

Course E-Syllabus

1	Course title	Methods Engineering and work measurement
2	Course number	0906384
3	Credit hours	3 hours
	Contact hours (theory, practical)	Section 1: (Sunday, Tuesday, Thursday) (10:30-11:30) Section 2: (Monday, Wednesday) (10:00-11:30)
4	Prerequisites/corequisites	Statistics I
5	Program title	B.Sc. Industrial Engineering
6	Program code	
7	Awarding institution	
8	School	Engineering
9	Department	Industrial Engineering
10	Level of course	2 nd year
11	Year of study and semester (s)	Fall (1 st semester) 2020/2021
12	Final Qualification	
13	Other department (s) involved in teaching the course	
14	Language of Instruction	
15	Teaching methodology	<input type="checkbox"/> Blended <input checked="" type="checkbox"/> Online
16	Electronic platform(s)	<input checked="" type="checkbox"/> Moodle <input checked="" type="checkbox"/> Microsoft Teams <input type="checkbox"/> Skype <input type="checkbox"/> Zoom <input type="checkbox"/> Others.....
17	Date of production/revision	

18 Course Coordinator:

Name: Eng. Rawan Tarawneh
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Phone number:
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19 Other instructors:

None

20 Course Description:

Study of manufacturing and service methods and processes, analytical techniques for of process flow and efficiency, improving processes study of time and movement, standardization of methods and time measurements, project.

21 Course aims and outcomes:

A- Aims:

B- Intended Learning Outcomes (ILOs):

Upon successful completion of this course, students will be able to:

Course Learning Outcomes:	#	After successful completion of this course, the student will be able to	SO
	CLO1	Use the different traditional IE charts and diagrams (operation chart, flow process chart, form process chart, worker process chart, operator machine, operator multi-machine, gang chart, left hand right hand chart,...) for any process that produce a product or service.	2
	CLO2	Improve the process through the use of the cost reduction formula (eliminate, combine rearrange , simplify of the different process activities)	2
	CLO3	Plan and carryout direct time study.	1
	CLO4	Plan and carryout work sampling study	1
	CLO5	Develop standard time	2
	CLO6	Understand the importance of standard time, and use it to answer different questions (how many machines do we need?, how many operators should we hire?, how fast to move conveyers?, how much will the product cost?...etc.	2
	CLO7	Select the suitable work measurement technique for any process.	1,2
	CLO8	Define and measure efficiency and effectiveness for any process or organization.	2

22. Topic Outline and Schedule:

Week	Lecture	Topic	Teaching Methods*/platform	Evaluation Methods**	References
1	1.1	Introduction: Historical background about motion and time study. (Frank and Lillian Gilbreth, Fredrick Taylor, Deming, and others)	Microsoft teams		Chapter1 in the book and live videos
	1.2	The Nature of work	Microsoft teams		Chapter1 in the book and live videos
	1.3	Cont...	Microsoft teams		Chapter1 in the book and live videos
2	2.1	Importance of motion and	Microsoft teams		Chapter1 in the

		time study.			book and live videos
	2.2	Defining work systems	Microsoft teams		Chapter1 in the book and live videos
	2.3	Cont...	Microsoft teams		Chapter1 in the book and live videos
3	3.1	Productivity	Microsoft teams		Chapter1 in the book and live videos
	3.2	Cont..	Microsoft teams		Chapter1 in the book and live videos
	3.3	The lean manufacturing, and introduction to TOYOTA Production System.	Microsoft teams		Hand out and live videos
4	4.1	Manual work and worker-machine system.	Microsoft teams		Chapter2 and live videos
	4.2	Cont...	Microsoft teams		Chapter2 and live videos
	4.3	Worker-Machine systems	Microsoft teams		Chapter2 and live videos
5	5.1	Cont...	Microsoft teams		Chapter2 and live videos
	5.2	Determining worker machine requirements	Microsoft teams		Chapter2 and live videos
	5.3	Cont...	Microsoft teams		Chapter2 and live videos
6	6.1	Machine clusters	Microsoft teams		Chapter2 and live videos
	6.2				
	6.3	An overview of charting and diagramming techniques	Microsoft teams		Chapter9 and live videos
7	7.1	Tradetional industrial Charting and diagramming techniques for operations analysis : Operation charts, Process charts, Flow diagrams, Activity charts	Microsoft teams		Chapter9 and live videos
	7.2	Cont..	Microsoft teams		Chapter9 and live videos
	7.3	Cont...	Microsoft teams		Chapter9 and live videos
8	8.1	Introduction to Work measurement, Time standard and how they are determined	Microsoft teams		Chapter12 and live videos
	8.2	Cont..	Microsoft teams		Chapter12 and live videos
	8.3	Prerequisites for valid time standards	Microsoft teams		Chapter12 and live videos
9	9.1	Cont....	Microsoft teams		Chapter12 and live videos

	9.2	Allowances in time standards, Accuracy, precision, and application speed ratio in work measurement	Microsoft teams		Chapter12 and live videos
	9.3		Microsoft teams		
10	10.1	Direct time study procedure	Microsoft teams		Chapter12 and live videos
	10.2	Number of work cycles to be timed	Microsoft teams		Chapter12 and live videos
	10.3	Cont...	Microsoft teams		Chapter12 and live videos
11	11.1	Performance rating	Microsoft teams		Chapter12 and live videos
	11.2	Work sampling: how work sampling works	Microsoft teams		Chapter16 and live videos
	11.3	Statistical basis of work sampling	Microsoft teams		Chapter16 and live videos
12	12.1	Cont..	Microsoft teams		Chapter16 and live videos
	12.2	Cont...	Microsoft teams		Chapter16 and live videos
	12.3	Predetermined motion time systems:	Microsoft teams		Chapter14 and live videos
13	13.1	Methods –time measurement	Microsoft teams		Chapter14 and live videos
	13.2	Cont..	Microsoft teams		Chapter14 and live videos
	13.3	Maynard operation sequence technique	Microsoft teams		Chapter14 and live videos
14	14.1	Cont...	Microsoft teams		
	14.2				
	14.3				
15	15.1				
	15.2				
	15.3				

- Teaching methods include: Synchronous lecturing/meeting; Asynchronous lecturing/meeting
- Evaluation methods include: Homework, Quiz, Exam, pre-lab quiz...etc

23 Evaluation Methods:

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

Evaluation Activity	Mark	Topic(s)	Period (Week)	Platform
MID Exam	30%	All covered	Week6	
Quizzes	10%		weekly	
Project	10%		Week 12	
Final Exam	50%	All covered	Week 14	

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24 Course Requirements (e.g: students should have a computer, internet connection, webcam, account on a specific software/platform...etc):

25 Course Policies:

A- Attendance policies:
 Students are expected to attend every class session and they are responsible for all material, announcements, schedule changes, etc., discussed in class.
 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

B- Absences from exams and submitting assignments on time:
 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 .students how has been found absent from the midterm exam without any excuse that is accepted from the course instructor will deserve a ZERO grad for the Mid-exam mark.

C- Health and safety procedures:

D- Honesty policy regarding cheating, plagiarism, misbehavior:
 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.

E- Grading policy:

F- Available university services that support achievement in the course:

26 References:

A- Required book(s), assigned reading and audio-visuals:
 Groover (2014). Work Systems: The Methods, Measurement and management of Work. First edition , Pearson.

B- Recommended books, materials and media:
 Freivalds, and Niebel, (2013). Niebel's Methods, Standards and Work Design, 13th edition , McGrawHill.
 Mayers, and Stewart, (2001) . Motion and Time Study for Lean Manufacturing, third edition , Prentice hall.
 PowerPoint slides

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27 Additional information:

The B.Sc. in industrial Engineering program enables students to achieve, by the time of graduation the following program learning outcome (SOs)			
1	<i>an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics</i>	6	<i>an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions</i>
2	<i>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</i>	7	<i>an ability to acquire and apply new knowledge as needed, using appropriate learning strategies</i>
3	<i>an ability to communicate effectively with a range of audiences</i>		
4	<i>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</i>		
5	<i>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</i>		

Name of Course Coordinator: -----Signature: ----- Date: -----

Head of Curriculum Committee/Department: ----- Signature: -----

Head of Department: ----- Signature: -----

Head of Curriculum Committee/Faculty: ----- Signature: -----

Dean: ----- Signature: -----