KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS

ELECTRICAL ENGINEERING DEPARTMENT

EE 380 - Control Engineering Tentative Schedule [091]

DATE	TOPICS	SECTIONS	HW	LABORATORY
Week 1 Oct. 3 – 7	Introduction to Control Systems. Differential Equations of Physical Systems.	1.1 - 1.11 2.1 - 2.2	HW#1	**No Laboratory**
Week 2 Oct. 10 – 14	Transfer Function s of Linear systems - Block Diagram Models	2.5 - 2.6		**Exp. #1 Introduction to MATLAB**
Week 3 Oct. 17 – 21	Signal Flow Graphs [SFG]	2.7	HW#2	**Exp. #2 Introduction to SIMULINK**
Week 4 Oct. 24 – 28	State Variables Models - SFG State Models - TF from State Equations	3.1 -3.6	HW#3	**Exp. #3 Introduction to Servo Kit Components and Identification of Motor Constants**
Week 5 Oct. 31- Nov. 4	Performance of Feedback Control Systems. State Transition Matrix	3.7 5.1 - 5.4		**PROBLEM SESSION #1**
Week 6 **Nov**. 7 – 11 **MAJOR EXAM 1, 7-9 PM SUNDAY NOV. 8, 2009**	Performance of Feedback Control Systems.	5.5 - 5.8	HW#4	**Exp. #4 Motor Speed Control Using a P-Controller**
Week 7 **Nov**. 14 – 18	Stability of Linear Feedback Systems.	6.1 - 6.4	HW#5	**No Laboratory**
EID AL ADHA VACATION 21 November - 4 December				
Week 8 **Dec. 5 - 9**	Root Locus Technique	7.1 - 7.3	HW#6	**Exp. #5 Study of a Prototype Second Order System**
Week 9 **Dec. 12 – 16**	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 Dec. 19 – 23	Frequency Response Methods	8.4 - 8.5	HW#7	**Exp. #7 Analysis of error performance Indices**
Week 11 Dec. 26 – 30	Stability in the Frequency Domain	9.1 - 9.3	HW#8	**Exp. #8 Servo Motor Speed Control Using a PID controller**
Week 12 Jan. 02 – 06	Stability in the Frequency Domain	9.4, 9.6, 9.9	HW#9	**PROBLEM SESSION #2**
Week 13 Jan. 9 -13 **MAJOR EXAM 2, 7-9 PM SATURDAY JAN.9, 2010**	Stability in the Frequency Domain Design of Feedback Control Systems	10.1 - 10.3	HW TBA	**Exp. #9 Magnetic Levitation System**
Week 14 Jan. 16 – 20	Design of Feedback Control Systems	10.4 - 10.5	HW TBA	**Exp. #10 Compensation of control systems**
Week 15 Jan. 23 – 27	Design of Feedback Control Systems	10.6 - 10.8	HW TBA	**Lab Final**

Grade Distribution:

LAB – 20%,   2 EXAMS- 30%, QUIZES-HOMEWORK-PROJECTS – 20%, FINAL- 30%

Textbook: Modern Control Systems (**11**th **Ed**.): *Richard C. Dorf and Robert H. Bishop*

Course Instructor

Contact	Instructor	Location
Rm: 59-2096 Tel: 860-3262 e-mail: jamilb@kfupm.edu.sa	Dr. J.M. Bakhashwain	59-2023

Exams

Major Exam I: **SUNDAY NOV. 8, 2009**   **7-9 PM**
Major Exam II: **SATURDAY JAN. 9, 2010**   **7-9 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.**