

PSN COLLEGE OF ENGINEERING AND TECHNOLOGY
(An Autonomous Institution Affiliated to Anna University, Chennai)
Melathediyoor, Tirunelveli - 627 152
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE OUTCOMES
Regulation 2018

Course Name: (501001/TECHNICAL ENGLISH)	
CO	COURSE OUTCOMES
CO1	Write cohesively and coherently and flawlessly avoiding grammatical errors
CO2	Listen/view and comprehend different Spoken discourses/excerpts in different accents
CO3	Communicate with one or many listeners' using appropriate communicative strategies
CO4	Read different genres of texts adopting various reading strategies
CO5	Enable writing skills to write comprehend passages, report and paragraph.
Course Name: (501002/ELEMENTARY MATHEMATICS FOR ENGINEERS)	
CO	COURSE OUTCOMES
CO1	Find the Eigen values and Eigen vectors by matrix methods
CO2	Understand different types of sequences of series and their convergence.
CO3	Know the concepts of differentiation and integration and applications of indefinite integral.
CO4	Form and solve the inequalities by LPP and solve transportation problems.
CO5	Understand the concepts of three dimension and form the equations of tangent plane, cone.
Course Name: (501003/APPLIED PHYSICS I)	
CO	COURSE OUTCOMES
CO1	Understand the properties of different types of metals
CO2	Gain knowledge about conductivity of different types of materials
CO3	Study about magnetism property of the materials
CO4	Know the applications of sound waves in engineering & medicine
CO5	Understand the application of laser in engineering & medicine
Course Name: (501004/ APPLIED CHEMISTRY I)	
CO	COURSE OUTCOMES
CO1	Do water Treatment for domestic & industrial purpose
CO2	Study different kinds of advanced materials and their applications
CO3	Study different kinds of polymers & their applications
CO4	Basics of thermo dynamics and its concept
CO5	Familiar with name materials & their applications in different fields
Course Name: (501005/ ENGINEERING GRAPHICS)	
CO	COURSE OUTCOMES
CO1	Perform free hand sketching of basic geometrical shapes and multiple views of objects
CO2	Draw orthographic projections of lines, planes and solids
CO3	Obtain development of surfaces
CO4	Prepare isometric and perspective views of simple solids
CO5	Perform free hand sketching of isometric projection
Course Name: (501006/ FUNDAMENTALS OF COMPUTERS AND PYTHON PROGRAMMING)	
CO	COURSE OUTCOMES
CO1	Know fundamental knowledge on basics of computers and Number System

CO2	Work on MS-Office
CO3	Write, compile and debug simple programs in Python
CO4	Understand the concept of functions in Python
CO5	Use different Compound data types in Python
Course Name: (501101 / APPLIED PHYSICS & CHEMISTRY LAB - I)	
CO	COURSE OUTCOMES
CO1	Gain practical knowledge by applying the experimental methods to correlate with physics and chemistry theory
CO2	Gain working knowledge of fundamental Physics and chemistry
CO3	Apply the design process to engineering application
CO4	Use modern engineering techniques and tools, including software and laboratory instrumentation.
CO5	Gain knowledge about polymerization
Course Name: (501102/ COMPUTER LAB)	
CO	COURSE OUTCOMES
CO1	Create and edit their own documents
CO2	Create and edit sheets and presentations
CO3	Understand the functions of Pton
CO4	Write their own programs to solve problems by using Python
CO5	Write a Python script to perform Matrix addition
Course Name: (501103/ WORKSHOP PRACTICE)	
CO	COURSE OUTCOMES
CO1	Apply the knowledge of pipeline connections to household fittings and industrial buildings
CO2	Prepare the different joints in roofs, doors, windows and furniture.
CO3	Perform the various welding processes and know about its applications
CO4	Produce a tray and funnel using sheet metal
CO5	Prepare square fitting and “V” fitting
Course Name: (501007/ Business Communication and Presentation Skills)	
CO	COURSE OUTCOMES
CO1	Communicate with one or many listeners’ by using effective business communication.
CO2	Create formal reports and proposals cohesively and creatively and flawlessly.
CO3	Understand basic communicative mannerisms, cultural factors and emotional intelligence
CO4	Develop and deliver powerful presentation and confidence in public speaking
CO5	Produce resumes and cover letters
Course Name: (501008/ ENGINEERING MATHEMATICS – I)	
CO	COURSE OUTCOMES
CO1	Find the optimal value o by partial differentiation and to find area and volume by integrals
CO2	Apply Jacobian, divergence, curl in Engineering
CO3	Solve line, path and surface integrals
CO4	Solve ordinary differential equations by various methods
CO5	Distinguish analytic functions and their properties
Course Name: (501009/ APPLIED PHYSICS II)	
CO	COURSE OUTCOMES
CO1	Find the energy of small particle
CO2	Find the structure of different material in different temperature
CO3	Study different types of fiber optics used in communication systems
CO4	Gain knowledge on the thermal properties of different types of materials

CO5	Study the engineering applications of magnetic materials
Course Name: (501010/ APPLIED CHEMISTRY II)	
CO	COURSE OUTCOMES
CO1	Know the Principles & applications of electro chemistry
CO2	Understand about corrosion & its protection techniques
CO3	Gain Knowledge about materials used in energy production
CO4	To study the properties of different kinds of alloys & its application
CO5	Understand various instrumental techniques for sample processing
Course Name: (501011/ ENGINEERING MECHANICS)	
CO	COURSE OUTCOMES
CO1	Illustrate the vectorial and scalar representation of forces and moments
CO2	Evaluate the properties of surfaces and solids
CO3	Analyze the different type of motion
CO4	Determine the friction and the effects by the laws of friction
CO5	Calculate dynamic forces exerted in rigid body
Course Name: (501012/ PROGRAMMING IN C)	
CO	COURSE OUTCOMES
CO1	Have fundamental knowledge on C language
CO2	Design programs involving decision structures, loops and functions
CO3	Define small functions for solving complex applications
CO4	Write, compile and debug programs in C language using Arrays
CO5	Understand the concept of Structure and Union
Course Name: (501013/BASIC ENGINEERING)	
CO	COURSE OUTCOMES
CO1	Explain the usage of construction material and proper selection of construction materials and also measure distances and area by surveying
CO2	Understand the basics of Energy Sources and Power Generation
CO3	Acquire the knowledge about various manufacturing processes
CO4	Solve simple circuits and express the concept of fundamentals of circuits
CO5	Express the function of semiconductor devices and develop the truth tables of logic gates
Course Name: (501104/APPLIED PHYSICS & CHEMISTRY LAB II)	
CO	COURSE OUTCOMES
CO1	Gain practical knowledge by applying the experimental methods to correlate with physics and chemistry theory
CO2	Apply the various procedures and techniques for the experiments
CO3	Apply the various procedures and techniques for the experiments
CO4	Develop basic communication skills through working in groups in performing the laboratory experiments and by interpreting the results.
CO5	Use the different measuring devices and meters to record the data with precision
Course Name: (501105/C PROGRAMMING LAB)	
CO	COURSE OUTCOMES
CO1	Solve simple problems using C' Language
CO2	Execute programs using control statements
CO3	Handle arrays in C' Programs
CO4	Write functions and to solve some complicated problems in C
CO5	Study about the concept of Structures and Unions
Course Name: (501106/BASIC ELECTRICAL AND ELECTRONICS LAB)	
CO	COURSE OUTCOMES
CO1	Design House wiring system
CO2	Measure the various Electrical Quantities in a circuit

CO3	Perform the troubleshooting of electrical equipment
CO4	Check the status of Semiconductor devices
CO5	Check the Functioning of Logic Gates

CO'S	COURSE OUTCOMES
Course Name: 505001/ELECTRONIC DEVICES	
CO1:	Learning about theory, construction, and operation of basic electronic devices
CO2:	Understand the principles of Semiconductor Physics
CO3:	Illustrate the characteristics of diodes, BJT, FET, MOSFET and their applications
CO4:	Develop skills to implement simple projects using the basic devices
CO5:	To study about the rectifiers and filters
Course Name: 505002/DIGITAL ELECTRONICS	
CO1:	Design various combinational digital circuits using logic gates
CO2:	Bring out the analysis and design procedures for synchronous and asynchronous sequential circuits
CO3:	Understand electronic circuits involved in the design of logic gates
CO4:	Understand the semiconductor memories and related technology
CO5:	Understand the synchronous and asynchronous sequential circuits
Course Name: 505102/ELECTRONICS DEVICES AND DIGITAL LABORATORY	
CO1:	Learn the characteristics of basic electronic devices
CO2:	Study the characteristic of CE, CB and CC Amplifier
CO3:	Design the combinational circuits using logic gates
CO4:	Design the shift register and counter circuits using logic gates
CO5:	Design and the analyze the function of flip-flops and registers
SEMESTER IV	
Course Name: 505005/ELECTRONIC CIRCUITS	
CO1:	Analyze the bias circuit of BJT and transistor configuration
CO2:	Discuss the frequency response analysis of BJT and FET amplifiers and to obtain the upper and lower cutoff frequency
CO3:	Analyze the general and feedback amplifiers and derive the amplifier parameters. Discuss various amplifier connections
CO4:	Illustrate various types of amplifiers and design various power amplifiers
CO5:	Summarize various types of oscillators and its operation
Course Name: 505006/TRANSMISSION LINES AND WAVE GUIDES	
CO1:	Analyze the propagation of signals through transmission lines
CO2:	Apply T and π sections networks to develop the prototype for m-derived filters and attenuators
CO3:	Estimate the model of two port networks and its parameters
CO4:	Design matching networks for loaded transmission lines
CO5:	Analyze signal propagation at Radio frequencies
CO6:	Examine the characteristics of rectangular and circular waveguides
Course Name: 505007/LINEAR INTEGRATED CIRCUITS	
CO1:	Design linear and non linear applications of OP – AMPS
CO2:	Design applications using analog multiplier and PLL

CO3:	Design ADC and DAC using OP – AMPS
CO4:	Denerate waveforms using OP – AMP Circuits
CO5:	Analyze special function ICs
Course Name: 505008/SIGNALS AND SYSTEMS	
CO1:	Analyze the properties of a continuous time signal in the Fourier transform and Laplace Transform domain
CO2:	Analyze the properties of a discrete time- signal in the Fourier transform and Z transform domain
CO3:	Characterize a continuous time system in the time domain, Fourier Transform domain and Laplace Transform domain
CO4:	Characterize a discrete time system in the time domain, Fourier Transform domain and Z-transform domain
CO5:	Characterize the function of linear time invariant and discrete time systems
Course Name: 505104/ELECTRONICS CIRCUITS AND SIMULATION LAB	
CO1:	To measure frequency response
CO2:	To simulate the time response of the circuits
CO3:	To familiarize the calculation of efficiency in tuned amplifiers
CO4:	Design and measure the regulation characteristics in multivibrators
CO5:	Design and simulate the amplifier, oscillators and gates using PSPICE
Course Name: 505105/LINEAR INTEGRATED CIRCUITS LABORATORY	
CO1:	Design amplifiers, oscillators, D-A converters using operational amplifiers
CO2:	Design filters using op-amp and performs an experiment on frequency response
CO3:	Design DC power supply using ICs
CO4:	Analyze the performance of filters, multivibrators, A/D converter and analog multiplier using SPICE
<u>SERVICE PAPERS</u>	
Course Name: ELECTRONIC DEVICE AND CIRUCITS	
CO1:	Analyse the characteristics of the p-n junction diodes
CO2:	Analyse the characteristics of transistors
CO3:	Explain their understanding about the behavior of power control devices
CO4:	Explain the functioning of optoelectronic devices
CO5:	Design diode based circuits for the given specifications
Course Name: ELECTRONIC DEVICE AND CIRCUITS LAB	
CO1:	Operate electronic test equipment and hardware/software tools to create, evaluate and troubleshoot transistor based circuits by applying the knowledge on them with an understanding of their limitations and impact on society, environment
CO2:	Work as part of a team and as individual effectively in designing simple circuits following the safety procedures and ethics
CO3:	Communicate the technical information related to designed electronic circuits by means of oral and written reports
Course Name: LINER INTEGRATED AND DIGITAL LOGIC CIRCUITS	
CO1:	Ability to acquire knowledge in IC fabrication procedure
CO2:	To understand and acquire knowledge on the Applications of Op-amp

CO3:	Functional blocks and the applications of special ICs
CO4:	Ability to study various number systems and simplify the logical expressions
CO5:	Ability to design combinational and sequential Circuits
CO6:	Ability to design various synchronous and asynchronous circuits
Course Name: LINER INTEGRATED AND DIGITAL LOGIC CIRCUITS LABORATORY	
CO1:	Ability to acquire knowledge on Application of Op-Amp
CO2:	Ability to understand and implement Boolean Functions
CO3:	Ability to Design and implement 4-bit shift registers
CO4:	Ability to Design and implement counters using specific counter IC.
Course Name: DIGITAL ELECTRONICS AND MICROPROCESSOR	
CO1:	Simplify switching expression using the laws and theorems of Boolean algebra
CO2:	Design a minimal two level network of basic gates to realize a given function
CO3:	To outline the formal procedures for the analysis and design of combinational circuits
CO4:	Design sequential circuits using basic gates and flip flops
CO5:	To study the peripheral interfacing of microprocessors and microcontrollers
CO6:	To Learn through case studies, the system design principles using 8051 in the embedded system technologies
Course Name: DIGITAL AND MICROPROCESSOR LABORATORY	
CO1:	To knowledge of gates functions
CO2:	To simulate the registers and counters
CO3:	To knowledge on decoders and display devices
CO4:	To knowledge about arithmetic operation of 8051
CO5:	Design and interfacing the components with 8051
Course Name: MICROCONTROLLER AND EMBEDDED SYSTEMS	
CO1:	Describe architecture and operations of microcontroller 8051
CO2:	Develop assembly language programs for 8051 and its applications in the field of information technology using different types of interfacing
CO3:	Acquire knowledge on embedded systems basics and describe the architecture and operations of ARM processor
CO4:	Develop skills in writing small programs for ARM processor and its applications using different types of interfaces and with interrupt handling mechanism
CO5:	Understand the multiple process operating environments and use standard system call interfaces to monitor and control processes
Course Name: MICROCONTROLLER AND EMBEDDED SYSTEMS LABORATORY	
CO1:	Acquire the basic knowledge of Arithmetic operations using 8051 microcontroller kit
CO2:	Analyze the various interface techniques
CO3:	Develop embedded programming in C language and apply real-time systems design techniques to various software programs

CO4:	Utilize a top-down modular design process to complete a medium complexity
CO5:	To study about the embedded system design project under instructor specified design constraints
Course Name: ANALOG INTEGRATED CIRCUITS	
CO1:	Design linear and non linear applications of OP – AMPS
CO2:	Design applications using analog multiplier and PLL
CO3:	Design ADC and DAC using OP – AMPS
CO4:	Denerate waveforms using OP – AMP Circuits
CO5:	Analyze special function ICs
Course Name: ANALOG& DIGITAL INTEGRATED CIRCUITS LABORATORY	
CO1:	Familiarize the calculation of efficiency in amplifiers
CO2:	Design and measure the Regulation characteristics in differential amplifier
CO3:	To design thewein bridge oscillator using op-amp
CO4:	To design a IC555 timer circuit
CO5:	To design PLL and conversion techniques
Course Name: ELECTRONICS AND MICROPROCESSORS	
CO1:	To enable the students to understand the fundamental concepts of Semiconductors, Diodes and Rectifiers
CO2:	To learn the characteristics of various transistors and amplifiers
CO3:	To familiarize the design of digital logic circuits
CO4:	To understand the internal architecture of 8085 microprocessor and programming techniques
CO5:	To develop the real world applications through interfacing concepts
Course Name: ELECTRONICS AND MICROPROCESSORS LAB	
CO1:	To knowledge of gates functions
CO2:	To simulate the registers and counters
CO3:	To knowledge on decoders and display devices
CO4:	To knowledge about arithmetic operation of 8051
CO5:	Design and interfacing the components with 8051
Course Name: MARINE ELECTRONICS	
CO1:	Amplifier Theory, Digital Circuits, Logic systems and Gates
CO2:	Analog and Digital Converters and their applications
CO3:	Electronic Instruments and Microprocessors
CO4:	To study about the industrial electronics
CO5:	To understand the concept about the Microprocessor and Microcontroller
SEMESTER V	
Course Name: 505010/ANALOG COMMUNICATION SYSTEM	
CO1:	Examine the principles of communication system and analog modulation techniques
CO2:	Design the angle modulation circuits in communication systems
CO3:	Apply the probability theory to examine the characteristics of various noises in communication systems
CO4:	Analyze the noise performance in AM and FM receivers.
CO5:	Design various analog pulse modulation circuits

Course Name: 505011/ANTENNA AND WAVE PROPAGATION WITH PRACTICAL COMPONENTS	
CO1:	Identify properties of plane waves such as the relationship between E & H field, propagation constant and free space impedance
CO2:	Evaluate the radiation field from an infinitesimal dipole; Evaluate the characteristics of dipole antennas
CO3:	Design aperture antennas and understand the different modes
CO4:	Analyze the Measurement of antenna and its mobile applications
CO5:	Design, analysis and measurement of special antenna
Course Name: 505012/DIGITAL SIGNAL PROCESSING	
CO1:	Evaluate the DFT and FFT of discrete time sequence
CO2:	Design digital IIR Butterworth and Chebyshev filters
CO3:	Construct digital FIR filters using windowing technique
CO4:	Characterize the effects of finite precision representation on digital filters
CO5:	Design MultiMate filters
Course Name: 505013/MICROPROCESSOR & MICROCONTROLLER	
CO1:	Identify the basic elements and functions of contemporary microprocessors
CO2:	Design Memory Interfacing circuits
CO3:	Design and interface I/O circuits
CO4:	Design Microcontroller based systems to peripheral devices and systems at the chip level
CO5:	Design and implement 8051 Microcontroller based systems
Course Name: 505106/DIGITAL SIGNAL PROCESSING LABORATORY	
CO1:	Carryout basic signal processing operations
CO2:	Demonstrate their abilities towards MATLAB based implementation of various DSP Systems
CO3:	Analyze the architecture of a DSP Processor and Implement the FIR and IIR Filters in DSP Processor
CO4:	For performing filtering operation over real-time signals
CO5:	Design a DSP system for various applications of DSP
Course Name: 505107/MICROPROCESSOR & MICROCONTROLLER LAB	
CO1:	Design ALP Programmes for fixed and Floating Point and Arithmetic operations
CO2:	Evaluate the Interface different I/Os with processor
CO3:	construct waveforms using Microprocessors
CO4:	design and develop the Programs in 8051
CO5:	Build and Work with MASM software
SEMESTER-VI	
Course Name: 505014/DIGITAL COMMUNICATION	
CO1:	Demonstrate the source coding techniques, information theory and analog to digital conversion
CO2:	Analyze the error control codes like block code, cyclic code and convolutional codes
CO3:	Estimate Power Spectra of discrete time PAM signals
CO4:	Compare the performance of different digital modulation technique

CO5:	Analyze the Performance of spread spectrum communication system
	Course Name: 505015/Embedded Systems with Practical Components
CO1:	Analyze the differences between the general computing system and the embedded system, also recognize the classification of embedded systems
CO2:	Develop various device drivers for embedded products
CO3:	Apply knowledge on the architecture and software aspects of ARM processor
CO4:	Construct real time embedded systems using the concepts of RTOS
CO5:	Identify the internal design process of real time embedded products
	Course Name: 505016/VLSI DESIGN
CO1:	Realize the fundamentals of CMOS circuits & its characteristics and also to explain CMOS process technology
CO2:	Construct static and dynamic CMOS combinational logic at the transistor level and power strategies.
CO3:	Construct static and dynamic CMOS sequential logic at the transistor level and timing issues.
CO4:	Explain the concepts of designing VLSI building blocks and its Subsystems.
CO5:	Infer the different testing techniques for chip level and system level and also FPGA design flow
	Course Name: 505108/VLSI DESIGN LABORATORY
CO1:	Design and simulation of digital circuits using Xilinx
CO2:	Analysis and synthesis the digital circuits using Xilinx
CO3:	FPGA implementation of digital circuits using Xilinx
CO4:	Design of analog and digital circuit design using EDA tool.
CO5:	Analysis and simulation of characteristics of MOS devices using EDA tool.
	Course Name:505109/COMMUNICATION SYSTEM LABORATORY
CO1:	Analyze the operation of sampling and time division multiplexing.
CO2:	Design different Modulation and demodulation circuits in analog communication
CO3:	Demonstrate their knowledge in base band signalling schemes through implementation of FSK, PSK and DPSK
CO4:	Apply various channel coding schemes & demonstrate their capabilities towards the improvement of the noise performance of communication system
CO5:	Construct end-to-end Communication Link
	ELECTIVE –I
	Course Name: LOW POWER VLSI SYSTEMS
CO1:	Understand the power dissipation in CMOS VLSI circuits
CO2:	Optimize power by designing low-power CMOS VLSI arithmetic circuits including adders and multipliers
CO3:	Design low-power CMOS VLSI circuits including memories, clock interconnect and layout design using various techniques
CO4:	Determine logic level power requirement and analyze power using simulation and probability
CO5:	Synthesize and design software for low-power CMOS VLSI Circuits

Course Name:505202/NANO ELECTRONICS	
CO1:	To know nano electronics holds the capacity for mass production of high-quality Nano devices with an enormous variety of applications
CO2:	Analysis the function of materials for nano electronics
CO3:	Apply knowledge on the transport of the diffusive and ballistic state devices
CO4:	Able to understand the Fermi level energy and nanostruc
CO5:	Able to understand the modulation process of heterojunctions and low dimensional structures
Course Name: 505203/OPTO ELECTRONIC DEVICES	
CO1:	To know the basics of solid state physics and understand the nature and characteristics of light
CO2:	To understand different methods of luminescence, display devices and laser types and their applications
CO3:	To learn the principle of optical detection mechanism in different detection devices.
CO4:	To understand different light modulation techniques and the concepts and applications of optical switching.
CO5:	To study the integration process and application of opto electronic integrated circuits in transmitters and receivers.
Course Name: 505204/INDUSTRIAL ELECTRONICS	
CO1:	Learn about the latest electronic devices available in industry
CO2:	Able to understand the concept of amplifier and detectors
CO3:	Learn about the digital ICs and sensory electronic devices
CO4:	Understand various control devices such as actuators and sensors
CO5:	Understand safety measurement and data communication between the intelligent machines
Course Name: 505205/DIGITAL IMAGE PROCESSING	
CO1:	Analyze the fundamentals of Digital image Processing
CO2:	Understand the basics and fundamentals of digital image processing, such as digitization, sampling, quantization, and 2D-transforms
CO3:	Examine concepts of degradation function and restoration techniques
CO4:	Illustrate the image segmentation and representation techniques
CO5:	Demonstrate the image compression and recognition methods
Course Name: 505206/MEDICAL ELECTRONICS	
CO1:	Explain about bio potentials and their typical waveforms & characteristics
CO2:	Interpret measurements of biochemical & nonelectrical parameters.
CO3:	Illustrate the working of Heart assist devices & Biotelemetry
CO4:	Discuss about the working of biotelemetry & telemedicine.
CO5:	Analyze about radiation & their uses in the medical field.
CO6:	Summarize the principles of electrical safety in instrumentation of modern hospital care.
ELECTIVE-II	
Course Name: 505207/SATELLITE COMMUNICATION	
CO1:	Identify the fundamentals of orbital mechanics and the characteristics of common orbits used by communications and other satellites.
CO2:	Develop launching methods and technologies, Overview of Spacecraft

	subsystem.
CO3:	Evaluate accurate link budget for a satellite or other wireless communications link & Calculate the reliability of the satellite.
CO4:	Analyze modern modulation and multiple access techniques in satellite systems.
CO5:	Examine the radio propagation channel for Earth station to satellite and satellite to satellite communications links.
Course Name: FIBRE OPTICS COMMUNICATION	
CO1:	Elaborate about the basic elements of optical fiber transmission link, Fiber modes Configurations and structures
CO2:	Examine the different fiber optical sources and photo detectors
CO3:	Categorize Fiber Power Launching and Fiber Coupling
CO4:	Construct optical transmission media and Optical receiver
CO5:	Analyze the basic SONET/SDH, WDM & CDMA concepts in optical networks.
Course Name: 505209/TELECOMMUNICATION	
CO1:	Impart knowledge on basic information theory with some the basic fundamentals of multiplexing system
CO2:	Analyze switching stages and expert in the domain of switching system
CO3:	Understand the basic concepts of control and network synchronization management
CO4:	Construct the concept of ISDN and digital subscriber access
CO5:	Describe the concept of the traffic analysis and loop carrier system
Course Name: 505210/MOBILE COMMUNICATION	
CO1:	Explain the basics of mobile telecommunication system
CO2:	Illustrate the generations of telecommunication systems in wireless network
CO3:	Understand the architecture of Wireless LAN technologies
CO4:	Determine the functionality of network layer and Identify a routing protocol for a given Ad hoc networks
CO5:	Explain the functionality of Transport and Application layer
Course Name: MULTIMEDIA COMMUNICATION	
CO1:	Identify basic components of a multimedia project
CO2:	Summarize various audio and video compression standards
CO3:	Analyze different methods of text and image compression
CO4:	Discuss the issues in providing QOS
CO5:	Illustrate the concept of multimedia networking and its service
Course Name: 505212/RADAR AND NAVIGATIONAL AIDS	
CO1:	Describe the Basic Radar & Radar applications
CO2:	To apply Doppler principle to radars and hence detect moving targets, cluster, also to understand tracking radars
CO3:	To refresh principles of antennas and propagation as related to radars, also study of transmitters and receivers
CO4:	To understand principles of navigation, in addition to approach and landing aids as related to navigation
CO5:	Describe about the navigation systems using the satellite

OPEN ELECTIVES	
Course Name:505901/CONSUMER ELECTRONICS	
CO1:	Classify different types of loudspeaker and microphones
CO2:	Explain the various component of Magnetic recording system
CO3:	Acquire knowledge about processing and reconstruction of audio and video signals
CO4:	Discuss the functions of cam coder and shooting a video and saving them in various system
CO5:	Illustrate the various home appliances
Course Name: 505902/AUTOTRONICS	
CO1:	Understand various types of diodes, displays and their uses and convert decimal number to binary number
CO2:	Able to understand open and closed loop control systems, interfacing, and various types of computer memories
CO3:	Understand construction, working, and location of sensors and actuators
CO4:	Understand various control systems such as MPFI, GDI, CRDI, ABS, ESP, Electronic Suspension, Electronic Power Steering, and Navigation Systems
CO5:	Understand Diagnostic Procedures and testing procedures of Systems and Transducers
Course Name:505903/PRINCIPLES OF MODERN COMMUNICATION	
CO1:	Determine the performance of amplitude modulation schemes in time and frequency domains
CO2:	Determine the performance of angle modulation schemes in time and frequency domains
CO3:	Analyze the SSB and VSB in communication systems
CO4:	Characterize the influence of channel on analog modulated signals
CO5:	Describe the analog signals in time domain as random process and frequency domain using Fourier Transforms
CARRIER SKILL DEVELOPMENT III	
Course Name: FUNDAMENTALS OF MATLAB	
CO1:	Use Matlab for analysis of circuits and systems
CARRIER SKILL DEVELOPMENT IV	
Course Name: EMBEDDED PROGRAMMING USING ARDUINO BOARD	
CO1:	Utilize ARDUINO development kits effectively for embedded system design
CO2:	Gain experience with real time embedded system projects and working in a small team, cooperating on various aspects of software development
CO3:	Understand development of embedded system applications
INTERDISCIPLINARY SERVICE PAPER	
Course Name: DIGITAL SIGNAL PROCESSING	
CO1:	Represent and process discrete/digital signals and systems
CO2:	Thorough understanding of frequency domain analysis of discrete time signals
CO3:	Design IIR
CO4:	Design FIR filters
CO5:	Characterize the effects of finite precision representation on digital filters

Course Name: DIGITAL SIGNAL PROCESSING LAB	
CO1:	Carryout basic signal processing operations
CO2:	Demonstrate their abilities towards MATLAB based implementation of various systems
CO3:	Analyze the architecture of a DSP Processor
CO4:	Implement the FIR and IIR Filters in DSP Processor for performing filtering operation over real-time signals
CO5:	Design a DSP system for various applications of DSP
Course Name: PRACTICAL MARINE AUTOMATION	
CO1:	Able to understand the concept of control system process
CO2:	Discuss the techniques of graphical signal representation
CO3:	Examine the characteristics of various process control systems.
CO4:	Able to understand the concept of CNC.
CO5:	Describe various Communications used in the Automatic systems.
Course Name: MICROPROCESSORS AND MICROCONTROLLERS	
CO1:	Identify the basic elements and functions of contemporary microprocessors
CO2:	Design Memory Interfacing circuits
CO3:	Design and interface I/O circuits
CO4:	Design Microcontroller based systems to peripheral devices and systems at the chip level.
CO5:	Design and implement 8051 Microcontroller based systems
Course Name: MICROPROCESSOR & MICROCONTROLLER LAB	
CO1:	Design ALP Programmes for fixed and Floating Point and Arithmetic operations
CO2:	Evaluate the Interface different I/Os with processor
CO3:	construct waveforms using Microprocessors
CO4:	design and develop the Programs in 8051
CO5:	Build and Work with MASM software