



**EGE321-02 Electronics II (3 credits)
Fall 2015 Semester**

COURSE SYLLABUS

1. GENERAL INFORMATION

Professor: Dr. Julio J. González

Office: REH 202
 Voice mail: (845) 257-3724, Fax: (845) 257-3730
 E-mail: gonzalj@enr.newpaltz.edu
Office hours: Tuesday 10:00 AM – Noon
 Wednesday 09:00 AM – 11:00 AM

Textbook: “Microelectronic Circuits” by Sedra and Smith,
 6th edition, Oxford University Press, 2010.

Classroom REH 110

2. DESIRED LEARNING OUTCOMES

Students will demonstrate their ability to:

- I. Analyze, both in the time and frequency-domains, MOSFET amplifiers (including the Early effect), current-mirrors, differential amplifiers, multi-stage amplifiers, amplifiers with feedback and power amplifiers.
- II. Design electronic circuits in the time domain and the frequency domain by working in a design team

3. COURSE CONTRIBUTION TO STUDENT OUTCOMES

This course contributes to the Student Outcomes specified in the following table:

Student Outcome	Course Desired Learning Outcome	Level of Contribution 3 = strong; 2 = moderate; 1 = marginal
a) An ability to apply knowledge of mathematics, science and engineering	I	3
e) An ability to identify, formulate and solve engineering problems	II	3

4. COURSE CONTENTS

Review of MOSFET incremental models; The CS, CD and CG amplifiers; Channel-length modulation: The Early effect. Improved MOSFET model taking into account channel-length modulation: CS amplifier considering the Early effect; The cascode amplifier. Current mirror and Current-steering circuits; Improved-performance current mirrors: The Cascode current mirror and the Wilson current mirror. Differential amplifier: Common-mode operation and differential-mode operation. Multi-stage amplifiers: A BJT Operational Amplifier from “inside”; Frequency response: The CS amplifier; Amplifiers with feedback; Power Amplifiers.

5. TENTATIVE SCHEDULE FOR TOPICS

WEEK	TOPIC
1,2	Review of MOSFET incremental models; The CS, CD and CG amplifiers
3,4	The Early effect. Improved MOSFET model taking into account channel-length modulation: CS amplifier considering the Early effect. The cascode amplifier
5,6	Current mirror and Current-steering circuits; Improved-performance current mirrors: The Cascode current mirror and the Wilson current mirror.
7,8	Differential amplifier: Common-mode operation and differential-mode operation
9,10	Multi-stage amplifiers; A BJT Operational Amplifier from “inside”
11,	Frequency response: The CS amplifier
12,13	Amplifiers with feedback
14	Power Amplifiers

6. SCHEDULE FOR EXAMINATIONS, PROJECTS AND HOMEWORK

Event	Date Assigned	Date due
Homework 1	08/28	09/04
Homework 2	09/04	09/11
Homework 3	09/11	09/18
Homework 4	09/18	09/25
Homework 5	09/25	10/02
First Mid-term Exam	10/06	10/06
Homework 6	10/16	10/23
Homework 7	10/23	10/30
Homework 8	10/30	10/06
Homework 9	10/06	11/13
Homework 10	11/13	11/20
Design Project	11/20	12/15
Second Mid-term Exam	11/24	11/24
Homework 11	12/01	12/04
Final Examination	12/18	12/18

NOTES:

- The partial examinations will take place at REH 110 from 12:30 APM to 01:55 PM
- The final examination will take place at REH 110 from 12:30 AM to 02:30 PM
- The project report must be handed out at REH 202 at 04:00 PM of the corresponding date.
- The homework assignments will be due at the beginning of class, 12:30 PM. After that, the instructor will provide students with the homework solutions. No homework will be accepted after the solutions have been handed out. Therefore, if you late to class and the homework solutions have already been handed out, you will receive a grade of “0” for the homework that is due that particular date.

7. GRADING POLICY

7.1. Grade Distribution

Homework:	15%
Project report:	20%
First test:	20%
Second test:	20%
Final test:	25%

Total:	100%

NOTE: *The course will be automatically failed if any of the following conditions apply:*

- **Cheating in any possible way.** *In addition to failing the course, the student will be subject to all pertinent academic measures.*
- *Failing to take any of the three examinations or present the project report*
- *Obtaining less than the passing grade (55%) in more than one examination.*
- *Obtaining less than the passing grade (70%) in the project report. Your project grade will result from a combination of the quality of the report and your knowledge on the project as demonstrated in the final examination*
- *Obtaining less than a 70% average in the homework. In calculating the homework average, one homework assignment (the one with the lowest grade) will be dropped for every student*

7.2. Letter Grade Assignment

Your letter grade will be determined from your overall grade as follows:

Numerical grade	Letter grade
$G \geq 90$	A
$85 \leq G \leq 89$	A-
$80 \leq G \leq 84$	B+
$75 \leq G \leq 79$	B
$70 \leq G \leq 74$	B-
$65 \leq G \leq 69$	C+
$60 \leq G \leq 64$	C
$55 \leq G \leq 59$	C-
$G < 55$	F

NOTE: Do not think that this number-letter assignment is too lenient. Please bear in mind that the tests consist of problems that you will be facing for the first time. A 70 for example, will require a significant and continual amount of studying, and therefore, a B- reflecting that 70 will be a very well deserved letter grade.

7.3. Grading discrepancy

In case of grading discrepancy, the student should see the grader within a week from the date he/she receives the graded document. After this period of time has elapsed, grades will not be changed.

7.4. Class Attendance

Attendance to classes is strongly encouraged. The grade will be negatively affected when more than three unjustified missed classes occur.