



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

**Course Syllabus**

**1. Course number and name**

IE 478 Human Factors Eng. and Time and Motion Study lab.

**2. Credits and contact hours**

(0+1) 1 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**

Manual book of human factors lab

**a. Other supplemental materials**

**Kroemer, Karl, Kroemer henrike, Kroemer-Elbert, Katrin (2001).** Ergonomics: How to design with ease and efficiency, 2<sup>nd</sup> edition. Prentice Hall International edition.

**6. Specific course information**

**a. Catalog description**

Conduct experiments that measure the human abilities to do certain type of jobs and recommend assignment of most skillful person to do the job.

**b. Prerequisites or co-requisites**

**Co-requisites IE 457 Human Factors and Safety Eng.**

**c. The course is:**

Required in 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. Measure manual, finger, hand, and arm skills
2. Measure the reaction time of a simple over learned movement to an external cue.



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3. Measure maximum body strength and compare between right hand vs. left hand strength
4. Measure stress and the heart's ability to respond to external stress in a controlled environment.

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

SO-(b) an ability to design and conduct experiments, as well as to analyze and interpret data.

SO-(g) an ability to communicate effectively.

SO-(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

**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
<b>Course Outcomes</b>			
CO-(1): Measure manual, finger, hand, and arm skills	-	Lectures	assignments + Mid term
CO-(2): Measure the reaction time of a simple over learned movement to an external cue.	-	Lectures	Assignments + Mid term
CO-(3): Measure maximum body strength and compare between right hand vs. left hand strength	-	Lectures	Assignments + Final term
CO-(4): Measure stress and the heart's ability to respond to external stress in a controlled environment		Lectures	Assignments + Final term
<b>Student Outcomes</b>			
SO-(b) an ability to design and conduct experiments, as well as to analyze and interpret data			
SO-(g) an ability to communicate effectively...			



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SO-(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice			
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**9. Weekly Teaching Plan**

Week number	Lecture	Topic	Method of Delivery
1	Lec_1	1. Finger dexterity 2. Wrist finger-speed	Lecture
2	Lec_2	3. Arm-hand steadiness 4. Manual dexterity	Lecture
3	Lec_3	5. Two-arm coordination	Lecture
4	Lec_4	6. Two-hand coordination	Lecture
5	Lec_5	7. Aiming	Lecture
6	Lec_6	8. Reaction time	Lecture
7	Lec_7	Midterm exam	Lecture
8	Lec_8	9. Grooved pegboard test	Lecture
9	Lec_9	10. Manipulative aptitude test	Lecture
10	Lec_10	11. Discrimination weights	Lecture
11	Lec_11	12. Hand dynamometer	Lecture
12	Lec_12	13. Mirror tracer	Lecture
13	Lec_13	14. Peak flow meter	Lecture
14	Lec_14	15. Strength evaluation system	Lecture
15	Lec_15	16. Treadmill Test	Lecture
16	Lec_16	Final exam	

**10 Grade distribution**

Assessment	Grade	Date
- Midterm Exam	30%	7 <sup>th</sup> Week
- Assignments	30%	
- Final Examination	40%	15 <sup>th</sup> Week

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



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