EEX4436 Microprocessors and Interfacing

Level	4
Course Code	EEX4436
Course Title	Microprocessors and Interfacing
Credit value	4
Core/Optional	Core (Computer, Electrical, Electronic & Communication, Mechanical)
Course Aim/s	To provide knowledge to build simple microprocessor based systems.
Course Learning Outcomes (CLO):	At the completion of this course student will be able to: CLO1: Describe the software design with an assembly language and/or a high-level language for typical embedded systems applications using modern tools and approaches for development and debugging. CLO2: Demonstrate digital interfacing using both parallel and asynchronous/synchronous serial techniques incorporating typical on-chip modules as such as general purpose I/O, timers, and serial communication modules. CLO3: Describe the use of the periodic interrupts, waveform generation, time measurement in micro-controller based systems. CLO4: Demonstrate analog interfacing using analog-to-digital and digital-to-analog converters connected to sensors and actuators. CLO5: Design a micro-controller based system for a real-world application fulfilling the given specifications.
Content	**Outline Syllabus:** Unit 1: Microprocessors and Microcontrollers Unit 2: Inputs and outputs Unit 3: Timers and counters Unit 4: Communication Unit 5: Sensors and actuators Unit 6: Microcontroller based system design **Laboratory Work:** 1. Demonstrate the functionalities of the microcontroller development board using self-test method. 2. Demonstrate the basic interfacing techniques using mixed signal circuits, I/O peripherals, sensors and actuators. 3. Implement a designed system using microcontroller development board as a prototype model **Design Project:** Apply microcontroller based systems design concepts in real world application Analysis design parameters to design microcontroller based systems.