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:
- Chap2 Operational Amplifiers
- Chap6 Building Blocks of Integrated Circuit Amplifiers
- Chap7 Differential and Multi-stage Amplifiers
- Chap8 Frequency Response
- Chap9 Feedback (Optional, pending on progress)

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

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

Schedule for Exams and Quizzes:
- 1st Midterm exam     Thursday, March 29, 2012
- 2nd Midterm exam     Thursday, May 24, 2012
- Final exam           Thursday, June 21, 2012

- 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 will be held almost weekly. No make-up quiz will be provided. Best scores out of all quizzes will be selected as one portion of the final grade.

Homework Assignments

Homework assignments will be given for the semester. Due day will be specified in the problem sheet.

- NO late submission will be accepted
- Your name, student ID number and homework number must be visibly shown in each assignment.

Quizzes

A scheduled quiz will be held almost weekly. A pop-quiz will not be notified in advance.

- All quizzes need to be completed and submitted in class as specified.
- NO makeup will be provided for the quiz.
Grading Policy

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

- Participation: 5~10%
- Homework assignments: 5~10%
- Quizzes: 10~15%
- Midterm exams: 40~45%
- Final exam: 20~25%

Course Policy

- Encourage you to discuss assigned problems with peers
- Must complete his/her assignment 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_2012@lpvlsi.ee.ncku.edu.tw*.
- Any other notes will be described during the class session.