

**Northern Cyprus Campus Middle East Technical University
NCC METU
Mechanical Engineering Department
MECH 320 Mechanical Engineering Laboratories II
Spring Semester 2008/2009**

Catalog Data – 2008: (1-2)

Review of laboratory safety issues. Statistical analysis of experimental data. Probability distribution, normal and Gaussian distribution. Chi-square test. Method of least squares. Regression analysis. Graphical analysis and curve fitting. Laboratory notebook keeping and report writing. Experimentation, data collection and treatment within the subjects of thermodynamics, fluid mechanics, heat transfer, vibrations and control. Written and oral presentation. Prerequisite: MECH 220

Textbook:

Experimental methods for engineers. J.P.Holman 7th edition. McGraw Hill, 2001

Reference:

1. Doebelin, Ernest: engineering experimentation:planning, execution and reporting, McGraw Hill New York, 1995
2. Dhillon, B.S:engineering design: a modern approachand problem solving, McGraw hill, 1996
3. Fundamentals of Engineering Thermodynamics (6TH 08 Edition) Michael J. Moran
4. Benedict , R.P.: fundamentals of temperature, pressure , and flow measurement. 3rd edition, John WILEY@sONS, NEW York, 1984

Instructor:

Professor Dr. Bourhan Tashtoush (bourhan@metu.edu.tr)

Class Schedule:

Wednesday: 11:40-12:30 and 13:40-16:30

Office Hours:

Weekdays – 12:00-4:00 (office S 145)

Pre/Co-Requisites:

Objectives:

This course is designed for third year engineering students. It familiarizes them laboratory work and experimental planning..

Topics covered:

1. Analysis of experimental data. Error analysis and statistical analysis
2. causes and types of experiments
3. methods of least square
4. Multivariable regression.
5. data Analysis

Computer usage:

NA

Design:

None

Activities/Projects:

Lab experiment(s):

Some laboratory experiments will be carried out

Scientific visits:

NA

Evaluation: Reports : 40%
 Midterm Exam: 20%
 Final Exam: 40%

Relationship of the course to ME outcomes:

ABET a-k	S	Mechanical Engineering Program Outcome
a	S	Apply knowledge of mathematics, science and engineering in practice
b	S	Design and conduct experiments as well as analyze and interpret data
c	S	Design a system, components or process to meet desired needs
d		Function on multidisciplinary teams
e	S	Identify, formulate and solve engineering problems
f		Understanding of professional and ethical responsibility of an engineer
g		Communicate effectively
h	S	Broad education to understand the impact of engineering solutions in global and societal context
i	S	Recognition for the need for, and process the ability to engage in, lifelong learning
g		Possess knowledge of contemporary issues
k	S	Use the techniques, skills, and modern engineering tools necessary for engineering practice
		Adhere to safety rules and regulations

ABET Category:

Experimental science:

2 Credits

Prepared by:

Professor Dr. Bourhan Tashtoush

Date: February 17, 2009