Microelectronics (II)

Course Description

The microelectronics is a fundamental course to both digital and analog circuit designs either for discrete circuits as well as integrated circuit (IC) designs when the state-of-the-art IC contains billions of transistors on a chip and consists of both digital and analog components. The contents of Microelectronics (II) aim at providing medium-level knowledge before entering specific topics on digital circuits or analog circuits.

This course introduces the fundamental component, operational amplifier (OP), followed by different design styles of OPs along with important analysis skills, such as biasing, small signal model and frequency response. Then, the course is ended with the theory of feedback since most physical systems include some forms of feedback mechanisms to better control the system under development. Specifically, negative and positive feedback and basic analyzing skills are introduced and explained.

The course is outlined as follows:
- Chap 2 Operational Amplifiers
- Chap 6 Building Blocks of Integrated Circuit Amplifiers
- Chap 7 Differential and Multi-stage Amplifiers
- Chap 8 Frequency Response
- Chap 9 Feedback (Optional, pending on progress)

Pre-requisite Courses:
- General Physics (I)
- Electric Circuits (I)
- Microelectronics (I)

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Course Website: http://moodle.ncku.edu.tw

NO FOOD AND DRINK IN THE LABORATORY

Schedule of Exams:

1st Midterm exam: Thursday, March 28, 2013
2nd Midterm exam: Thursday, May 09, 2013
Final exam: Thursday, June 20, 2013

- Examinations are held in closed-book manner.
- There will be no make-up exams (in very special circumstances, written excuse and official proofs are required for make-up exams).

Quizzes

A scheduled quiz will be held in advance. All quizzes need to be completed and submitted in class as specified.

- NO makeup for the quiz. No credits will be given for missed quizzes no matter there are acceptable excuses or not. Each student is allowed to drop two lowest quiz grades.

Homework Assignments

Problems at the end of each chapter or extra exercises will be assigned. Each student must complete assignments by himself/herself.

- To get credit for your homework assignments, your submissions must be done professionally and seriously. Your official name, course number and homework number must be visibly shown in each assignment.
- All submission will be done electronically through the course website before the specified time. If you fail to do so, your assignment is considered OVERDUE and gets significant penalty in credits. An extra paper copy needs to be delivered in class.
Grading Policy

The tentative weights of the course are listed as below and they are subject to minor change.

- Participation 5~10%
- Homework 5~10%
- Quizzes 15~20%
- Midterm exams 35~40%
- Final exam 20~25%

Course Policy

- Encourage you to discuss assigned problems with peers.
- Must complete his/her work independently or as specified.
- Any person/team who is found to be dishonesty in homework assignments, examines or quizzes, the involved person(s) will receive “0” on the evaluated instrument (paper, exam, homework, etc.).

Notes:

- All announcements will be put on the course website from time to time.
- All broadcast emails to you will send through moodle (course website) and only to your email account in NCKU, i.e., nxxxxx@mail.ncku.edu.tw.
- Please send questions to TA via me2_2013@lpvlsi.ee.ncku.edu.tw.
- Any other notes will be described during the class session.