



IE 202 Work Study and Ergonomics (3 2 4) Spring 2017

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Course Description:

This course is designed to teach the fundamentals of Work Study and Ergonomics. The topics covered in the course are introduction, problem solving tools, operation analysis, manual work design, time study, standard data and formulas, work sampling, predetermined time systems, job analysis, job evaluation and compensation, design, work environment design, design of cognitive work.

Corequisites: ME 210

Class meeting hours:

There will be **recitation weeks** and **lab weeks**. Class meeting hours will depend on the week.

LECTURE	Monday	Tuesday	Wednesday	Thursday	Friday
09:20				Sec 01 LAB/REC (NB01-B)	Sec 03 LAB/REC (NB01-B)
10:20				Sec 01 LAB/REC (NB01-B)	Sec 03 LAB/REC (NB01-B)
11:20					
12:20				Sec 02 LAB/REC (NB01-B)	
13:20				Sec 02 LAB/REC (NB01-B)	Sec 04 LAB/REC (NB01-B)
14:20			Sec 01-02 LEC. (L111)	Sec 03-04 LEC. (L111)	Sec 04 LAB/REC (NB01-B)
15:20			Sec 01-02 LEC. (L111)	Sec 03-04 LEC. (L111)	
16:20			Sec 01-02 LEC. (L111)	Sec 03-04 LEC. (L111)	

Due to May 19 - Commemoration of Atatürk, Youth and Sports Day is on Friday, LAB#6 and LAB#7 will be held one week before the regular schedule.

Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Start	13/02	20/02	27/02	6/03	13/03	20/03	27/03	3/04	10/04	17/04	24/04	1/05	8/05	15/05
Type	---	Rec.	Rec.	Lab1	Rec.	Lab2	Rec.	Lab3	Rec.	Lab4	Lab5	Lab6	Lab7	TBA

Office hours: to be announced later

Textbook: M. P. Groover, Work Systems and the Methods, Measurement and Management of Work, Pearson Prentice Hall, 2007

B. Niebel and A. Freivalds Methods Standards and Work Design, McGraw-Hill, 2003

Supplementary course material:

R. L. Brauer, Safety and Health for Engineers (Industrial Health and Safety), Wiley, 1993

R. M. Barnes, Motion and Time Study: Design and Measurement of Work, Wiley,
 B. W. Niebel, Motion and Time Study, Irwin, 1992
 M. S. Sanders and E. J. McCormick, Human Factors Engineering and Design,
 McGraw-Hill, 1993

Tentative Course Schedule:

Week	Topic	Textbook chapter(s)
1 (Feb 13-17)	Introduction: Methods, Standards, and Work Design	1
2 (Feb 20-24)	Manual Work and Worker-Machine Systems	2
3 (Feb 27-Mar 3)	Work Flow and Batch Processing	3
4 (Mar 6-10)	Lab#1 Manual Assembly Lines	4
5 (Mar 13-17)	Methods Engineering and Operations Analysis	8
6 (Mar 20-24)	Lab#2 Charting and Diagramming Techniques for Operations Analysis	9
7 (Mar 27-31)	Motion Study and Work Design	10
8 (Apr 3-7)	Lab#3 Introduction to Work Measurement , Direct Time Study	12, 13
9 (Apr 10-14)	Predetermined Motion Time Systems	14
10 (Apr 17-21)	Lab#4 Work Sampling	16
11 (Apr 24-28)	Lab#5 Ergonomics and Human Factors in the Workplace	22
12 (May 1-5)	Physical Ergonomics: Work Physiology and Anthropometry Lab#6	23
13 (May 8-12)	Lab#7 Physical Work Environment	25
14 (May 15-18)	Job Analysis, Job Evaluation and Compensation	29, 30

Laboratory Work: A total of seven scheduled laboratory sessions will be held in weeks as announced in *Tentative Course Schedule*. Lab sessions take two hours in scheduled lab weeks. Attendance for lab sessions is compulsory. Every student should attend at all lab meetings at his/her regular section.

Project: Detailed information on project will be given later. Project consists of two parts: oral presentation and project report.

Group Work: Students will conduct most tasks in groups. Laboratory groups will consist of *three students* and maintain its members all throughout the semester. Groups for the project consist of *six students*, respectively. For each group work, each student will evaluate the performance of his/her group members to grade the individual performances.

<u>Grading:</u>	Midterm	25%
	Final Exam	30%
	Project (Oral presentation 10% + Report 14%)	24%
	Lab Work	21%

Attendance: Lab attendance is compulsory and at least 80% attendance is required. This means a student can miss a whole lab (2 hours) only. If a student has taken the course before, attendance is not compulsory unless she/he got NA. Attendance to lectures and recitations are up to the student's will.

Make-Ups: There will be make-up exams for midterm and for final for students with a valid excuse.

NA Grade: The followings may lead to NA grade:

1. Attending to LABs less than 80%. If you attend less than 80%, you **cannot** attend to final exam.
2. Not participating in Project work. This includes not finding a group, having a group report without your name on it, not making oral presentation, etc.
3. Not taking midterm and final exams (or their make ups).

Web page: Every student is responsible to check the page of the course, **webonline.cankaya.edu.tr**, regularly (at least twice a week). All the related announcements, lecture notes, grades, attendance and other information will be uploaded.

Academic Integrity: The students, who are expected to be a graduate of Çankaya University Department of Industrial Engineering, are expected to act honestly and ethically. Therefore, any form of dishonesty will not be tolerated. This means throughout this course, you only get credit for your (in exams) or your scheduled group's (in labs, projects) individual work.

Honor Code: Every Industrial Engineering Department student should declare her/his understanding and belief in the Honor Code stated by the department for the examinations and assignments:

Exam:

Please read the following Honor Code carefully. Then write I agree. [Kabul ediyorum.] and sign underneath to show your understanding and belief in the Honor Code.

I hereby declare that I have neither given nor received any aid during the exam. [Sınav sırasında hiç kimseden hiçbir şekilde yardım almadığımı ve hiçbir kimseye hiçbir şekilde yardım etmediğimi beyan ederim.]

Assignment:

For individual assignments, each student (for team work assignments, only one member of the study team) should write the following Honor Code with her/his own handwriting on the cover page of your assignment report, and each student should sign underneath.

I(We) hereby declare that, except where I (we) have indicated, the work I (we) am (are) submitting in this assignment (project, report, ...)is my (our) own work. [Sunmakta olduğum (olduğumuz) bu ödevin (projenin, raporun,...), belirttiğim (belirttiğimiz) kısımların haricinde, tamamen kendi eserim (eserimiz) olduğunu beyan ederim (ederiz).]