



PROGRAM AND COURSE OUTCOMES

DEPARTMENT OF ELECTRONICS



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MSc ELECTRONICS

Program Outcomes

- Identify, formulate, review research literature, and analyse and design solutions for complex engineering problems reaching substantiated conclusions using principles of mathematics, natural sciences, and engineering sciences.
- Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities within understanding of the limitations.
- Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.
- Be in a position to develop industrial and entrepreneur applications.

Course Outcomes

Semester	Course	Course Outcome
I	ELS1C01: APPLIED MATHEMATICS	<ul style="list-style-type: none">• To solve problems using numerical methods.• To learn the basics of Probability and Random variables
	ELS1C02: MICROCONTROLLER BASED SYSTEM DESIGN	<ul style="list-style-type: none">• To design and implement micro controller-based system for various applications.• To use Arduino and Raspberry Pi boards for various applications

	ELS1C03: MODERN DIGITAL AND OPTICAL COMMUNICATION	<ul style="list-style-type: none"> To understand concept of Network Hardware and Software. To explain Protocol layers. To explain concept of optical communication
	ELS1C04 : ADVANCED DIGITAL SYSTEM DESIGN	<ul style="list-style-type: none"> To understand Design of sequential logical circuits. To explain design of PLD and FPGA.
	ELS1L01: APPLICATION BASED PROGRAMMING IN	<ul style="list-style-type: none"> To Interface various IO devices using Arduino boards To use Python Programming for Raspberry Pi Applications.
	ELS1A01 – INTRODUCTION TO PYTHON PROGRAMMING	<ul style="list-style-type: none"> Read, write, execute by Python programs for solving problems. Decompose a Python program into functions. Read and write data from/to files in Python Programs.
II	ELS2C05: HIGH PERFORMANCE COMMUNICATION NETWORKS	<ul style="list-style-type: none"> To understand concept of basic of networks. To explain internet and TCP/IP network To explain optical network and switching
	ELS2C06: WIRELESS COMMUNICATION	<ul style="list-style-type: none"> To explain the basics of wireless communications. To explain mobile radio propagation To explain concept of multiple access techniques
	ELS2C07: DESIGN OF EMBEDDED SYSTEMS	<ul style="list-style-type: none"> To explain basics of embedded systems. To choose proper processor for different applications. To explain fundamentals of RTOS
	ELS2C08: ADVANCED	<ul style="list-style-type: none"> To design and implement pic

	MICROCONTROLLERS	<p>microcontroller-based system</p> <ul style="list-style-type: none"> To explain basics of ARM processor
	ELS2L02: EMBEDDED SYSTEMS LAB	<ul style="list-style-type: none"> To write programs for PIC and ARM microcontrollers To interface PIC and ARM controllers with different IO devices.
	ELS2A02: PAPER WRITING AND SEMINAR	<ul style="list-style-type: none"> In this course, students will develop their scientific and technical reading and writing skills that they need to understand and construct research articles. A term paper requires a student to obtain information from a variety of sources (i.e., Journals, dictionaries, reference books) and then place it in logically developed ideas.
III	ELS3C09: SOFT COMPUTING AND OPTIMIZATION TECHNIQUES	<ul style="list-style-type: none"> To provide basic exposition to the goals and methods of soft computing. To apply intelligent techniques for problem solving.
	ELS3C10: ADVANCED DIGITAL SIGNAL PROCESSING	<ul style="list-style-type: none"> To explain discrete random signal processing and simulate using MATLAB
	ELS3C11: INTERNET OF THINGS	<ul style="list-style-type: none"> To explain IoT architecture and protocols To apply IoT in different real-world applications
	BIO-MEDICAL ENGINEERING	<ul style="list-style-type: none"> Studying the principles of electronics, mechanics, and materials science as they apply to medical devices and equipment. Studying the principles of electronics, mechanics, and materials science as they apply to medical devices and equipment.
	ELS3L03: COMMUNICATION AND DSP LAB	<ul style="list-style-type: none"> To write programs using MATLAB for DSP applications To implement different modulation

		schemes
IV	ELS4C12: ROBOTICS	<ul style="list-style-type: none"> • To explain robot hardware and its organizations • To explain robot control applications
	FIBRE OPTICS INSTRUMENTATION	<ul style="list-style-type: none"> • To equip students with the understandings of fibre optic instrumentation, their characterisation and some insight in to designs. • To understand the working of different equipment used to characterise a communication link
	ADVANCED SENSORS	<ul style="list-style-type: none"> • To provide basic knowledge in transduction principles, sensor and transduce technology and measurement system. • To provide familiarity in theoretical and practical concepts of sensors • To provide familiarity with different sensors and their application in real life