IT 408: PAPER AND PAPERBOARD PACKAGING- WINTER 2014

Industrial Technology Area
California Polytechnic State University
San Luis Obispo

Instructors	Office	Office Hours	Office Phone	Email
Dr. Koushik Saha	03-433	F: 10:00 am-12:00pm or By Appointment	(805) 756-1677	ksaha@calpoly.edu

Class Time & Place: MW: 1:10 pm – 2:00 PM, bldg. 03, room 112
(*Lecture on Tuesday Jan 21st; Academic Holiday, Monday Feb 17th*)
Activities: MW: 4:10 PM – 6:00 PM, Rm 21-12
TR: 5:10 PM – 7:00 PM, Rm 21-12

Reading Sources: Copies of the following may be provided by the instructor in class:

- Paperboard Packaging by Paperboard Packaging Alliance
- Ideas and Innovation (second edition) - A Handbook for Designers, Converters and Buyers of Paperboard Packaging by Paperboard Packaging Council
- Fiber Box Handbook, Fiber Box Association
- Necessary articles as needed
- Class handouts
- Material posted on Poly Learn

Students will be provided access and training to the following software:

- ArtiosCAD, Design, Manufacturing and Communication for Packaging
- CAPE Engineering/ TOPS and Maxload Pro, Packaging & Distribution software

References:

- Cartons, Crates and Corrugated Board by Diana Twede and Susan Selke, DEStech Publications, Inc, ISBN No. 1-932078-42-8, http://www.destechpub.com
- Performance Testing of Shipping Containers, ASTM Committee D-10 on Packaging, June 2005
- Fundamentals of Packaging Dynamics by Brandenberg and Lee
- Fundamentals of Packaging Technology by Walter Soroka

Catalog Description

Physical and chemical properties, manufacture, conversion and use of paper, paperboard, corrugated board and related components. Design, use and evaluation of packages made from these materials. Survey of tests and procedures for paper based packaging materials and packaging products following ASTM, TAPPI, and ISO standards. 2 lectures, 2 activities. Prerequisite: IT 330.

Course Objectives and Expected Outcomes

The objective of this course is to provide the student with a protective packaging background to meet industrial and business management needs.
The student will develop:

1. A knowledge of packaging materials (paperboard & corrugated board) and processes and package testing
2. An understanding of the reasons for various kinds of paper based packaging
3. An awareness of the importance of specifications and economics of paper based packaging
4. CAD design of boxes, containers, and paperboard using Artios design and Kongsberg 1930 sample cutting table (conducted during lab activity)

Student Performance Evaluation

Student performance evaluation will be based on exams, lab reports, and a class project. The following describes each of these:

1. Lab Reports:

There will be 7-8 lab activities during the quarter. Each will require a short report to be turned in at the time of the next lab period. Separate handouts will be provided during the lab orientation.

2. Class Projects:

As part of the curriculum for IT 408, students will compete in two national competitions,

Paperboard Packaging Alliance's (PPA)
Student Design Challenge (**http://www.paperboardpackaging.org/student_design_challenge/index.html**)

Association of Independent Corrugated Converters (AICC)
Annual Student Corrugated Packaging Design Competition (**http://www.aiccbox.org/student/**).
Details for both projects will be provided in the lab.

3. Exams:

There will be three exams. Exams will cover the material presented in lectures, handouts or reading materials provided during class, and lab assignments.
Midterm I- **Monday Jan 27th**
Midterm II- **Monday, Feb 24th**
Final Exam- **Wednesday, March 19th**, 1:10- 4:00pm, Rm 3-112

4. Grading:

Final grades will be based on the following:

Midterm I	15%
Midterm II	15%
Final Exam	20%
PPA Student Design Challenge	15%
AICC Corrugated Packaging Design Competition	15%
Activities	20%
Total	**100%**

5. Final Grade:

The final grade will be composed of a weighted average (based on the weights indicated above) of exams, homework/lab reports, case analysis and class project. The following is a typical description of letter grade awards:

100-93 A	**89-87 B+**	**79-77 C+**	**69-67 D+**	**59 - F**
92-90 A-	**86-83 B**	**76-73 C**	**66-63 D**	
	82-80 B-	**72-70 C-**	**62-60 D-**	

Course Policies

- Lectures will be posted as PowerPoint presentations on Poly Learn by 8 pm the day before the class.
- I recommend that you download the lectures and briefly read through them before bringing them to the class.
- Do not miss any lecture. If unavoidable for any reason, I need to know in advance
- There will be no make up exams (except for dire circumstances)
- If you have any dispute over your grade, it needs to be resolved within 7 days of receiving them.
- Any assignment/homework must be turned in by the due date to avoid any penalties. A late assignment/home work may be turned in within 24 hours after due date for a maximum 75% credit.
- The lecture outline is tentative and may be changed for special circumstances like a guest lecture, case study, video presentation, etc.
- I am a very easy going person, please feel free to approach me for any problems or enquiries on any topic (even if outside of coursework)
- If you have a question that I can't answer right away, please have patience and I will do my best to have an answer for you at a later date/time

What students can expect from me:

- I will explain the course objectives and structure carefully
- I will do my best to explain the course material clearly and precisely
- I will be available for discussions with students individually or as a group during office hours, by phone or by email
- I will encourage participation and try to make the class dynamic
- I will construct fair but challenging exams
- I will grade the exams and assignments fairly
- I will encourage questions from every student without the fear of embarrassment
- I will provide opportunities for the students to help improve the class and lab activities through suggestions during or outside of the classroom

Lecture Format

An active learning format will be followed in this course. Instead of spending the entire class time on traditional lecturing, case studies and group discussions will also be included. The students will discuss problems on the topic(s) covered in the previous lecture during the next class period.

Lecture Outline:

I am not providing a time table for the lectures, since it limits my capacity as a teacher and limits the amount of time for each topic. However, we will follow the sequence of topics as mentioned below.

Corrugated Packaging:

Historical Perspective, Corrugated Board, Properties and Tests, Carrier Rules and Regulations, Corrugated Boxes, Decorating the Corrugated Box, Special Board Treatments, Corrugated Container Quality Assurance, Corrugated Cushions

Paperboard Packaging:

History, Paperboard Packaging Today, End-Use Applications, Advantages of Paperboard, how Paperboard is made, Grades of Paperboard, Paperboard Design Process, Paperboard Printing, Paperboard Testing, Converting Paperboard, Folding Carton Filling Equipment, Aseptic Packaging, Beverage Carriers, Carded Packaging, Composite Cans, Gable Top Cartons, Ovenable Paperboard, Rigid Paperboard Box

Students with Special Needs

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both me and the Disability Resource Center (DRC), Building 124, Room 119, (805)756-1395 or email drc@calpoly.edu as early as possible in the quarter.

Honesty Statement

Declaration: By registering and taking this course, the student officially enrolled hereby declares that this same student will be the author of all work submitted for the course. Allowing another individual to complete assignments constitutes fraud and academic dishonesty. Finding material from internet or other sources and presenting it as original is also dishonest. All forms of academic dishonesty, including cheating, plagiarism, and falsification of academic records are subject to disciplinary action. Should such behavior come to the attention of the instructor, the student will be dropped from the course or receive a grade of "F."

Code of Conduct

Improper academic conduct shall be interpreted to mean the obtaining and using of information during an examination by means other than those permitted by the instructor, including supplying such information to other students. All forms of academic dishonesty, including cheating, plagiarism, and falsification of academic records are subject to disciplinary action.

Student Privacy (FERPA)

If you have chosen to protect your Directory Information (which includes name and email), it is important you communicate this to your instructor prior to or on the first day of class. This course uses Poly Learn tools that will display students' full names and email addresses.

It is my intention to make this course as educational and interesting as possible. I do request your cooperation and encourage you to come prepared to the classroom. This will enhance the probability of a good grade in this class. I am very approachable and will entertain your queries, whether class related or otherwise; inside the classroom or outside.