



**DEPARTMENT OF MECHANICAL AND INDUSTRIAL ENGINEERING
MECHANICAL ENGINEERING PROGRAM, BSC.**

Course Syllabus

1. Course number and name

IE 457 Human Factors and Safety Eng.

2. Credits and contact hours

(3+0) 3 credit hours, 3 contact hours

3. Course type

Face to face Learning Course

4. Instructor's or course coordinator's name

Eng. Dana Salameh

5. Textbook information

Kroemer, Karl, Kroemer henrike, Kroemer-Elbert, Katrin, Ergonomics: How to design with ease and efficiency, 2nd edition. Prentice Hall International edition, 2001

ISBN-13: 978-0137524785

ISBN-10: 0137524781

a. Other supplemental materials

Linda Nussbaumer, Human factors in the built environment, Bloomsbury, 2015

Kroemer, Karl H. E., Kroemer, Hiltrud J., Kroemer-Elbert, Katrin E, Engineering Physiology: Bases of Human Factors Engineering, 4th edition. 2010

6. Specific course information

a. Catalog description

Anthropology, anthropometry, human biomechanics, skeletal, respiratory circularity and metabolic systems. Human senses, body interacts with environment. Design for sitting or standing, foot operation, hand use, controls, displays, Computer workstation, load handling, stress at work

b. Prerequisites or co-requisites

Prerequisite IE334 Work Measurements

c. The course is:



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Required in the Industrial Engineering program.

7. Specific goals for the course

a. Course outcomes:

After completion of the course, students are expected to be able to:

1. Use of anthropometric data in design
2. Design for different working positions and different office workstations
3. Ergonomic design of load handling
4. Design of controls and displays

b. The following student outcomes are addressed by the course:

SO-(a) an ability to apply knowledge of mathematics, science, and engineering.

SO-(d) an ability to function on multidisciplinary teams

SO-(pc-3) ability to design, develop, implement, and improve integrated systems that include people, materials, information, equipment and energy using appropriate analytical, computational, and experimental practices.

8. Learning Outcomes and their Alignment with Program Educational Objective (PEO's), Methods of Delivery, and Assessment Methods:

Learning Outcomes	Program PEOs	Method of Delivery	Assessment Method
Course Outcomes			
CO-(1): Use of anthropometric data in design	-	Lectures (Example and Problems)	First exam
CO-(2): Design for different working positions and different office workstations	-	Lectures (Example and Problems)	project
CO-(3): Ergonomic design of load handling.	-	Lectures (Example and Problems)	second exam
CO-(4): Design of controls and displays.		Lectures (Example and Problems)	final exam
Student Outcomes			



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SO-(a) an ability to apply knowledge of mathematics, science, and engineering.			
SO-(d) an ability to function on multidisciplinary teams			
SO-(pc-3) ability to design, develop, implement, and improve integrated systems that include people, materials, information, equipment and energy using appropriate analytical, computational, and experimental practices			

9. Weekly Teaching Plan

Week number	Lecture	Topic	Method of Delivery
1	Lec_1	Ergonomic knowledge base	Lecture
	Lec_2	Ergonomic knowledge base	Lecture
	Lec_3	Ergonomic knowledge base	Lecture
2	Lec_4	The Anatomical and mechanical structure of the human body	Lecture
	Lec_5	The Anatomical and mechanical structure of the human body	Lecture
	Lec_6	The Anatomical and mechanical structure of the human body	Lecture
3	Lec_7	The Anatomical and mechanical structure of the human body	Lecture
	Lec_8	The Anatomical and mechanical structure of the human body	Lecture
	Lec_9	The Anatomical and mechanical structure of the human body	Lecture
4	Lec_10	How the body does its work	Lecture
	Lec_11	How the body does its work	Lecture
	Lec_12	How the body does its work	Lecture
5	Lec_13	Human senses	Lecture
	Lec_14	Human senses	Lecture
	Lec_15	Human senses	Lecture
6	Lec_16	Human senses	Lecture
	Lec_17	Human senses	Lecture
	Lec_18	Human senses	Lecture
7	Lec_19	How the body interacts with the environment	Lecture



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		Design applications	
	Lec_20	How the body interacts with the environment Design applications	Lecture
	Lec_21	How the body interacts with the environment Design applications	Lecture
8	Lec_22	Designing to fit the moving body	Lecture
	Lec_23	Designing to fit the moving body	Lecture
	Lec_24	Designing to fit the moving body	Lecture
9	Lec_25	Computer Workstation	Lecture
	Lec_26	Computer Workstation	Lecture
	Lec_27	Computer Workstation	Lecture
10	Lec_28	Computer Workstation	Lecture
	Lec_29	Computer Workstation	Lecture
	Lec_30	Computer Workstation	Lecture
11	Lec_31	Manual Material Handling	Lecture
	Lec_32	Manual Material Handling	Lecture
	Lec_33	Manual Material Handling	Lecture
12	Lec_34	Manual Material Handling	Lecture
	Lec_35	Manual Material Handling	Lecture
	Lec_36	Manual Material Handling	Lecture
13	Lec_37	Design of displays and Computer interface	Lecture
	Lec_38	Design of displays and Computer interface	Lecture
	Lec_39	Design of displays and Computer interface	Lecture
14	Lec_40	Design of displays and Computer interface	Lecture
	Lec_41	Design of displays and Computer interface	Lecture
	Lec_42	Design of displays and Computer interface	Lecture
15	Lec_43	Stress at Work	Lecture
	Lec_44	Stress at Work	Lecture
	Lec_45	Stress at Work	Lecture

10. Grade distribution

Assessment	Grade	Date
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- First Exam	20%	Fifth Week
- Second Exam	20%	10 th Week
- Assignments	10%	
- Final Examination	50%	16 th Week

* Make-up exams will be offered for valid reasons. It may be different from regular exams in content and format.