supply chain: Logistics, packaging, supply chain, and the environment
Product development in the changing Global world

- We are entering a new era of fundamental change in products, services and how they are delivered.

- As customers, we want customized products with more performance and options at a lower cost.

- At the same time, the resources that organizations need to remain competitive; knowledge, people, equipment, facilities, capital, and energy are scarce or more costly.

- Product development requires better strategies and methods that are flexible, fluid and promote simplicity.

- The key is a systematic application of best practices that focus on reducing technical risk in a changing environment.

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Product development in the changing Global world

"If things seem under control, you’re not going fast enough."

- Today’s world of business is like the speed-oriented, technology driven world of car racing.

- Things are changing so quickly due to advances in technology, that to keep pace and stay competitive requires a company to be able to adapt to the changes at lightning-fast speed.
Product development in the changing Global world

- not only there is a need to focus product development efforts on a product’s
  - function,
  - project schedules and deadlines,
  - and cost,
- but also in other life cycle issues such as
  - Customization,
  - Technical risk,
  - Simplicity,
  - Produce-ability,
  - Quality,
  - Innovation
  - and service.
Product development in the changing Global world

- Today's customer wants value, a product that is easy to purchase and meets specific needs.

- Value is expressed as the relative worth or perceived importance of a product to the customer.

- It can be measured by a series of critical marketing parameters such as innovation, styling, performance, cost, quality, reliability, service, and availability.

- Customers define value in relation to their personal expectations for the product or service offered, which means every company must meet an infinite number of expectations.

Product development in the changing Global world

- A company has to be willing to put itself at risk everyday through innovation.

- The competitors are committed to change and developing innovative solutions.

- New technologies, markets and aggressive schedules require a company to take some risks.

- A key goal of product development to is to identify these technical risks early in the development process and implement methods to minimize their potential occurrence and effect.
Product development in the changing Global world

- New business models

- Successful companies will be those whose business model can respond to change more quickly and more effectively than their competitors.

- Technology can drastically change business models and manufacturing practices.

- Technology’s true potential is realized when it is employed in innovative ways that change traditional business practices.

Product development in the changing Global world

- Global business perspectives

- Technology development especially Information Technology provides new opportunities as well as threats.

- Consumers can receive worldwide information freely from around the world and purchase items offshore in many countries.

- Sales can come from anywhere and will be globally visible.

- Firms are now able to acquire resources, skills and capital from global sources that best satisfy their business objectives.
Product development in the changing Global world

- Global business perspectives

- Business models and product development strategies have to be more tailored to the particular situation;

- The challenge is to quickly adapt to any type of new customer requirements, or to move in a totally new direction while maintaining a consistent vision for the enterprise.

Product development in the changing Global world

- Product development

- Innovation and implementing new technologies require companies to take greater risks.

- The key is to identify, reduce and control these risks without limiting innovation, creativity, simplicity, and flexibility.

- Most of the problems found in current product development can be traced back to inadequate design or design management.

  The focus needs to be on the fundamentals of successful product development