

University of Puerto Rico
 Mayagüez Campus
 College of Engineering
 Department of Electrical and Computer Engineering
 Bachelor of Science in Electrical Engineering

Course Syllabus

1. General Information:	
Alpha-numeric codification: INEL 4201 Course Title: Electronics I Number of credits: 3 Contact Period: # credit hours, 3 hours contact per week Required in INEL and ICOM	
2. Course Description:	
English: Semiconductor Device characteristics, Diodes FET and BJT transistors. Amplifier Models. Basic digital circuit analysis, Analysis and design considerations of amplifying circuit using transistors. Introduction of Integrated circuits	
Spanish: Características de dispositivos semiconductores, Diodos, Transistores FET y BJT, Modelos de amplificadores, Análisis de circuitos digitales básicos, Análisis y consideraciones de diseño de circuitos amplificadores utilizando transistores, Introducción a circuitos integrados	
3. Pre/Co-requisites and other requirements:	
INEL 3105 and FISI 3172	
4. Course Objectives:	
5. Instructional Strategies:	
<input checked="" type="checkbox"/> conference <input type="checkbox"/> discussion <input type="checkbox"/> computation <input type="checkbox"/> laboratory <input type="checkbox"/> seminar with formal presentation <input type="checkbox"/> seminar without formal presentation <input type="checkbox"/> workshop <input type="checkbox"/> art workshop <input type="checkbox"/> practice <input type="checkbox"/> trip <input type="checkbox"/> thesis <input type="checkbox"/> special problems <input type="checkbox"/> tutoring <input type="checkbox"/> research <input type="checkbox"/> other, please specify:	
6. Minimum or Required Resources Available:	
7. Course time frame and thematic outline	
Outline	Contact Hours
Introduction	1
Amplifying Concept and Models	2.5
Semiconductor Concepts	1.5
Diodes: a) Structure b) Performance c) Analysis d) Zener Diode and Applications	4
Rectifiers	1
Review for 1st test	2
MOSFET: a) Structure and performance b) DC Analysis c) Biasing	4.5
BJT a) Structure and Operation b) Characteristic Curve c) DC Analysis d) Biasing Signal Amplifiers with BJTs and MOSFETs	6
Review for 2 nd Test	1
Small signal model of BJT and MOSFETs	1.5
AC Analysis of amplifiers	3
Different Amplifiers	1.5

Comparison of Amplifiers	3
Multiple Stage Amplifier	1
Review for 3 rd Test	2
BJT Differential Amplifier	1.5
Differential Amplifier Small signal Analysis	1.5
Differential Amplifier MOSFET and Current Mirrors	3
Total hours: (equivalent to contact period)	45

8. Grading System

Quantifiable (letters) Not Quantifiable

9. Evaluation Strategies (Suggested): The faculty member teaching the course will provide the student with the evaluation strategy he/she will be using throughout the semester. This will be done within the first week of classes.

	Quantity	Percent
<input checked="" type="checkbox"/> Exams	3	75%
<input checked="" type="checkbox"/> Final Exam	1	25%
<input type="checkbox"/> Short Quizzes		
<input type="checkbox"/> Oral Reports		
<input type="checkbox"/> Monographies		
<input type="checkbox"/> Portfolio		
<input type="checkbox"/> Projects		
<input type="checkbox"/> Journals		
<input type="checkbox"/> Other, specify:		
TOTAL:		100%

10. Bibliography:

Neamen, Donald A. Microelectronics Circuit Analysis and Design, 2007, McGraw Hill.

11. According to Law 51

Students will identify themselves with the Institution and the instructor of the course for purposes of assessment (exams) accommodations. For more information please call the Student with Disabilities Office which is part of the Dean of Students office (Chemistry Building, room 019) at (787)265-3862 or (787)832-4040 extensions 3250 or 3258.

12. Contribution of Course to meeting the requirements of Criterion 5:

Math	Basic Science	General	Engineering Topic
			√

13. Course Outcomes

1. Apply Acquired Knowledge to find Transfer function of circuits
2. Design simple circuitry for specific transfer function
3. Ability to use learned techniques to characterize and simplify analysis of a given circuit

Map to Program Outcomes

- (a)
- (c)
- (k)

Person(s) who prepared this description and date of preparation: Gladys O. Ducoudray,
Submitted by Gladys O. Ducoudray Nov 2006

