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

Course Syllabus

General Information:

Alpha-numeric codification: INEL4076
Course Title: Fundamentals of Electronics
Number of credits: 3
Contact Period: 3 hours of lecture per week

Course Description:

English: Fundamentals and Applications of Analog and Digital Electronics.

Spanish: Fundamentos y Aplicaciones de Electrónica Analógica y Digital.

Pre/Co-requisites and other requirements:

INEL4075

Course Objectives:

This course is designed to give non-electrical and computer engineering students the fundamental and application of analog and digital electronics. The course is complemented with INEL 4077, Basic Electronic Laboratory.

Instructional Strategies:

☒conference ☐discussion ☐computation ☐laboratory

☐seminar with formal presentation ☐seminar without formal presentation ☐workshop

☐art workshop ☐practice ☐trip ☐thesis ☐special problems ☐tutoring

☐research ☐other, please specify:

Minimum or Required Resources Available:

Course time frame and thematic outline

Outline	Contact Hours
Conduction Mechanisms in Solids and electrical properties of semiconductors	2
The semiconductor Diode and models	1
Diode circuits and power supplies	2
The Zener diode voltage regulator	1
The bipolar junction transistor (BJT) construction	2
The BJT voltage and current components	2
BJT bias and circuits	3
Number systems and base conversion methods	2
Binary arithmetic	1
Basic logic gates and definitions	3
Boolean algebra	3
Minimization of Boolean functions	3
Design and minimization of combinational circuits	3
TTL and CMOS logic families	2
Flip-Flops, registers and counters	4
Memories	3
Microprocessors	5
Operational Amplifiers	3
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
☒ **Exams**	**2**	**25%**
☒ **Final Exam**	**1**	**35%**
☒ **Short Quizzes**	**5**	**15%**
☐ **Oral Reports**		
☐ **Monographies**		
☐ **Portfolio**		
☐ **Projects**		
☐ **Journals**		
☐ **Other, specify:**		
TOTAL:		**100%**

Bibliography:

Allan R. Hambley, Electrical Engineering Principles and Applications, 4th Ed., 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: José F. Vega – June 2008. Submitted by José F. Vega, June 17, 2008.