



Electronic &
Electrical
Engineering.

EEE343 COMPUTER ARCHITECTURE

Credits: 10

Course Description including Aims

1. To introduce the fundamentals of computer architecture, organisation and arithmetic.
2. To equip the student with a working and in-depth understanding of microprocessors and associated technology.

Outline Syllabus

Microprocessors: Processing models, external behaviour, functional behaviour, internal organisation.

Peripherals: memory I/O devices, memory cycles. **Operations:** arithmetic, addressing, stacks.

Microprocessor Architecture: Accumulator, register, stack, data path design. **Control:** Strategies, microcoding, design. **Microprocessor Systems :** Interrupts, memory system design, RISC processors.

Time Allocation

24 lectures and 12 problem solving classes

Recommended Previous Courses

EEE104 "Digital Systems"

Assessment

2 hour examination, answer 3 questions out of 4

Recommended Books

Mano & Kime.	<i>Logic and Computer Design Fundamentals</i>	Prentice-Hall
Murdocca & Heuring	<i>Computer Architecture and Organization: An Integrated Approach</i>	John Wiley & Sons
Patterson, D. & Hennessey, J	<i>Computer Organization & Design – The Hardware/Software Interface</i>	Morgan Kaufmann

Objectives

On completion of this module successful students will be able to

1. Understand and explain the basic structure and operation of a digital computer.
2. Identify and describe the functional requirements of a (micro) processor and peripherals.
3. Describe the practical external 'behaviour' of microprocessors and to determine how they fit into their environment.
4. Understand and explain the internal organisation of different types of microprocessors.
5. Demonstrate appreciation of a range of design options.