IE 4361 Engineering Design for People
Fall 1999

Text: *Occupational Ergonomics* by Tayyari and Smith, 1997

Class: MW 2:00-2:50, IE 205, LAB M 3:00-5:50, IE 205

Instructor: Dr. James L. Smith

Course: This course is intended to give an overview of ergonomics and human factors design principles to allow the student to gain an insight into the area of human performance in the workplace. The format of the course will be lecture, with applications made through laboratory projects.

Exams: Three exams are scheduled for the course. The exams are scheduled for the following dates: Sept 29, Oct 20, and Nov 22. All exams will be open book (textbook), open notes. You are expected to provide all of your own materials (no borrowing of books, notes, calculators, pencils, erasers, etc will be allowed during the exams). You are to provide your answers to all questions on the exam paper provided (no scratch paper will be allowed).

Labs: Eleven laboratory assignments will include both measurement and design exercises. Lab reports will be due at the beginning of the class on the Monday following the lab activity. Lab reports must be typed.

Literature Reviews: In order to become acquainted with the current literature in the field of ergonomics, four literature reviews will be required during the semester. Suitable references include: *Ergonomics, Human Factors, Applied Ergonomics, International Journal of Industrial Ergonomics, Occupational Ergonomics.* Your literature review should be no longer than one page and should include a proper bibliographic reference for the article reviewed. The literature review must be typed. Do not simply copy the abstract of the paper!

Recommended references for course:

Bridger, 1995, *Introduction to Ergonomics*, McGraw-Hill
Kromer and Grandjean, 5th edition, 1997, *Fitting the Task to the Human*, Taylor & Francis
Kroemer, Kroemer, and Kroemer-Elbert, 1994, *Ergonomics: How to Design for Ease and Efficiency*, Prentice-Hall
Sanders and McCormick, 1993, *Human Factors in Engineering and Design*, McGraw-Hill
Wickens, Gordon, and Liu, 1998, *An Introduction to Human Factors*, Longman
Woodson, 1981, *Human Factors Design Handbook*, McGraw-Hill

Classroom accommodations will be made for students with certified disabilities at the request of the student

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Date	Topic	Readings	Lab
Aug 30	Introduction/ Skeletal System	Ch 1	
Sept 1	Skeletal System	Ch 2	
6	Labor Day- No class		
8	Macroergonomics		
13	Muscular System	Ch 3	Strength Testing
15	Anthropometry	Ch 4	
20	Biomechanics	Ch 5	Anthro/Biomech
22	Biomechanics/Work Physiology	Ch 5, 6	
27	Work Physiology	Ch 6	Work Physiology
29	**Exam 1**		
Oct 4	Workstation Design	Ch 7	Work Station
6	Cumulative Trauma	Ch 8	
11	Manual Materials Handling	Ch 9	Cumulative Trauma
13	Manual Materials handling	Ch 9	
18	Work-tool Design	Ch 10	Tool Evaluation
20	**Exam 2**		
25	Human-Machine Systems	Ch 11	Manual Matls Handling
27	Human-Machine Systems	Ch 11	
Nov 1	Thermal Environments	Ch 12	Displays/Controls
3	Light and Vision	Ch 13	
8	Noise	Ch 14	Thermal Measurements
10	Occupational Vibration	Ch 15	
15	Shift Work	Ch 16	Light Measurements
17	Office Ergonomics	Ch 17	
22	**Exam 3**		Noise Measurements
24	No Class- Thanksgiving		
29	Ergonomics Assessment	Ch 18	
Dec 1	Implementing Ergonomics Pgms	Ch 19	
13	**Final Exam**	4:30 - 7:00	

Grading: Grades for the course will be based on a typical 100 point scale with >90 receiving an A, > 80 receiving a B, >70 receiving a C, > 60 receiving a D and <60 receiving an F. Grades will be determined according to the following weighting:

3 Exams	51%
Labs (11)	22%
4 Lit Reviews	4%
Final Exam	23%

Final Exam: Monday December 3, 1999 4:30-7:00