

TXMI 3010 - PRODUCT DEVELOPMENT
Spring Semester 2003
M, W & F 10:10 - 11:00

INSTRUCTOR: Dr. Karen Leonas
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OFFICE HOURS: M,W & F 9:00 - 10:00 and **By Appointment**

COURSE DESCRIPTION: Study of product development methods and core functions of this process. Core functions include marketing, design, and manufacturing. Although the principles discussed in this course can be used in the development of all types of products, this course is specifically designed to focus on products that are engineered and physical in nature (vs. software or magazine type products).

COURSE OBJECTIVES:

Upon completion of this course, the student will:

1. understand the interdisciplinary nature of product development.
2. be able to identify the stages of product development
3. understand the integral relationship between the intended target market and the product development process.
4. apply the theories learned to the practical application of the process.

PREREQUISITES: TXMI 3500/3500L
CREDIT: 3 Hours

REQUIRED TEXTBOOK:

Ulrich, Karl T. and Eppinger, Steven D. Product Design and Development, 2nd Edition, Irwin McGraw-Hill, 2000*

**The order for this text was placed at the beginning of 2003 so it will not be at the UGA Bookstore until later in the semester. A photo copy of Chapters 1, 2, and 3 have been placed on reserve in the Science Library.*

READINGS:

Additional articles assigned will be available on reserve in the Science Library or from the instructor. In addition to being available in 'hard copy' form, the majority of readings are also available through the library's on-line reserve services. The password for this course is pdad.

Readings should be completed prior to the date they are assigned to facilitate course discussions.

COURSE REQUIREMENTS:

Class Discussion Contributions and Preparation: 25%

You are expected to attend all classes. A great deal of learning comes from hearing what your colleagues have to say and responding to it. You will be expected to have completed all of the reading prior to each class and prepared the appropriate assignment. Please note that this type of communication is critical in understanding and participating in the product development process. Therefore, it is important that you attend each class and are fully prepared for discussion. Attendance at EVERY session is mandatory. Please do not schedule travel or interviews during class meeting time). Absences will affect your grade adversely. Quantity and Quality of participation are both important. The grading for participation will be based on the number of significant and relevant contributions. If you are having difficulty participating, please discuss this with me.

Assignments: 25%

Please read instructions carefully. Any questions concerning the assignments can be addressed in class. All assignments should contain the following information in either the upper left hand or upper right hand corner: Student Name, TXMI 3010, Assignment #, & Date.

If informal written work (related to discussion) is collected, please include this information in the corner, but replace the assignment # with the identifier (see instruction sheet for appropriate identifier information).

Product Development Project: 50%

The goal of this exercise is to learn principles and methodologies of product development in a realistic context. Most product development professionals work under tremendous time pressure and do not have an opportunity to reflect on the development process. You will be asked to form project teams of 4 to 5 students.

At the end of the semester, students will report individual assessments of the contributions made by their fellow team members to the project. These assessments will be considered in preparing your individual grades.

More project details will be presented in class on Jan. 22. You should have your teams selected by that time.

The information in this course has been divided into 7 units and final project presentations as

follows:

Class meets Monday, Wednesday and Friday, 10:10 - 11:00. Specific dates for readings/assignments will be made in class.

INSTRUCTIONAL UNITS

I. New Products: Accident or Design?

Chapter 1 - Introduction

Serendipity - specific readings selected in class

II. The Product Development Process: In this unit we will discuss the relationship between product design, development and manufacturing. These ideas are related to customer satisfaction, product cost, and manufacturing efficiency. Critical concepts include advanced research and planning and working across disciplinary lines.

Chapter 1 - Introduction

Chapter 2 - Development Processes and Organizations

Chapter 3 - Product Planning

III. Listening to the Customer: Chapter 4 - Identifying Customer Needs,
Readings

IV. Creativity and Design: Chapter 5 - Product Specification

Chapter 6 - Concept Generation

Chapter 7 - Concept Selection

Chapter 8 - Concept Testing

Readings

V. Manufacturing Cost/Product Cost: Chapter 10 - Industrial Design

Chapter 11- Design for Manufacturing

VI. Prototyping, Testing and Launch: Chapter 12 - Prototyping

VII. New products - Accident or Design.....What do you think now?

VIII. PROJECT PRESENTATIONS

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Unit 3: Listening to the Customer Readings:

Leiber, Ronald B. "Storytelling....Get Close to the Customer" Fortune Feb 3, 1997, pp 102-107

Martin, Justin, "Ignore Your Customer" Fortune, May `1, 1995, pp 121-126

Unit 4: Creativity and Design Readings:

Lutz, Robert A. We Just Did It: The Story of the Viper." Autoweek. October 5, 1998 pp 20-22

Flint, Jerry, "Creativity is Back." Ward's Auto World. November, 1996, p. 23.

O'Reilly, Brian, "New idea New Products." Fortune. Mar. 3, 1997, p 60, 62, & 64.

Garber, Joseph R. "What If...." Forbes, November 2, 1998, p 76, 78, & 79

Shaw, Barry M. "Why No One Really Wants Creativity", Creative Action in Organizations, pp 161-166.

Sorge, Marjorie "Time to Listen to the kinky Guys." Automotive Industries, September, 1996, p.5

Unit 5: Manufacturing Cost/Product Cost Readings:

Gilmore, James h. and Joseph Pine II. "The four Faces of Mass Customization." Harvard Business Review. January-February, 1997. pp91-101

Feitzinger, Edward and Hau L. Lee, "Mass Customization at HP: The Power of postponement." Harvard Business Review. Jan-Feb 1997, pp 116-121

Brimelow, Peter. "The economics of panty hose", Forbes, August 23, 1999, p. 70.

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Unit 1

Unit 1: Read Chapter 1 in text and be prepared to discuss in class

Definitions

Serendipity Readings/Summaries

Written Assignment 1:

Due Wednesday January 15, 2003

Research the term “interdisciplinary”. Use a minimum of three sources and write a 3 to 5 sentence summary of what interdisciplinary means. You must cite your sources. (Assignment #1-I)

What does serendipity mean? Cite your source(s). (Assignment #1-S)

Please prepare these on separate sheets.

Class Discussion (Unit 1):

In class on Friday January 10, we will select several chapters from “Serendipity Accidental Discoveries in Science”. Copies of these selections will be available to you early Friday afternoon. You are to read each selection and be prepared to discuss the discoveries in Class on Wednesday (1/15/03). Your discussion comments should be written in an organized manner (no longer than one-half to one page in length). These comments might be something like notes that you would take to a product development meeting. It can be in bullet form, short phrases or full sentences. Each selection should be on a separate sheet of paper. Comments can be typed or hand written - but must be legible. Identifier Information - Accidental Discoveries - Chapter # and Title (remember to include other information as well).

Read Chapter 1: Be prepared to discuss the concept of interdisciplinarity in the product development process. We should discuss this on Friday (1/17/03).

Which of the following do you want to know more about?

.....from the book Serendipity Accidental Discoveries in Science

- Chapter 10 Daguerre and the Invention of Photography
- Chapter 13 Synthetic Dyes and Pigments
- Chapter 17 Celluloid & Rayon
- Chapter 18 How to Succeed in Archeology
- Chapter 20 Accidental Medical Discoveries
- Chapter 22 Substitute Sugar
- Chapter 25 Nylon
- Chapter 26 Polyethylene
- Chapter 27 Teflon
- Chapter 29 Drugs - Accidentally found and good for something else
- Chapter 30 Drugs - from Sewage and Dirt
- Chapter 32 Polycarbonates - Tough Stuff