

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 4202	
Course Title: Electronics II	
Number of credits: 3	
Contact Period: 3 credit hours, 3 hours of lecture per week	
Elective in INEL, Required in ICOM	
2. Course Description:	
English: Analysis and design of multi-stage amplifiers, wave generation and power circuits; operational amplifier characteristics and applications.	
Spanish: Diseño y análisis de amplificadores de multi etapas, generadores de onda y circuitos de potencia. Caracterización y aplicaciones de amplificadores operacionales	
3. Pre/Co-requisites and other requirements:	
INEL4201 and INEL 4102	
4. Course Objectives:	
This course seeks to develop in the student the ability to analyze and design multistage amplifiers with and without feedback, including frequency response characteristics, as well as circuits based on operational amplifiers and linear power amplifiers. Posses a combination of knowledge and analytical, computational, and experimental skills necessary to solve practical engineering problems.	
Thorough knowledge of basic electrical and computer engineering fundamentals and concepts	
Physical thinking, approximation, and simplification	
Have adequate communications skills both as an individual and as part of a team.	
Ability to interpret graphical, numerical, and textual data	
Ability to communicate effectively technical information to varied audiences in oral, written and graphical forms, both in English and Spanish	
Ability to organize information	
Value the importance of lifelong learning.	
Knowing how to ask questions and that there may be multiple answers.	
Commitment to constantly upgrading fundamental knowledge and skills	
5. Instructional Strategies:	
<input checked="" type="checkbox"/> conference <input checked="" type="checkbox"/> discussion <input type="checkbox"/> computation <input checked="" 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
Frequency response	7
Feedback Amplifiers and stability	10
Differential amplifiers and integrated analog circuits	10

Sinusoidal Oscillators and Power Circuits	3
Power Circuits	5
Waveform generators	6
Introduction to Active filters	3
Exams/ Departmental	3
Total hours: (equivalent to contact period)	48

8. Grading System

Quantifiable (letters) Not Quantifiable

9. Evaluation Strategies

	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"/> Monographs		
<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

Map to Program Outcomes

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Be able to determine the standard or criteria against which the outcome of the design process will be measured or compared. 2. After completing this course, the student should be able to analyze and design transistor amplifiers with specific frequency response characteristics, to understand how feedback works and to apply it to the design of filters, to understand the basics of power circuits and operational amplifiers structures, with emphasis on u741. The student should also be able to design circuits using the operational amplifier as a block. 3. Be able to follow logical and orderly design procedures, choosing the best solution for a given set of criteriatization of amplifiers and feedback. 4. Analysis and characterization of logic families 5. Analysis and characterization of logic families | <p>(a)</p> <p>(b)</p> <p>(c)</p> <p>(e)</p> |
|--|---|

Person (s) who prepared this description and date of preparation: Electronic Committee. Submitted by: Gladys O. Ducoudray, May 2007.