The University of Jordan
Faculty of Engineering
Industrial Engineering Department
Fall 2023/2024

Course name:	Human Factors and Work Measurement Laboratory		
Course code:	0936482		
Credits hours	one credit hours		
Contact hours/room:	Sunday, Tuesday, Thursday 11:30-12:30 Monday, Wednesday 11:30-13:00		
Course instructor's name, E-mail, and phone:	Shahd Obeidat, Ph.D sh.obeidat@ju.edu.jo -------		
Course Coordinator:	Shahd Obeidat, Ph.D		
Text book:	Ergonomics; How to Design for Ease & Efficiency (Second Edition), Karl Kroemer, Henrike Kroemer and Katrin Kroemer-Elbert.		
Other reference(s):	Human factors Lab sheets		
Course Description:	Applying concepts and knowledge of human factors such as measuring muscle capacity, weightlifting methods, and material handling ,studying methods of measuring muscle voltage, and measuring tools and standards, studying several means of presentation of information, and control tools and analysis of its impact on work efficiency and the health and safety of the worker, study of the number and tools manual design analysis and its impact on work efficiency, worker health and safety, use of computer software in the analysis and improvement of workstations and method of work.		
Providing Department:	Industrial Engineering		
Prerequisite Course:	0906481 Human Factors Engineering		
Course type	Practical and theoretical		
Assessment Methods:	**Method**	**Weight %**	**Date**

	Mid Exam	**30%**	
	Laboratory reports and quiz	**30%**	
	Final Exam	**40%**	
	#	**After successful completion of this course, the student will be able to**	SO
Course Learning Outcomes:	**CLO1**	Understand the impacts of practicing human factors engineering on workplaces	6
	CLO2	Understand and use anthropometric data in design. To learn how to locate and describe reference points for taking anthropometric measurements.	2,6,5
	CLO3	To learn how to use the measuring instruments. To determine an appropriate set of anthropometric measurements to be able to design a workplace, a product or a tool.	2,6

		To express anthropometric measures in percentiles of any similar population for which data are available.	
	CLO4	To learn how to measure the Grip strength and Estimate whole body strength due to the portability and practicality of grip dynamometry. To be able to measure general body strength and endurance limit of human body , analyze the factors affecting human strength.	2,6
	CLO5	Capable of addressing job design through general rules including designing for manual material handling tasks, sitting and standing work, choosing the appropriate heights for work surfaces.	2,6
	CLO6	Applying RWL formula to address high risks of job design and meet the requirements of health and safety needs.	1,2,6
	CLO7	Know the specific ergonomics issues and able to apply principles of human factors engineering in use and selection of hand tools, manual material handling tasks, and office work	2
	CLO8	To be able to work and function in teams and assigning responsibility according to skill set for the team members ,and to integrate the team input in order to get a conclusion of the task.	5
	CLO9	To be able to defined the learning curve phenomenon, and to identify eye-hand coordination as well as arm hand coordination tasks , measuring the level of visual acuity in steadiness and aiming and the ability to detect and discriminate small objects in some work applications.	2,6

	Week #	Topic
Brief list of topics	1	Introduction
	2-3	Anthropometry and Workspace design
	4	Measuring body strength
	5	Strength evaluation system
	6-7	Measuring physical workload
	8	Mid-term exam
	9-10	RWL from Psychophysical Data and NIOSH lifting equation.
	11-12	the learning curve phenomenon using the Mirror Tracing Apparatus
	13-14	Aiming and steadiness

Important Notes:

- Do not hesitate to ask questions
- You are required to bring a notebook and take notes in classes.
- Students are expected to attend every class session and they are responsible for all material, announcements, schedule changes, etc., discussed in class.
- Discuss the assignments among yourselves
- Don't Cheat; direct copying of others work will NOT be allowed or tolerated and will result in a reduction of grade. If you are found to be cheating in any way, on an exam or assignment, even signing the roll sheet for another student, you will be given an "F" for the course. There will be no exceptions.
- All cases of academic dishonesty will be handled in accordance with university policies and regulations. JU policy requires the faculty member to assign ZERO grade (F) if a student misses 15% of the classes that are not excused, and 20% of the classes that are excused
- Students are expected to be ready to take a quiz any time they have a class. There will be no make-up quizzes or home works.
- Any students with disabilities who need accommodations in this course are encouraged to speak with the instructor as soon as possible to make appropriate arrangements for these accommodations.

Lab Report Requirements: A completed typewritten laboratory report is required for each lab. Each report will consist of a minimum of 6 parts: 1. Introduction: statement of the objectives and the significance of the lab assignment. 2. Methods: description of the equipment and procedures used. 3. Data: present observed/collected data from the laboratory experiment. 4. Results and discussions: description of data analysis used, results of the exercise. 5. Conclusions / Recommendations: give recommendations for improving the lab exercise. 6. The answers to the specific questions found in the "Report" section of each lab assignment

The program student outcomes that support the program educational objectives. The Attainment of these outcomes prepares graduates to enter the professional practice of engineering. Student outcomes are outcomes (1) through (7; the description of these outcomes is shown in this table .and any additional outcomes may be articulated by the program.
1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies