

KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS
ELECTRICAL ENGINEERING DEPARTMENT

EE 380 - Control Engineering

Tentative Schedule [071]

DATE	TOPICS	SECTIONS	HW	LABORATORY
Week 1 Sept. 08 – 12	Introduction to Control Systems. Differential Equations of Physical Systems.	1.1 - 1.11 2.1 - 2.2		No Laboratory
Week 2 Sept. 15 – 19	Transfer Functions of Linear systems - Block Diagram Models	2.5 - 2.6		Exp. #1 Introduction to MATLAB
Week 3 Sept. 22 – 26	Signal Flow Graphs [SFG]	2.7	HW#1	No Laboratory
Week 4 Sept. 29 – Oct. 03	State Variables Models - SFG State Models - TF from State Equations	3.1 - 3.6	HW#2 HW#3	Exp. #2 Introduction to SIMULINK
Week 5 Oct. 20 – 24	Performance of Feedback Control Systems. State Transition Matrix	3.7 5.1 - 5.4		Exp. #3 Introduction to Servo Kit Components and Identification of Motor Constants
Week 6 Oct. 27 – Oct. 31	Performance of Feedback Control Systems.	5.5 - 5.8	HW#4	PROBLEM SESSION #1
Week 7 Nov. 03 – Nov.07	Stability of Linear Feedback Systems.	6.1 - 6.4	HW#5	Exp. #4 Motor Speed Control Using a P-Controller
Week 8 Nov. 10 – 14	Root Locus Technique	7.1 - 7.3	HW#6	Exp. #5 Study of a Prototype Second Order System
Week 9 Nov. 14 – 21	Root Locus Technique. Frequency Response Methods	7.4 - 7.5 8.1 - 8.3		Exp. #6 Servo Motor Position Control Using a P-controller
Week 10 Nov. 24 – 28	Frequency Response Methods	8.4 - 8.5	HW#7	Exp. #7 Analysis of error performance Indices
Week 11 Dec. 01 – Dec. 05	Stability in the Frequency Domain	9.1 - 9.3	HW#8	Exp. #8 Servo Motor Speed Control Using a PID controller
Week 12 Dec. 08 - 12	Stability in the Frequency Domain	9.4, 9.6, 9.9	HW#9	PROBLEM SESSION #2
Week 13 Dec. 29 – Jan. 2	Stability in the Frequency Domain Design of Feedback Control Systems	10.1 - 10.3		Exp. #9 Magnetic Levitation System
Week 14 Jan 05 - 09	Design of Feedback Control Systems	10.4 - 10.5	HW TBA	Exp. #10 Compensation of control systems
Week 15 Jan. 12 – 16	Design of Feedback Control Systems	10.6 - 10.8	HW TBA	Lab Final

Grade Distribution:

Laboratory	Quizzes/Project /HW/Att.	Major Examinations	Final
20%	10% / 5% / 5% / 2%	15% - 15%	30%

Textbook: Modern Control Systems (10th Ed.): *Richard C. Dorf and Robert H. Bishop*

Course Instructors:

Section	Days	Time	Location	Instructor	Contact
EE 380-1	SMW	09:00-09:50	59-1015	Dr. A. Masoud	Rm: 59-1080 Tel: 860-2747 e-mail: masoud@kfupm.edu.sa
EE 380-2	SMW	08:00-08:50	59-2003	Dr. A. Rahim	Rm: 59-2086 Tel: 860-4986 e-mail: abrahim@kfupm.edu.sa
EE 380-3	SMW	10:00-10:50	59-1016	Dr. H. Duwaish	Rm: 59-2085 Tel: 860-3740 e-mail: hduwaish@kfupm.edu.sa
EE 380-4	SMW	11:00-11:50	59-1016	Dr. H. Duwaish	Rm: 59-2085 Tel: 860-3740 e-mail: hduwaish@kfupm.edu.sa

Exams (tentative)

Major Exam I

Wednesday November 07, 2007

Time: 6:30 PM – 8:00 PM

Major Exam II

Wednesday January 02, 2007

Time: 6:30 PM – 8:00 PM

Important Remarks:

1. Students are required to **READ** and **COMPREHEND** the information contained in the Laboratory instruction sheets prior to coming to the laboratory,
2. The handouts for each problem session will be distributed well ahead of each session. Students are required to work on all the problems prior to coming to the session. They are strongly encouraged to solicit assistance from their instructors,
3. **Attending the full problem session is COMPULSORY,**
4. A quiz will be administered at the end of each session,
5. Problem sessions and lab reports could carry the same weight,
6. Class quizzes will be based on HW,
7. The instructor reserve the right to prevent students who are more than **5 minutes late from entering class,**
8. Leaving the class after signing the attendance sheet without the permission of the instructor will result in removing the name of the student from the attendance sheet,
9. Students with more than 9 unexcused absences **will earn a DN grade,**
10. Attendance sheets may be checked at the end of each lecture. The students whose names appear in the sheet without being in class could be **subject to disciplinary actions,**
11. Students are required **to turn off cellular phones** prior to entering the class,
12. **Orderly conduct in class in conformity with the regulations of KFUPM is expected from each student and will be enforced.**