

University of Southern California
ISE 370L – Human Factors in Work Design

Lectures, TTH 5-6:20 pm – KAP 147

Labs, Wednesday 5-7:20 pm – SAL 126

Instructor: Yalda Khashe
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TTh 4-4:50pm or by appointment Systems Engineering
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Catalog Course Description:

ISE 370L Human Factors in Work Design: Physiological systems and psychological characteristics; ergonomics; anthropometry; effects of the physical environment on humans; occupational safety and health; work methods.

Text:

Helander, M. (2005). A Guide to Human Factors and Ergonomics. CRC Press (2nd ed).

For work and time studies, chapters will be provided from:

Kanawaty, G. (1992). Introduction to Work Study. International Labour Office. (4th ed).

Course Expectations and Policies:

Course Expectations: To ensure a cooperative learning environment, each student is expected to read the text before each class meeting time, and prepare to actively participate during class discussions, team-related activities, presentations and writings.

Attendance Policy: It is expected that students will attend class regularly and participate in the class discussion throughout the semester.

Due Dates/Make up Work: Exams must be taken as scheduled. Assignments are due as scheduled. Make-ups will be allowed only if the student has contacted the professor before the due date, detailing a serious problem.

Academic Integrity: USC seeks to maintain an optimal learning environment. General Principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles. *SCampus*, The Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A: <http://usc.edu/dept/publications/SCAMPUS/gov/> Students will be referred to the Office of Student Judicial Affairs and

Community Standards for further review should there be any suspicion of academic dishonesty. The Review process can be found at: <http://usc.edu/student-affairs/SJACS/> Information on intellectual property at USC is available at: <http://usc.edu/academe/acsen/issues/ipr/index.html>.

Classroom Access: Any Student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m. - 5:00 p.m., Monday through Friday. The phone number for DSP is (213)740-0776.

Electronic Device Policy: You are allowed to use electronic devices to access your text, retrieve information, and take notes. However, you are not allowed to use social media and the like during class.

Statement for Students with Disabilities: Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to your course instructor (or TA) as early in the semester as possible. DSP is located in STU 301 and is open from 8:30am to 5:00pm, Monday through Friday. Website and contact information for DSP http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html (213)740-0776(Phone), (213)740-6948(TDD only), (213)740-8216(FAX), ability@usc.edu

Grading procedure and Assessment Methods:

I. Letter Grades Table:

94-100	A	73-77	C+
89-94	A-	68-73	C
85-89	B+	65-68	C-
80-85	B	60-65	D+
77-80	B-	56-60*	D

* Grades less than 56: F

The final grade will be based on the above table combined by the cluster analysis of all the students' grades. Which will be explained in detail on the first class session.

II. The final course grade will be determined based on the following weights:

Exam 1	15 %
Exam 2	15 %
Exam 3 (Final)	15 %
Design Project	20 %
Research Paper	10 %
Lab Reports	15 %
Participation	10 %

* Subjective grading by the Instructor based on the student's participation in class and lab discussions and interaction with TA/Instructor inside and outside the classroom/lab.

Exams:

Exams consist of true/false, multiple choice, short answers and essay questions. If you cannot take an exam on the scheduled date and time, you must provide documents from a responsible party (doctor, court, police, etc.) and you must arrange to take the exam before the following class meeting. The final exam date/time is set USC and cannot be rescheduled.

Assignment Submission:

Homework descriptions will be posted on blackboard and assignments are due at the beginning of the class/lab. You are encouraged to submit your assignments online. Electronic submission must be in MS Office formats. Your presentations can be of any format you deem appropriate.

Study Hints:

- Do not hesitate to ask questions in person during office hours or via email.
- Read the text before you come to each class meeting.
- Participate in class discussions.

Lab Sessions

Labs will reinforce and augment course material and provide practical application of concepts and theories presented in class. Refer to the Lab Outline for assignments and grading. Lab attendance is ***mandatory***.

Design Project

Integrated throughout the class will be the application of the approaches towards the design of a project related to Human Factors Engineering. You will work in small groups (2-3) students per group and during the last class period will present the results of your design project. Details on the design project will be covered during class.

Research Paper

Each student should write an individual research paper related to the topics covered in the class. Alternative and/or sample topics will be discussed during the class sessions. In this paper, the students will investigate and research a topic of their interest and discuss the application of the tools and techniques discussed in the class to the topic.

NOTE:

Course materials and grades will be posted on Blackboard System. Please make sure that you have access to the blackboard and your **USC account** is up and running.

Due to administrative processes, this syllabus is subject to change. It is the student's responsibility to verify with the instructor regarding any updates.

Tentative Course Outline¹:

Week of		Topics	Reading Assignments
01	Jan 7	Introduction to Human Factors and Ergonomics	CH 1
02	Jan 14	Cost-Benefit Analysis of Improvements in Human Factors Design	CH 2
03	Jan 21	Anthropometry in Workstation Design Work Posture	CH 8 & 9
04	Jan 28	Manual Materials Handling <i>January 31 - Research Paper Proposal Due</i>	CH 10
05	Feb 4	Repetitive Motion Injury and Design of Hand Tools	CH 11
06	Feb 11	Introduction to Work Measurement and Time Study <i>February 14 – Exam 1</i>	ILO Ch 18
07	Feb 18	Time Study: Rating and Standard Time	ILO Ch 18 & 20
08	Feb 25	Predetermined Time Study	ILO Ch 20 & 25
09	March 4	Examples of Time Study <i>March 7 – Research Paper Progress Report Due</i>	ILO Ch 26
10	March 11	<i>Spring Recess</i>	
11	March 18	Vision and Illumination Design <i>March 21 – Exam 2</i>	CH 4
12	March 25	Human Information Processing	CH 5
13	April 1	Design of Human Computer Interaction	CH 7
14	April 8	Training, Skills and Cognitive Task Analysis Accidents, Human Error and Safety	CH 15 & 16
15	April 15	Human Factors of Complex Technological Systems	Handouts
16	April 22	Safety Culture, High Reliability Organization <i>April 25 – Research Paper Due</i>	Handouts
<i>Thursday, May 2</i>		<u>Final Exam (2-4 pm)</u> - Mandated by USC Schedule	

¹ Schedule may be revised to accommodate the content and pace of the class learning process.