

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

Course Syllabus

General Information:	
Alpha-numeric codification: INEL 4077 Course Title: Basic Electronics Laboratory Number of credits: 3 Contact Period: 45	
Course Description:	
English: Description and use of basic equipment for electrical measurements in digital and analog circuits.	
Spanish: Descripción y uso de equipo básico para medidas eléctricas en circuitos analógicos y digitales	
Co-requisites and other requirements:	
INEL 4076 Fundamental of electronics	
Course Objectives:	
To developed basic skill in electrical circuits measurements. To allow non electrical Engineer student to experiment with real electronics circuits.	
Instructional Strategies:	
<input checked="" type="checkbox"/> conference <input type="checkbox"/> discussion <input type="checkbox"/> computation <input checked="" type="checkbox"/> laboratory <input checked="" type="checkbox"/> seminar with formal presentation <input type="checkbox"/> seminar without formal presentation <input checked="" 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:	
Minimum or Required Resources Available:	
All students expected to bring knowledge in basic theory of circuits: Ohms law, Kirchhoff laws, Theorems and RLC circuits. The student have to use electrical simulation tools to complement the lab work.	
Course time frame and thematic outline	
Outline	Contact Hours
Safety guidelines. Evaluation criteria. Laboratory rules. Format of laboratory report. Introduction to basic laboratory instruments. (lecture)	3
Series resistive circuits and their Thevenin and Norton equivalent circuits. (experiment)	3
Signal generator. Measurement of AC and DC signal characteristics using the VOM and the oscilloscope. (experiment)	3
Capacitive reactance. Series RC circuits. Study of time constant and waveforms. (experiment)	3
Inductive reactance. Series RL circuits. Study of time constant and waveforms. (experiment)	3
RLC circuits. Study of damping ratio and waveforms. (experiment)	3
Series resonance. Passive filters. (experiment)	3
Diode characteristic curve. Zener diode. Circuits with diodes and resistors. (demonstration)	3
Half wave and full wave rectifiers. Voltage regulators. (experiment)	3
Bipolar Junction Transistor (BJT) characteristics. (demonstration)	3
Basic amplifier circuits. (experiment)	3
Logic circuit applications. (demonstration)	3
Sequential logic circuit using flip-flops. (experiment)	3
Tests (Midterm and final exams).	6
Total hours: (equivalent to contact period)	45
Grading System	

Quantifiable (letters) Not Quantifiable

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	1	20%
<input checked="" type="checkbox"/> Final Exam	1	20%
<input checked="" type="checkbox"/> Short Quizzes	10	10%
<input checked="" type="checkbox"/> Oral Reports	10	50%
<input type="checkbox"/> Monographies		
<input type="checkbox"/> Portfolio		
<input type="checkbox"/> Projects		
<input type="checkbox"/> Journals		
<input type="checkbox"/> Other, specify: Homework		
TOTAL:		100%

Bibliography:

Experiments in Electronics Fundamentals, David Buchla 7 Edition, Prentice Hall.

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.

Contribution of Course to meeting the requirements of Criterion 5:

Math	Basic Science	General	Engineering Topic
			√

Person(s) who prepared this description and date of preparation: Andrés Díaz, June 2008, Submitted by: Raúl E. Torres, June, 18, 2008.