San Francisco State University, School of Engineering

Course Outline for ENGR 300-Engineering Experimentation

1. *Course number and name*
   ENGR 300: Engineering Experimentation

2. *Credits and contact hours*
   3 credit hours; Lecture, 2 units; laboratory, 1 unit. Two-one hour Lecture and One 2 hr.50 minutes lab.

3. *Instructors or course coordinators name*
   Instructor: Mutlu Ozer, Lecturer: Course coordinator: (Ed) Cheng, Professor of Mechanical Engineering

4. *Textbook, title, author, and year*
   Wheeler, A. J. and A. R. Ganji. Introduction to Engineering Experimentation. 3rd Edition. Pearson Prentice Hall, 2010.)

   a. *other supplemental materials*
      Lab Manual and Handouts using http://userwww.sfsu.edu/~ozer/ website.

5. *Specific course information*
   a. *brief description of the content of the course (catalog description)*
      Engineering experimentation. Characteristics of instrumentation and computerized data acquisition. Design, planning, and documentation of experiments. Common methods of probability and statistics

   b. *prerequisites or co-requisites* Prerequisites: ENGR 200 or ENGR 206; ENGR 205; ENG 214 equivalents with grades of C- or better.

   c. *indicate whether a required, elective, or selected elective course in the program* Required Civil, Electrical, and Mechanical Engineering

6. *Specific goals for the course*

a. *Specific outcomes of instruction, ex. The student will be able to explain the significance of current research about a particular topic.*

   1. To develop basic skills necessary for planning and carrying out experiments.
   2. To introduce concepts of data-acquisition systems, including signal processing and analog-to-digital conversion.
   3. To introduce the theory and operation of engineering measurement devices.
   4. To introduce basic notions of probability and statistics related to experimentation.
   5. To introduce methods of data analysis and uncertainty analysis.
   6. To improve written and oral communication skills.

b. *Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.*
   Course addresses ABET Student Outcome(s): a, e, c, b, k, g

7. *Brief list of topics to be covered*
   1. Introduction and General Characteristics of Measurement Systems
   2. Measurement Systems with Electric Signals
   3. Computerized Data-Acquisition Systems
   4. Discrete Sampling and Analysis of Time-Varying Signals
   5. Statistical Analysis of Experimental Data
   6. Experimental Uncertainty Analysis

7. Measurement of Solid-Mechanical Quantities
8. Measuring Pressure, Temperature, and Humidity
9. Measuring Fluid Flow Rate, Fluid Velocity, Fluid Level and Combustion Pollutants
10. Dynamic Behavior of Measurement Systems
11. Guidelines for Planning and Documenting Experiments

Disability access

Students with disabilities who need reasonable accommodations are encouraged to contact the instructor. The [Disability Programs and Resource Center (DPRC)] is available to facilitate the reasonable accommodations process. The [DPRC] is located in the [Student Service Building and can be reached by telephone (voice/TTY 415-338-2472) or by email (dprc@sfsu.edu).? (http://www.sfsu.edu/~dprc)]

Students' disclosure of sexual violence

SF State fosters a campus free of sexual violence including sexual harassment, domestic violence, dating violence, stalking, and/or any form of sex or gender discrimination. If you disclose a personal experience as an SF State student, the course instructor is required to notify the [Dean of Students]. To disclose any such violence confidentially, contact: [The SAFE Place - (415) 338-2208; http://www.sfsu.edu/~safe_plc/] [Counseling and Psychological Services Center - (415) 3382208; http://psyservs.sfsu.edu/] For more information on your rights and available resources:
[http://titleix.sfsu.edu]
For more information on your rights and available resources: [http://titleix.sfsu.edu]
This policy replaces Academic Senate Policy #S10-257 (Policy on Course Syllabi) and
Academic Senate Policy #F07-244 (Syllabus Disability Statement

---

Course Number and Title: ENGR 300-Engineering Experimentations
Name of instructor: MUTLU OZER
Office: Science 112-B **Phone**: (415) 338-6578
Email : ozer@sfsu.edu **Homepage: http://userwww.sfsu.edu/ozer/**

Grading policy:

- **Attendees:**10% No partial point. Full point for the students who would have total 4 or less absences in lectures. Signing roll on behalf of someone will be considered as fraud and disqualify from course!)
- **HomeWorks:** 5% no partial point. Solutions available in advance to encourage you increase your commitment and learning efficiency. Join office hrs. to discuss and clarify the solution procedures in your mind and revise it accordingly if needed. No copy-paste actions! Use engineering paper at one side. Evaluations of HWs are based on acceptance-no acceptance. No late HW accepted. Keep a copy of your HWs for your info. Three weeks before the end of the semester students who do not deserve HW credit will receive a warning e-mail. Only those students can set appointment to see his/her HW papers by appointment.

1st Midterm: 25% No make-up exam!
2nd Midterm: 25% No make-up exam!
Final Exam: 35%. No make-up exam! Final exam is comprehensive and will replace the lowest Midterm Exam if higher!
Lab attendance is mandatory. You may miss only one lab if you have verifiable extreme urgency! You can be dropped if two labs would be miss!

- Weighted average of Lecture-65% and Lab-35% would be your course letter grade. The Course letter grade would be assigned accordingly to the followings:

A	From 100 to 96	C+	From 74 to 71
A-	from 95 to 90	C	From 70 to 68
B+	from 89 to 85	C-	from 67 to 65
B	from 84 to 80	NC	< 65
B-	from 79 to 75		