FNR 41910 – Furniture Product Development and Strength Design

Sem. 2., Class 2, lab 3, cr.3.

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Course Description:
Qualitative and quantitative principles of furniture construction, performance testing of furniture, computer based applications and solutions. Course features laboratory evaluation of fasteners, furniture joints and furniture.

Justification:
Graduates going into the furniture industry must be thoroughly familiar with the basic structures used in the fabrication of furniture. They must also be well-grounded in the qualitative and quantitative principles of furniture construction. This course provides the background needed for students to undertake industrial technical product design of furniture. It also provides limited background in the use of computer software used in this area.

Objectives: Students will learn to
1. Identify and specify appropriate furniture constructions.
2. Determine whether furniture has adequate strength, stiffness, and durability.
3. Determine whether furniture will meet existing performance standards.

Text: Selections from "Textbook of Product Engineering and Strength Design of Furniture" by C.A. Eckelman. Unpublished manual used in short courses over past several years.

Course Outline:
1. Introduction to technical product design.
2. Classification and characteristics of furniture construction systems.
3. Technical principles of furniture construction and introduction to computer based design software.
4. Joint design
5. Design of specific furniture constructions.
   a. Chairs
   b. Upholstered furniture
   c. Case goods including all types of cabinets and cabinet furniture
   d. Shelving
   e. Office furniture
6. Performance testing of furniture.
7. a. Basic concepts
8. b. World standards
9. c. WRL based standards.

Grading: Students will be evaluated on the basis of quizzes, homework assignments, examinations, and laboratory exercises.

This class will be taught as a problem and analysis design class with two lectures per week and one laboratory exercise.