



IE 202 Work Study and Ergonomics (3 2 4) Spring 2024

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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.

Co-requisites: ME 210

Class meeting hours:

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

TIME	Monday	Tuesday	Wednesday	Thursday	Friday
09:20				Sec 03-04 LEC. (LA14)	Sec 01 LAB/REC (NB01-B)
10:20				Sec 03-04 LEC. (LA14)	Sec 01 LAB/REC (NB01-B)
11:20				Sec 03-04 LEC. (LA14)	Sec 02-03 LAB/REC (NB01-B)
12:20					Sec 02-03 LAB/REC (NB01-B)
13:20					
14:20	Sec 01-02 LEC. (LA14)				
15:20	Sec 01-02 LEC. (LA14)				Sec 04 LAB/REC (NB01-B)
16:20	Sec 01-02 LEC. (LA14)				Sec 04 LAB/REC (NB01-B)

This table is subject to change due to online teaching

Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Type	---	Rec.	Rec.	Rec.	Rec.	Lab1	Lab2	Lab3	Rec.	Lab4	Lab5	Lab6	Lab7	Rec.

Office hours: Tuesday 14:20-16:10, Thursday 15:20-17:10

Textbooks: 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	Introduction: Methods, Standards, and Work Design	1
2	Manual Work and Worker-Machine Systems	2
3	Work Flow and Batch Processing	3
4	Manual Assembly Lines	4
5	Methods Engineering and Operations Analysis	8
6	Lab#1 Charting and Diagramming Techniques for Operations Analysis	9
7	Lab#2 Motion Study and Work Design	10
8	Lab#3 Introduction to Work Measurement , Direct Time Study	12, 13
9	Predetermined Motion Time Systems	14
10	Lab#4 Work Sampling	16
11	Lab#5 Ergonomics and Human Factors in the Workplace	22
12	Lab#6 Physical Ergonomics: Work Physiology and Anthropometry	23
13	Lab#7 Physical Work Environment	25
14	Job Analysis, Job Evaluation and Compensation	29, 30

Laboratory Work: A total of six 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

If a student has taken the course before and has been successful from labs, she/he may not attend to labs. Besides, for a similar student, 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.

Honesty Policy: All students enrolled to this course are expected to act honestly and ethically and should declare her/his understanding and belief in the Honor Code stated

below. Therefore, any form of dishonesty will not be tolerated. If you conduct any dishonest act during any course activity (i.e., cheating on exam, using any extra material that you are not allowed to use during an exam, copying materials off of someone else's homework or assignment, using solution keys from previous years, copying materials from published and electronic sources without paraphrasing and/or citing appropriately), you will get a credit of zero on that particular exam or assignment. Necessary disciplinary action(s), as dictated by the rules of Çankaya University, will also be taken.

Honor Code: *Every student enrolled to this course should declare her/his understanding and belief in the Honor Code stated below by 1) writing the Honor Code on a paper with her/his hand writing, 2) sign it (using blue-ink pen), 3) scan it / take a picture of it (in color), 4) upload it to the course's website.*

I hereby declare that in all the activities related to this course I'm enrolled: I will neither give nor receive any aid during the exam; I will not submit any assignment, project, report, or similar work which includes any part other than my or our group's work without citation and it will totally be my / our work.

[Burada kayıt olduđum bu ders ile ilgili tüm aktivitelerde: sınav sırasında hiç kimseden hiçbir şekilde yardım almayacağımı ve hiçbir kimseye hiçbir şekilde yardım etmeyeceđimi; sunacağım ödevlerin, projelerin, raporların, vb. işlerin, benim veya grubumun çalışması dışında referans vermeden hiçbir kısım içermeyeceđini ve tamamen kendi eserim / eserimiz olduđunu beyan ederim.]

NOTE THAT EVERYTHING ON THIS SYLLABUS IS SUBJECT TO CHANGE. STUDENTS WILL BE NOTED ABOUT ANY CHANGE.