King Saud University
College of Engineering
Electrical Engineering Department

EE 316
Digital and Analog Electronic Circuits Laboratory

Co-requisite: EE 315

Description: Circuit applications using op-amps. Bipolar digital circuits. MOS digital circuits.

Objectives: The course is designed to introduce the students to the versatility of circuit applications using op-amp, and the understanding of the basic operation of digital electronic circuits used in a variety of applications.

Textbook: Microelectronic Circuits, By Sedra and Smith, 4th edition.

Course Contents:

Week # 1: Circuit Simulation using OrCAD Pspice @ Microelectronic Lab (GC 123)
Week # 2: Layout and Implementation of PCBs @ Microelectronic Lab
Week # 3: Linear Applications of Operational Amplifier
Week # 4: Active Filters
Week # 5: Waveform Generation: Oscillators
Week # 6: Waveform Generation: Square Wave
Week # 7: Differential Amplifier + OrCAD Test (Pspice and Layout)
Week # 8: Mid- term Exam (theory and experiment)
Week # 9: Design of Digital Circuit using VHDL
Week # 10: CMOS Inverter Circuits
Week # 11: CMOS Multivibrator Digital Circuits
Week # 12: BJT Digital Circuits + OrCAD and VHDL Test (1st hour @ Microelectronic Lab)
Week # 13: Final Exam (theory and experiment)

Grading:

- Lab Work (Attendance + Lab Reports + Homeworks): 30%
- Mid-term Exam (OrCAD 5% + Theory: 5% + Experiment: 20%): 30%
- Final exam (OrCAD and VHDL 10% + Theory: 10% + Experiment: 20%): 40%

Policies:

1. You should be present from the 1st min, otherwisw you will miss attendance credit.
2. Experimental results should be written directly in the Lab sheet and graded by the instructor at the end of the Lab. No need to submit any Lab report in the next week.
3. Home works are focused on doing simulation or reading theoretical background about the coming experiment. Every student should come to the Lab ready to start. No introduction will be given at the beginning! ONLY questions will be answered. Part of the credit will be based on how well you are prepared.
4. Home works should be submitted at the beginning of the next week.
5. If you mis 3Labs, you will FAIL (get F), and will not be allowed to take the final exam.
6. You are not allowed to attend in other sections unless you have a written permission from your instructor. It is the student responsibility to make sure that he is registred.