Department of Electronics.
Course objectives and Outcomes

F.Y.B.Sc.

Sem.-I

Paper	Objectives	Outcome
ELE-101 Network Analysis and Semiconductor Diodes	To impart knowledge of basic concepts in Electronics. To provide the knowledge and methodology necessary for building electronics circuits. To provide exposure of linear and digital electronics circuits.	Student is aware of basic concepts in Electronics. Student is able to use the testing instruments like multi-meter, CRO, function generator. Student is able to design and build and test basic circuits.
ELE -102 Digital Integrated Circuits	To introduce the basic hardware of digital computer systems and understand their working. To introduce to various codes combinational logic design and analysis used in computers	Student is aware of basic electronic components used in computer hardware. Aware of various codes used in data processing. Aware of designing of basic data processing and arithmetic circuits.
ELE-103 Electronics lab -I	To have practical exposure of electronic circuits.	To provide exposure of linear and digital electronics circuits. To have practical exposure of electronic circuits.

Sem.-II

ELE-201 Analog Electronics	To impart knowledge of electronics devices and integrated circuits.	Apply the concept and knowledge of integrated circuit chips to develop new systems. Apply practical

		knowledge to solve real life problems of the society.
ELE-202 Linear Integrated Circuits	To provide the knowledge and methodology necessary for using integrated circuit chips. To have practical exposure of handling Electronics devices and IC chips.	Understand of the course and create scientific temperament and give exposure to the students for independent use of integrated circuit chips for innovative applications.
ELE-203 Electronics lab -II	To predict the behavior and characteristics of electronics devices and circuits using simulation tools	Student is aware of basics of P-spice and its application for designing basic circuits and test their characteristics. Model complex circuits and simulate them. Handle simulation software to analyze the performance of electronics circuits.

S.Y.B.Sc.

Sem.-III		
ELE-301 Analog Communication	To learn the basics of electronic communication. To impart knowledge of analog communication. To provide the knowledge and methodology necessary for building modulation circuits.	Student is capable of design of basic modulations circuits like PAM, PWM etc Apply knowledge to develop circuits of analog modulation and demodulation.
ELE -302 Microprocessors and Applications	To provide exposure of 8085 microprocessor. To have practical exposure of microprocessor and their applications.	Apply the concept and knowledge of microprocessors to real life problems. Understand and analyze 8085 microprocessor and

		its programming.
ELE-303 ELECTRONICS LAB - III	To learn design of analog modulation circuit like PAM, PPM, PWM, etc To built these circuits in labs and test it. To analyze various modulation techniques and explore their potential in consumer electronics.	Analyze modulation circuits and understand the behavior of the systems. Review, prepare and present technological developments.
ELE-304 Electrical Circuits and Network Skills	The main goal of designing this course is to expose students to practical aspects of electronics. Therefore, it is not expected anywhere to teach physics behind topics covered in	The student gets basic understanding of construction and operations of circuits being used in domestic appliances and in electronic laboratories. He becomes capable of basic trouble shooting in simple circuits.
Sem.-IV		
ELE-401 Digital Communication	To learn the basics of digital data communication systems. To learn the basic principles of pulse code modulations and learn digital modulation techniques To learn the basics of satellite communication and mobile telephony system	Student is aware of working of advanced digital communication systems. Student will become capable of designing various modulation circuits used commonly Student is aware of working basic cellular telephony and various networks. Student is aware of how TV and mobile channels work with satellites for global coverage.
ELE-402 Microcontrollers and Applications	To impart knowledge of pulse modulation, mobile and satellite.	Apply the concept and knowledge of digital communication to develop

	To provide the knowledge and methodology necessary for using microcontroller chips To have practical exposure of handling microcontroller and interfacing applications	new systems. Apply practical knowledge of microcontrollers to solve real life problems of the society. Understanding of the course and create scientific temperament and give exposure to the students for independent use of microcontroller for innovative applications. Gain knowledge of microcontroller programming. Handle hardware and software to shoot problems of the society
ELE-403 ELECTRONICS LAB - IV	To learn digital modulation design techniques and implement in labs. To learn Matlab programming. To implement PAM, PCM, PWM and other techniques in Matlab through simulation.	Student is able to design PAM PCM circuits and test it. Student is capable of handling Matlab independently. Student can write Matlab code and run it Student is capable of simulation of PCM PWM and PPM modulation techniques.
ELE-404 Computational Techniques in Electronics	The aim of this course is not just to teach computer programming and numerical analysis but to emphasize its role and gain skills to students in solving problems in Electronics	Student is capable of writing C program and run it on computer. Student is capable of applying numerical technique for solving mathematical equations. Student is capable of simulation of RC, RL and RLC Electronic circuits

T.Y.B.Sc.

Sem.-V		
ELE-501 Semiconductor Electronics	To enrich the understanding of fundamentals of semiconductor devices. To have an awareness of IC fabrication techniques.	Estimate the number of carriers at a given temperature for a semiconductor. Understand the importance of doping to change carrier density.
ELE -502 Advanced Digital System Design using VHDL	To familiarize students with designing techniques of combinational and sequential circuits. Introduction of VHDL to students for different combinational and sequential circuits.	Students will able to design digital circuits according to requirements. Student will able to write VHDL code for digital circuit with the help of different modeling style.
ELE -503 Advanced Microprocessors	To learn the architecture of 8086. To learn the assembly language programming of 16 bit microprocessor. To understand the architecture of advanced microprocessor 80386. To understand the feature of Pentium	Student will be able to Aware about the microprocessor and its architecture considerations & Capable to analyze the operating modes. Understand the assembly language programming. Student will be able to understand the advanced microprocessor 80386 and operation of paging mechanism. To gain the Knowledge about the Pentium processor
ELE-504 Electronic Instrumentation	To provide adequate knowledge in electrical instruments and measurements techniques. To make the student have a clear knowledge of the basic laws governing the operation	Understand the concept of measurement systems and its various characteristics. Learn about different types of transducers and their working principle. Know the different

	of the instruments, relevant circuits and their working. Introduction to general instrument system, error, calibration etc. Emphasis is laid on analog and digital techniques used to measure voltage, current, energy and power etc. Exposure to various transducers and data acquisition system.	electronics measuring instruments and develop the skill to handle them. Acquainted with the knowledge of testing of Electronic instruments.
ELE-505 Medical Electronics	To aware students with the role of electronics in medical industry Aware the students with concepts of electrical signals, can be measured To orient with electronic circuits required in medical equipment To introduce the application of advanced biomedical electronics	Familiarize with human assist devices Learn biological signals present in human body Learn the various blocks of biomedical sensors The electrodes which are normally used to measure the biological signals Understand the working principles of various therapeutic and monitoring systems Understand recording and analysis of prominent bio signals of human Understand the measurement and analysis techniques for physiological parameters Understand the patient imaging and monitoring systems
ELE-506(A) Embedded C	To know about programming used for embedded system and robotics. To provide experience to integrate hardware and software for embedded applications systems. To acquaint students with	Learn structure oriented programming concepts required in all other languages. After completion of this course students are able to built real world applications based on embedded

	methods of executive device control and to give them opportunity to apply and test those methods in practice.	system and automation.
ELE-506(B) Basics Fiber Optic Communication	To provide the essential concepts of optical fiber communication. To study different types of fibers, losses, signal distortion. To learn the various optical sources, materials and fiber splicing. To acquire knowledge of the fiber optical receivers.	Recognize and classify the structures of Optical fiber and types. Classify the Optical sources, detectors and to discuss their principle. Understanding losses and dispersion. Awareness of analog and digital links.

Sem.-Vl

ELE 601: Power Electronics	Familiarize the students to the construction details, operation and characteristics of different semiconductor power electronics devices along with their few applications. Introduction of different power conversion circuits. To make strong base of students for further study of power electronics circuits and systems	Have fundamental knowledge of semiconductor power electronic device. can apply this knowledge for designing power electronic circuits
ELE 602: Consumer Electronics	To give students an in depth knowledge of various electronic audio and video devices and systems. Introduce the students with working principles, block diagram, main features of consumer electronics gadgets/goods/devices. To develop the capabilities of assembling, fault diagnosis and rectification in a systematic way. To create skill of installation of	Understand the various types of microphones and loud speakers. To identify the various digital and analog signal. Understand the various types of consumer goods and acquaint the skill of fault findings. Develop the skill of electronics appliances like Set Top Box, CATV and Dish TV, water purifier, Air conditioner etc.

	various electronics appliances like Set Top box (D2H), CATV and Dish TV, water purifier, Air conditioner etc.	Acquaint the knowledge of different types of Television Technology.
ELE 603: Microprocessor Interfacing Techniques	To learn the interfacing of I/O devices with microprocessor. To learn interfacing techniques. To learn about the basic peripherals interfacing. To learn about the programmable interval timer and their Interfacing.	Student will be able to aware about the concept of microprocessor and its interfacing & Capable to analyze the operation and priorities of Interrupt Understand the concept of memory mapping & DMA. Student will be able to understand the ADC & DAC interfacing. To gain the Knowledge about the interval timer and communication interface 8251 & analyze the operating modes.
ELE 604: Computer Network	To develop an understanding of computer networking basics. To develop an understanding of different components of computer networks, various protocols, modern technologies and their applications.	Recognize the technological trends of Computer Networking. Discuss the key technological components of the Network. Evaluate the challenges in building networks and solutions to those.
ELE 605: Embedded Systems	To know about 8051 microcontroller programming. To learn the 8-bit microcontroller interfacing. To learn about the SPI & two wire interface	To gain the knowledge about the 8051-microcontroller programming such as timer & counter and serial port programming. Understand the basic concept of interfacing with microcontroller. Understand the interfacing principle with Stepper motor and temperature sensor.

		To gain the Knowledge about the serial peripheral interface and two wire interface.
ELE-606 (A) Electrodynamics	To enrich the understanding of fundamentals concepts of electro-dynamics and electromagnetics. To have basic knowledge of electromagnetic waves and their propagation.	Apply Gauss Law, Amperes Force Law, Lorentz's force, Biot-Savarts Law, Faraday's Law for solving the problems in Electrostatic and Electromagnetic Fields. Apply the principle of electrostatic to the solutions of problems related to electric field and electric potential, boundary value problem in electrostatic field. Understand the concept of Faradays law, Lenz's Law and Maxwell Equation. Apply the Maxwell's equation in free space, linear isotropic media and varying fields, energy and electrostatic fields.
ELE-606 (B) Antenna & wave propagation	To provide fundamental knowledge of electromagnetic wave radiation and reception through antenna. To understand physical properties of antenna. To study different antenna structures To understand transmission of radio waves around the surface of earth.	The student will be able to Understand how the electromagnetic wave propagate from an antenna. Learn the concept of RF feeding to an antenna. To calculate the various parameters of antenna to know its efficiency. Study the various types of antennas used in recent communication systems. Understand the wave propagation through space.