King Fahd University of Petroleum & Minerals
Electrical Engineering Department
EE203: Electronics I (122)

Instructor Information	Dr. Oualid Hammi	Office: 59-2087	Phone: 7394	Email: ohammi@kfupm.edu You may use WebCT mail	Office Hours: SM: 10AM to 11AM, W: 2PM to 3PM

Course Information	Text	Grading				Attendance
	Microelectronic Circuits 6th ed Sedra & Smith	Quizzes + HW + Attendance and participation 10% + 5% + 5%	Major Exams 15%+15%	Lab 20%	Final Exam 30%	6 unexcused absences → Warning 9 unexcused absences → DN

Week		Topics to cover	Ch	Sections	Lab Activity
1	Jan. 26 – 30	**Operation Amplifiers**: The Ideal Op-Amp. ; Inverting and Non-inverting Amplifiers; Effect of Finite Open Loop Gain for the Inverting Amplifier, Negative Feedback Concept.	2	1 – 3	No Lab
2	Feb. 2 - 6	**Operation Amplifiers**: Difference Amplifier, the instrumentation amplifier	2	4	Exp. 1: Lab Equipment
		Diodes: The Ideal Diode ; Terminal Characteristics of Junction Diodes ; Modeling of the Diode Forward Characteristic	3	1 – 3	
3	Feb. 9 – 13	**Diodes**: Operation in the Reverse Breakdown Region: The Zener Diode, Zener Diode Regulator, Rectifier Circuits: Half Wave Rectifier.	3	4 ; 5.1	Exp 2: PSPICE : Introduction
4	Feb. 16 – 20	**Diodes**: Rectifier Circuits: Full Wave Rectifier ; Bridge Rectifier, Peak Rectifier (Basics, DC Output, Ripple and PIV Calculations).	3	5.2 – 5.4, 6.1	Exp. 3: Linear Op Amp
5	Feb. 23 – 27	**Diodes**: Limiters; Physical Operation of Diodes (quantitative description focusing on relation with terminal characteristics and minimum possible mathematics).	3 1	6.1 ; 1.7-1.11	**Problem Session**
6	March 2-6	Field Effect Transistors: Device Structure and Physical Operation; Current-Voltage Characteristics MOSFET as an Amplifier and as a Switch.	5	1 ; 2, 3	Exp. 4: Diode Applications
Major Exam 1: Saturday March 2, 2013 (6:00PM – 8:00PM). (Location: to be added)					
7	March 9 – 13	**Field Effect Transistors:** MOSFET as an Amplifier and as a Switch (cont.); MOSFET Circuits at DC; Biasing MOS Amplifier Circuits. Operating point and output voltage swing.	5	4 ; 5	Exp. 5: DC Power Supply
8	March 16 – 20	**Field Effect Transistors:** Small Signal Operation and Models; Single Stage MOS Amplifiers (CS). Output voltage swing of CS amplifier.	5	6 ; 7.1 – 7.4	No Lab
Mid-term Vacation: March 23th – March 27th, 2013					
9	March 30 – April 3	**Field Effect Transistors:** Single Stage MOS Amplifiers (CS+Resistance, CG, CD).	5	8.1-8.5	Exp. 6: MOSFET Amplifiers
10	Apri1 6 – 10	**Bipolar Junction Transistors**: Device Structure and Physical Operation ; Current-Voltage Characteristics ; The BJT as an Amplifier and as a Switch ;.	4	1.1 – 1.3; 1.5 ; 2 ; 3	Exp 7: BJT Characteristics
11	April 13 – 17	**Bipolar Junction Transistors**: BJT Circuits at DC; Biasing in BJT Amplifier Circuits (Discrete or With Ideal Current Sources); Operating point and output voltage swing; Small Signal Operation and Models.	4	4 ; 5 , 6; 7	**Problem Session**
Major Exam 2: **Wednesday April 17, 2013 (6:00PM – 8:00PM). (Location: to be added)**					
12	April 20-24	**Bipolar Junction Transistors**: Single Stage Amplifiers (CE, CE+Resistance, CB, CC).	4	8	No Lab
13	April 27 – May 1	**Digital Circuit Design**: Introduction, Parameters (e.g. speed, power, and area), CMOS Inverter,	14	1.1 – 1.3; 1.7 ; 2	Exp 8: BJT CE Amplifiers
14	May 4 – 8	**Digital Circuit Design**: CMOS-Logic Gate Circuits. Transistors Sizing.	14	3.1. 3.3, 4	Exp 9: CMOS Inverter
15	May 11– 15	**Digital Circuit Design**: Pass-Transistor Logic Circuits (PTL), Review	15	2	Lab Final

Final Exam: Sunday May **19, 2013 @ 8:00AM. (Location to be specified by the Office of the University Registrar)**