Department of Electrical and Computer Engineering
University of Puerto Rico
Mayagüez Campus

INEL 4206 - Microprocessors
Course Outline

Topics	Estimated No. of Hours
Course Introduction and Overview	1.5
The Nature of Information: Elementary information theory, bits, information representation, information encoding	1.5
The Nature of Computing: Mathematical computing models, , Computability, The Halting Problem, Church/Turing thesis, Programmability and Universality, Physical computing models (CMOS, Combinational Logic, Sequential Logic)	4.5
Building Practical Universal Computers I: The von Neuman architecture, Design of a simple yet universal processor	6
EXAM I	
Overview of The MIPS architecture	1.5
Programming Universal Computers I: Instruction sets, Architectural support for high level programming languages, control structures, procedures and functions	3
Programming Universal Computers II: Architectural support for data structures, arrays, records, dynamic memory structures.	4.5
EXAM II	
Computer Arithmetic: Integer representation and operations, floating point representation (IEEE 754) and operations	4.5
The Intel 80x86 Family: Instruction Set Architecture	4.5
Input/Output Structures: I/O devices, Buses, Polling, Exceptions and Interrupts, direct memory access, I/O processors, device interfaces and drivers	4.5
EXAM III	
Operating System Structures: The OS kernel, processes and scheduling, privileged instructions & protection	1.5
Memory Structures: Storage technologies, Memory hierarchy design, Basic caching concepts, Virtual memory, TLBs	4.5
FINAL EXAM	
Total number of hours[1]	**45**

Prepared by: Prof. Bienvenido Vélez-Rivera

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[1] Total includes three hours for exam discussion