

KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS

ELECTRICAL ENGINEERING DEPARTMENT

EE 380 - Control Engineering Tentative Schedule [081]

DATE	TOPICS	SECTIONS	HW	LABORATORY
Week 1 Oct. 11 – 15	Introduction to Control Systems. Differential Equations of Physical Systems.	1.1 - 1.11 2.1 - 2.2		No Laboratory
Week 2 Oct. 18 – 22	Transfer Functions of Linear systems - Block Diagram Models	2.5 - 2.6		Exp. #1 Introduction to MATLAB
Week 3 Oct. 25 – 29	Signal Flow Graphs [SFG]	2.7	HW#1	Exp. #2 Introduction to SIMULINK
Week 4 Nov. 1 – 5	State Variables Models - SFG State Models - TF from State Equations	3.1 -3.6	HW#2 HW#3	Exp. #3 Introduction to Servo Kit Components and Identification of Motor Constants
Week 5 Nov. 8 – 12	Performance of Feedback Control Systems. State Transition Matrix	3.7 5.1 - 5.4		Exp. #4 Motor Speed Control Using a P-Controller
Week 6 Nov. 15 – 19	Performance of Feedback Control Systems.	5.5 - 5.8	HW#4	PROBLEM SESSION #1
Week 7 Nov. 22 – 26	Stability of Linear Feedback Systems.	6.1 - 6.4	HW#5	Exp. #5 Study of a Prototype Second Order System
Week 8 (2 lectures) Nov. 29 – Dec. 2	Root Locus Technique	7.1 - 7.3	HW#6	Exp. #6 Servo Motor Position Control Using a P-controller
EID AL ADHA VACATION 3-13 DECEMBER				
Week 9 (Starts Sunday) Dec. 14 – 18*(Thursday)	Root Locus Technique. Frequency Response Methods	7.4 - 7.5 8.1 - 8.3		No Laboratory
Week 10 Dec. 20 – 24	Frequency Response Methods	8.4 - 8.5	HW#7	Exp. #7 Analysis of error performance Indices
Week 11 Dec. 27 – 31	Stability in the Frequency Domain	9.1 - 9.3	HW#8	Exp. #8 Servo Motor Speed Control Using a PID controller
Week 12 Jan. 03 – 07	Stability in the Frequency Domain	9.4, 9.6, 9.9	HW#9	PROBLEM SESSION #2
Week 13 Jan. 10 -14	Stability in the Frequency Domain Design of Feedback Control Systems	10.1 - 10.3		Exp. #9 Magnetic Levitation System
Week 14 Jan. 17 – 21	Design of Feedback Control Systems	10.4 - 10.5	HW TBA	Exp. #10 Compensation of control systems
Week 15 Jan. 24 – 28	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:

Contact	Instructor	Location	Time	Days	Section
Rm: 59-2096 Tel: 860-3262 e-mail: jamilb@kfupm.edu.sa	Dr. J.M. Bakhawain	59-1016	10:00- 11:50	S,M,W	EE 380-3 & 4
Rm: 59-2085 Tel: 860-3740 e-mail: hduwaish@kfupm.edu.sa	Dr. H. Duwaish	59-2011	10:00- 11:15	U,T	EE 380-2

Exams

Major Exam I Wednesday November 26, 2008 Time: 6:30 PM – 8:00 PM
Major Exam II Sunday January 11, 2008 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.**