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IE 101 Industrial Engineering Orientation

Year and Semester: **2016-2017 Spring**
Credit Hour: **(2 0 2)**
ECTS: **3**
Prerequisite(s): **--**

Catalog Description

This course is designed to establish an overall and coherent view of industrial engineering concepts in relation to engineering profession in general and the industrial engineering curriculum.

Textbook

There is no specific textbook for this course. Lectures are based on reference books and supplementary reading material.

Reference Books

- J.N. Jensen, *A User's Guide to Engineering*, Pearson-Prentice Hall, 2006.
- W.C. Turner, J.H. Mize, K.E. Case, and J.W. Nazametz, *Introduction to Industrial & Systems Engineering* (3rd ed.), Prentice Hall, 1993.
- J.R. Taylor, *An Introduction to Error Analysis*, University Science Books, 1997.
- P.E. Hicks, *Industrial Engineering and Management: A New Perspective*, McGraw-Hill, 1994.
- D.M. Miller, and J.W. Schmidt, *Industrial Engineering and Operations Research*, Wiley, 1984.
- G. Salvendy, *Handbook of Industrial Engineering* (2nd ed.), John Wiley & Sons, 1992.
- C.E. Harris Jr., M.S. Pritchard, M.J. Rabins, R.W. James, and E.E. Englehardt, *Engineering Ethics: Concepts and Cases* (5th ed.), Cengage Learning, 2013.

Course Objectives

The aim of this course is:

- to provide an introduction to engineering profession
- to provide an understanding of Industrial Engineering and Operations Research

Learning Outcomes

On successful completion of the course, all students will have developed:

- Awareness of engineering profession, its evolution
- Awareness of basic concepts in industrial engineering discipline
- An understanding of problem solving and modeling

On successful completion of the course, all students will have:

- Awareness of ethical issues

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Course Outline

Week 1: Motivation of becoming an engineer. Evolution of engineering through history of civilizations. Some landmark innovations.
Week 2: History of engineering and evolution of Industrial Engineering
Week 3: Introduction to error analysis. Reporting uncertainties. Propagation of uncertainties.
Week 4: Dimensions and units. Accuracy, precision, significant digits. Rounding figures during calculations.
Week 5: Introduction to Industrial Engineering: Department (facilities and staff), curriculum (must courses and electives), summer trainings
Week 6: Introduction to rules and regulations: Academic and non-academic
Week 7: Introduction to materials and manufacturing technology
Week 8: Introduction to work study and ergonomics
Week 9: Introduction to problem solving
Week 10: Introduction to modeling: Linear programming and graphical solution
Week 11: Introduction to facilities design
Week 12: Introduction to production planning and scheduling
Week 13: Professional Ethics. Primary ethical concepts. NSPE Code of Ethics. Responsibility as an engineer and legal liability.
Week 14: Honesty, integrity, and reliability. Intellectual property rights and plagiarism. Sample case studies.

Computer Usage

Students might need word editing and various spreadsheet tools to prepare their homework.

Grading

Homework	10%
Midterm Exam	35%
Final Exam	40%
Attendance	5%
Class Participation	10%

Lecture Hours

Section 1: Monday 15:20—17:10 (L-112)

Section 2: Wednesday 11:20—13:10 (HA-05)

Lecturer

Hakan Özaktaş, Ph.D in Industrial Engineering
Office: L-323, x1377, ozaktas@cankaya.edu.tr
Office hour: Tuesday 14:20—15:10, Thursday 13:20—14:10

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Assistant

Funda Güner, M.S in Industrial Engineering
Office: L-324, x1375, fkarabak@cankaya.edu.tr
Office hour: TBA

IMPORTANT NOTES

- Communication will be made through http://webonline.cankaya.edu.tr Announcements should be checked regularly. Students should check their accounts to make sure that they can access the page of IE 101 through *webonline*.
- Minimum attendance of 70% for lectures is required. Attendance grade will be zero for those students who fail to achieve minimum attendance in class.
- Any student who has not attended at least 20% of the lectures will not be admitted to the Final exam.
- Make-up exams for the Midterm and Final are given only for students who have medical reports given (or approved) by Çankaya University Health Center. Students wıth medical excuse reports from other hospitals should apply to Health Center for approval within 7 working days (starting from the end-date of the medical excuse). Make-up exams will not be given for applications which are not submitted on time.
- Any sort of plagiarism will not be tolerated and disciplinary measures will be taken.