

MIDDLE EAST TECHNICAL UNIVERSITY
FACULTY OF ENGINEERING
Spring Semester 2009-10

COURSE OUTLINE

Course : **CE 204 Uncertainty and Data Analysis**

Prerequisite : Math 120 or equivalent

Instructors : 01 - Dr. Engin Karaesmen – Office: K2 – 302
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Teaching Assistants: Research Asst. Alper Aldemir – Office: K2 – 105
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Topical Outline : The following outline should be considered tentative:

- 1. Introduction**
- 2. Data Analysis**
- 3. Fundamental Concepts of Probability**
- 4. Random Variables and Modeling Variability**
- 5. Functions of Random Variables**
- 6. Random Sampling and Parameter Estimation**
- 7. Regression Analysis**
- 8. Computer Applications**

Course Evaluation : Two midterm examinations : 45 %

Homework + Computer Lab. : 15 %

Final examination : 40 %

Attendance to the course will be highly appreciated and awarded.

Text book :

- Ang, A.H.S. and W.H. Tang, Probability Concepts in Engineering Planning and Design, Vol. 1- Basic Principles, John Wiley& Sons, 1975

or

- Ang, A.H.S. and W.H. Tang, Probability Concepts in Engineering Emphasis on Applications to Civil and Environmental Engineering, 2nd Edition, John Wiley& Sons, 2007.

References: (please be aware that the following list cannot be exhaustive):

- Benjamin, J. R: and C. A: Cornell, Probability, Statistics and Decision for Civil Engineers, McGraw-Hill, 1970.
- Ross, S. M., Introduction to Probability and Statistics for Engineers and Scientists, John Wiley& Sons, 1987.
- Groeneveld, R. A., Introductory Statistical Methods: An Integrated Approach Using MINITAB, PWS-Kent, 1989.
- Lapin, L.L., Probability and Statistics for Modern Engineering, Duxbury Press, 1990.
- Milton, J.S. and J. C. Arnold, Introduction to Probability and Statistics: Principles and Applications for Engineering and the Computing Sciences, McGraw-Hill, 1995.
- Iversen, G.R. and M. Gergen, Statistics: The Conceptual Approach, Springer Verlag, 1997.
- Metcalfe, A. V., Statistics in Civil Engineering, Arnold Applications of Statistics, 1997.
- Rosenkrantz, W. A., Introduction to Probability and Statistics for Scientists and Engineers, McGraw-Hill series in Probability and Statistics, International Edition, 1997.
- Kottegodo, T. N. and R. Rosso, Statistics, Probability, and Reliability for Civil and Environmental Engineers, McGraw –Hill, 1998.
- Montgomery D.C: and G.C: Runger, Applied Statistics and Probability for Engineers, John Wiley & Sons, 2007.

Comments : Students are strongly recommended to avoid make-up examinations.

Information regarding the course can be found at the web site www.ce.metu.edu.tr/~ce204. Homework assignments and additional examples may be downloaded from here.

Students are responsible from all of the homework assigned and they are definitely to be submitted on the due date before 5.00 p.m.