University of Jordan  
Faculty of Engineering and Technology  
Industrial engineering department

Course title: Methods Engineering and work measurement (0906384) 
Prerequisite: Statistics I 
Instructor: Eng. Lamees Al-Durgham 
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Class time: 
Section 1: (Sunday, Tuesday, Thursday) (10:00-11:00) 
Section 2: (Monday, Wednesday) (12:30-2:00) 
Office hours: 
Sunday (11:00-12:00) 
Monday (11:30-12:30)

Course description:
This class is one of the fundamental courses in Industrial Engineering. Its focus is on the evaluation of “work methods” through studying “time and motions” needed to accomplish work. After successful completion of this class, students will be able to answer questions such as; How to measure work? what is a fair day’s work? and How to evaluate different work methods? Also, students will learn how to establish performance rating, time allowances, wages and incentives.

Textbook:

References:

Grading system:

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<td>Mid exam</td>
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<td>Quizzes + homeworks</td>
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<td>Project</td>
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Course Outline:

1. Historical background about motion and time study. (Frank and Lillian Gilbreth, Fredrick Taylor, Deming, and others) Chapter 1
2. The lean manufacturing, TOYOTA Production System.
3. Importance of motion and time study.
4. Charting and diagramming techniques for operations analysis Chapter 9
   - Operation charts
   - Process charts
   - Flow diagrams
   - Activity charts
   - Process map
5. Manual assembly line. Chapter 4
6. Introduction to Work measurement Chapter 12
7. Direct Time Study Chapter 13
8. Predetermined Motion Time systems Chapter 14
9. Standard Data System Chapter 15
10. Work Sampling Chapter 16
11. The Learning curve

Learning objectives:
After successful completion of the course students will be able to:

1. understand the importance of motion and time study
2. understand the different traditional IE charts and diagrams (operation chart, flow process chart, form process chart, worker process chart, operator machine, operator multimachine, gang chart, left hand right hand chart, …) for any process that produce a product or service.
3. improve the process through the use of the cost reduction formula (eliminate, combine rearrange , simplify of the different process activities)
4. distinguish between work measurement and time study.
5. distinguish between different concepts related to time study ( normal time, observed time, standard time, cycle time, allowed time, allowance values,… )
6. 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.
7. to select the suitable work measurement technique for any process.
8. calculate the standard time using different work measurement techniques ( stopwatch technique, PMTS, work sampling , …)