ENTC463 – Spring 2008
Mechanical Design Applications II

TR 2:20 – 3:35 PM
FERM 110

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Office Hours: TR 4:00 – 5:00 PM

Course Descriptions:
Application of principles of design to mechanical power transmission elements such as transmission shafts, gears, belts, chains, bearings, brakes and clutches. Design for Manufacture and Assembly.

Course Objectives:
1. To provide student with the concept, procedures, and data to analyze machine elements in power transmission systems. (ABET outcome – a, b, c, d, f, g, h, m, n, o)
2. Students should develop competency in sizing and selecting mechanical components for mechanical systems. (ABET outcome – a, c, d, f, g, j, k, l, m, n, o)

Prerequisites: ENTC 363 Mechanical Design Applications I
ENTC 361 Solid Modeling and Analysis

Grade:

Exam 1	20%
Exam 2	25%
Final Design Project	30%
Quiz/Homework/Lab	15% (No credit given for late homework)
Self Learning Report	10%

A: 90-100 B: 80-89
C: 70-79 D: 60-69 F: <60

Text: *Machine Elements in Mechanical Design* by Robert Mott, 4th Ed., Prentice-Hall, 2004

SCHOLASTIC DISHONESTY:
This course will adhere to the Texas A&M University Regulations.

AMERICANS WITH DISABILITIES ACT POLICY STATEMENT:
The Americans with Disabilities Act (ADA) is a Federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe that you have disability requiring accommodation, please contact the Department of Student Life, Services for Students with Disabilities, in room 126 of the Koldus Building, or call 845-1637.

EXCUSED ABSENCES:
This course will follow the policy posted in http://student-rules.tamu.edu/rule7.htm

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Week		**Lecture (Chapters)**
1	1/15, 1/17	Introduction, Belt Design (7)
2	1/22, 1/24	Rolling Chain (7), Wire Rope
3	1/28, 1/30	Kinematics of Gears (8)
4	2/5, 2/7	Spur Gear (9)
5	2/12, 2/14	Helical Gear (10), **Exam 1**
6	2/19, 2/21	Bevel Gear (10)
7	2/26, 2/28	Worm and Worm Gear (10)
8	3/4, 3/6	Rolling Contact Bearings (14)
9	3/11, 3/13	Spring Break
10	3/18, 3/20	Plain Surface Bearing (16),
11	3/25, 3/27	**Exam 2**, Keys and Couplings (11)
12	4/1, 4/3	Shaft Design (12),
13	4/8, 4/10	Clutches and Brakes (22)
14	4/15, 4/17	Power Transmission Design Example (15)
15	4/22, 4/24	Design for Manufacturing and Assembly, Cost Analysis

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ABET Outcome Assessment and Evaluation

A Manufacturing and Mechanical Engineering Technology graduate has the following abilities at the time of graduation:

Outcomes	Level of Impacts
a) Mastery of the knowledge, techniques, skills and modern tools of their discipline	Medium
b) Ability to apply current knowledge and adapt to emerging applications of mathematics, science, engineering, and technology	High
c) Ability to conduct, analyze, and interpret experiments, and apply results to improve processes	Medium
d) Ability to apply creativity in the design of systems, components, or processes appropriate to program objectives	High
e) Ability to function effectively on teams	Low
f) Ability to identify, analyze, and solve technical problems	High
g) Ability to communicate effectively	Medium
h) Recognize the need for, and an ability to engage in lifelong learning	High
i) Ability to understand professional, ethical, and social responsibilities	NA
j) Respect for diversity, and a knowledge of contemporary professional, social, and global issues related to the discipline	Low
k) Commitment to quality, timeliness, and continuous improvement	Medium
l) An ability to apply the technologies of engineering materials, manufacturing processes, automation, production operations, quality, statics, dynamics, strength of materials, fluid power or fluid mechanics, thermodynamics, and either electrical power or electronics, and statistics to the solution of manufacturing problems.	High
m) An ability to apply with an added technical depth: manufacturing processes, mechanical design, electro-mechanical devices and controls (automation), and production operations.	High
n) An ability to apply physics having an emphasis in applied mechanics, plus added technical topics in physics and inorganic chemistry principles related to manufacturing and mechanical systems and processes.	Low
o) An ability to successfully complete a comprehensive design project related to mechanical or manufacturing fields.	High