



**DR. V.R.K WOMEN'S COLLEGE
OF ENGINEERING AND TECHNOLOGY**

ISO 9001:2015 CERTIFIED INSTITUTION
Approved by AICTE & Permitted by Government of Telangana State
Affiliated to Jawaharlal Nehru Technological University Hyderabad
Aziznagar (V), Moinabad (M), R.R. Dist. 500 075 - T.S.
Contact No. 7893044962 / 08413235962
Website : www.drvrkwomenscollege.com

**DEPARTMENT: ELECTRONICS AND COMMUNICATION
ENGINEERING(R18)**

COURSE OUTCOME'S (CO's): B.Tech I YEAR I AND II SEMESTERS

ACADEMIC YEAR: 2018 – 2019/2019 – 2020/2020 – 2021/2021 – 2022

I YEAR: I SEMESTER

Subject Code	Course Name	CO's	Outcomes
MA101BS	Mathematics - I	CO1	Write the matrix representation of a set of linear equations and to analyse the solution of the system of equations
		CO2	Find the Eigen values and Eigen vectors
		CO3	Reduce the quadratic form to canonical form using orthogonal transformations.
		CO4	Analyse the nature of sequence and series. Solve the applications on the mean value theorems.
		CO5	Evaluate the improper integrals using Beta and Gamma functions. Find the extreme values of functions of two variables with/ without constraints.

Subject Code	Course Name	CO's	Outcomes
CH102BS	Chemistry	CO1	The knowledge of atomic, molecular and electronic changes, band theory related to conductivity.
		CO2	The required principles and concepts of electrochemistry, corrosion and in understanding the problem of water and its treatments.
		CO3	The required skills to get clear concepts on basic spectroscopy and application to medical and other fields.
		CO4	The knowledge of configurational and conformational analysis of molecules and reaction mechanisms.
		CO5	The knowledge of Spectroscopic techniques and applications



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Subject Code	Course Name	CO's	Outcomes
EE103ES	Basic Electrical Engineering	CO1	To analyze and solve electrical circuits using network laws and theorems.
		CO2	To understand and analyze basic Electric and Magnetic circuits
		CO3	To study the working principles of Electrical Machines
		CO4	To introduce components of Low Voltage Electrical Installations
		CO5	To understand the types of Batteries and Important Characteristics for Batteries.

Subject Code	Course Name	CO's	Outcomes
ME105ES	Engineering Workshop	CO1	Study and practice on machine tools and their operations.
		CO2	Practice on manufacturing of components using workshop trades including plumbing, fitting, carpentry, foundry, house wiring and welding.
		CO3	Identify and apply suitable tools for different trades of Engineering processes including drilling, material removing, measuring, chiseling.
		CO4	Explains the construction, function, use and application of different working tools, equipment and machines.
		CO5	Apply basic electrical engineering knowledge for house wiring practice.



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Subject Code	Course Name	CO's	Outcomes
EN105HS	English	CO1	Use English Language effectively in spoken and written forms.
		CO2	Comprehend the given texts and respond appropriately.
		CO3	Communicate confidently in various contexts and different cultures.
		CO4	Acquire basic proficiency in English including reading and listening comprehension,
		CO5	Acquire basic proficiency in English for writing and speaking skills.

Subject Code	Course Name	CO's	Outcomes
CH106BS	Engineering Chemistry Lab	CO1	Determination of parameters like hardness and chloride content in water.
		CO2	Estimation of rate constant of a reaction from concentration – time relationships.
		CO3	Determination of physical properties like adsorption and viscosity.
		CO4	Calculation of R _f values of some organic molecules by TLC technique.
		CO5	Understand the Spectroscopic techniques and applications for important organic compounds.



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Subject Code	Course Name	CO's	Outcomes
EN107HS	English Language and Communication Skills Lab	CO1	Better understanding of nuances of English language through audio- visual experience and group activities
		CO2	Neutralization of accent for intelligibility
		CO3	Speaking skills with clarity and confidence which in turn enhances their employability skills
		CO4	Able to spoken English and neutralize their mother tongue influence
		CO5	able to use language appropriately for public speaking and interviews

Subject Code	Course Name	CO's	Outcomes
EE108ES	Basic Electrical Engineering Lab	CO1	Get an exposure to basic electrical laws.
		CO2	Understand the response of different types of electrical circuits to different excitations.
		CO3	Understand the measurement, calculation and relation between the basic electrical parameters.
		CO4	Understand the basic characteristics of transformers and electrical machines.
		CO5	Understand No-Load Characteristics of a Three-phase Alternator



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I YEAR: II SEMESTER

Subject Code	Course Name	CO's	Outcomes
MA201BS	Mathematics - II	CO1	Identify whether the given differential equation of first order is exact or not
		CO2	Solve higher differential equation and apply the concept of differential equation to real world Problems.
		CO3	Evaluate the multiple integrals and apply the concept to find areas, volumes, centre of mass and Gravity for cubes, sphere and rectangular parallelopiped.
		CO4	Evaluate the line, surface and volume integrals and converting them from one to another.
		CO5	Knowledge in Vector Integration

Subject Code	Course Name	CO's	Outcomes
AP202BS	Applied Physics	CO1	The student would be able to learn the fundamental concepts on Quantum behaviour of matter in its micro state.
		CO2	The knowledge of fundamentals of Semiconductor physics, Optoelectronics, Lasers and fibre Optics enable the students to apply to various systems like communications, solar cell, photo cells and so on.
		CO3	Knowledge in Optoelectronics
		CO4	Design, characterization and study of properties of material help the students to prepare new materials for various engineering applications.
		CO5	The course also helps the students to be exposed to the phenomena of electromagnetism and also to have exposure on magnetic materials and dielectric materials



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Subject Code	Course Name	CO's	Outcomes
CS203ES	Programming for Problem Solving	CO1	To write algorithms and to draw flowcharts for solving problems.
		CO2	To convert the algorithms/flowcharts to C programs.
		CO3	To code and test a given logic in C programming language.
		CO4	To decompose a problem into functions and to develop modular reusable code.
		CO5	To use arrays, pointers, strings and structures to write C programs. Searching and sorting problems.

Subject Code	Course Name	CO's	Outcomes
ME204ES	Engineering Graphics	CO1	Preparing working drawings to communicate the ideas and information.
		CO2	Read, understand and interpret engineering drawings
		CO3	Development of Surfaces of Right Regular Solids, Prism, Cylinder, Pyramid and Cone,
		CO4	Understand the Principles of Isometric Projection.
		CO5	Knowledge to CAD Software Package Commands

Subject Code	Course Name	CO's	Outcomes
AP205BS	Applied Physics Lab	CO1	Understand the V-I Characteristics of solar cell
		CO2	determine magnetic field along the axis of a current carrying coil.
		CO3	determine Hall co-efficient of a given semiconductor
		CO4	determine the bending losses of Optical fibres.□
		CO5	determine the Quality factor of LCR Circuit.



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Subject Code	Course Name	CO's	Outcomes
CS206ES	Programming for Problem Solving Lab	CO1	formulate the algorithms for simple problems
		CO2	translate given algorithms to a working and correct program.
		CO3	correct syntax errors as reported by the compilers. Identify and correct logical errors encountered during execution.
		CO4	represent and manipulate data with arrays, strings and structures and use pointers of different types
		CO5	<input type="checkbox"/> create, read and write to and from simple text and binary files and modularize the code with functions so that they can be reused

Subject Code	Course Name	CO's	Outcomes
MC209ES	Environmental Science	CO1	understand /evaluate / develop technologies on the basis of ecological principles and environmental regulations which in turn helps in sustainable development
		CO2	Classify Living and Non-Living resources
		CO3	Define Biodiversity and Biotic Resources
		CO4	Understand the Environmental Pollution and Control Technologies
		CO5	Understand Environmental Policy, Legislation & EIA



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE OUTCOMES (CO'S) OF B.Tech II YEAR I & II SEMESTERS

ACADEMIC YEAR: 2018-2019/2019-2020/2020-2021/2021-2022

II YEAR- I SEMESTER

Subject code	Course Name	COS	YEAR 2-- SEMESTER 1
EC301PC	ELECTRON ICDEVICES AND CIRCUITS	CO1	Know the characteristics of various components.
		CO2	Understand the utilization of components.
		CO3	Understand the biasing techniques
		CO4	Design and analyze small signal amplifier circuits.
		CO5	To understand the concepts of simulation by using Spice tool

Subject code	Course Name	COs	Course Outcomes
EC302PC	NETWORK ANALYSIS AND TRANSMISSION ONLINES	CO1	Gain the knowledge on basic RLC circuits behavior.
		CO2	Analyze the Steady state and transient analysis of RLC Circuits.
		CO3	Know the characteristics of two port network parameters.
		CO4	Compare circuit matrices of linear graphs and describe magnetic circuits
		CO5	Analyze the transmission line parameters and configurations.



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Subject code	Course Name	COs	Course Outcomes
EC303PC	DIGITAL SYSTEM DESIGN	CO1	Understand the numerical information in different forms and Boolean Algebra theorems
		CO2	Postulates of Boolean algebra and to minimize combinational functions
		CO3	Design and analyze combinational and sequential circuits
		CO4	Illustrate reduction of logical expressions using Boolean algebra and k-map.
		CO5	Known about the logic families and realization of logic gates.

Subject code	Course Name	COs	Course Outcomes
EC304PC	SIGNALS AND SYSTEMS	CO1	Differentiate various signal functions.
		CO2	Represent any arbitrary signal in time and frequency domain.
		CO3	Understand the characteristics of linear time invariant systems.
		CO4	Analyze the signals with different transform technique
		CO5	Analyze discrete time signals and systems by using appropriate mathematical Tools



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Subject code	Course Name	COs	Course Outcomes
EC305ES	PROBABILITY THEORY AND STOCHASTIC PROCESSES	CO1	Understand the concepts of Random Process and its Characteristics.
		CO2	Understand the response of linear time Invariant system for a Random Processes.
		CO3	Determine the Spectral and temporal characteristics of Random Signals.
		CO4	Understand the concepts of Noise in Communication systems.
		CO5	Create mathematical models for practical design problems and determine theoretical solutions to the created models.

Subject code	Course Name	COs	Course Outcomes
EC306ES	ELECTRONIC DEVICES AND CIRCUITS LAB	CO1	Understand the diode and transistor characteristics, Input and output Characteristics of a BJT,
		CO2	Verify the rectifier circuits using diodes and implement them using hardware.
		CO3	Design various amplifiers like CE, CC, common source amplifiers and implement them using hardware and also observe their frequency responses
		CO4	Remember the concepts of unipolar junction transistor and observe its Characteristics
		CO5	Understand the construction, operation and characteristics of JFET and MOSFET, which can be used in the design of amplifiers.



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Subject code	Course Name	COs	Course Outcomes
EC307PC	DIGITAL SYSTEM DESIGN LAB	CO1	Knowledge and use of hardware description language (VHDL) for system modeling and simulation. Describe and explain the operation of fundamental digital gates
		CO2	Student should able to Realizeof Boolean Expressions using Gates, logic gates using universal gates
		CO3	Generation of clock using NAND / NOR gates
		CO4	4 – bit Adder / Subtractor , 4 – bit gray to Binary and Binary to Gray Converter.
		CO5	Student should able to Realize a sequence detector-a finite state machine

Subject code	Course Name	COs	Course Outcomes
EC308ES	BASIC SIMULATION LAB	CO1	Analyze various types basic operations on matrices,of signals and sequencessuch as Addition, Multiplication, ScalingShifting, Folding, Computation of Energy and Average Power
		CO2	Apply convolution and correlation operations on different signals. Auto Correlation and Cross Correlation for Signals and Sequences,
		CO3	Verification of Linearity and Time Invariance Properties of a given Continuous/Discrete System
		CO4	Computation of Unit sample, Unit step and Sinusoidal responses of the given LTIsystem
		CO5	Verify the Sampling theorem. Waveform Synthesis using Laplace Transform



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Subject code	Course Name	COs	Course Outcomes
MC309	CONSTITUTION OF INDIA	CO1	To realize the significance of constitution of India to students from all walks of life and help them to understand the basic concepts of Indian constitution.
		CO2	To identify the importance of fundamental rights as well as fundamental duties
		CO3	To understand the functioning of Union, State and Local Governments in Indian federal system.
		CO4	To learn procedure and effects of emergency, composition and activities of election commission and amendment procedure.
		CO5	To learn procedure and effects of emergency, composition and activities of election commission and amendment procedure.



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IIYEAR- II SEMESTER

Subject code	Course Name	COs	Course Outcomes
MA401BS	LAPLACE TRANSFORMS, NUMERICAL METHODS AND COMPLEX VARIABLES	CO1	Use the Laplace transforms techniques for solving ODE's
		CO2	Find the root of a given equation.
		CO3	Estimate the value for the given data using interpolation
		CO4	Find the numerical solutions for a given ODE's
		CO5	Analyze the complex function with reference to their analyticity, integration using Cauchy's

Subject code	Course Name	COs	Course Outcomes
EC402ES	ELECTROMAGNETIC FIELDS AND WAVES	CO1	Get the knowledge of Basic Laws, Concepts and proofs related to Electrostatic Fields and Magnetostatic Fields
		CO2	Distinguish between the static and time-varying fields
		CO3	Analyze the Wave Equations for good conductors, good dielectrics
		CO4	To analyze completely the rectangular waveguides, their mode characteristics
		CO5	Apply Maxwell's equations to solutions of problems relating to transmissionlines



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Subject code	Course Name	COs	Course Outcomes
EC403PC	ANALOG AND DIGITAL COMMUNICATIONS	CO1	Analyze and design of various continuous wave and angle modulation and demodulation techniques
		CO2	Understand the effect of noise present in continuous wave and angle modulation techniques
		CO3	Attain the knowledge about AM, FM Transmitters and Receivers
		CO4	Analyze and design the various Pulse Modulation Techniques.
		CO5	Understand the concepts of Digital Modulation Techniques and Baseband transmission

Subject code	Course Name	COs	Course Outcomes
EC404PC	LINEAR IC APPLICATIONS	CO1	A thorough understanding of operational amplifiers with linear integrated circuits.
		CO2	Attain the knowledge of functional diagrams and applications of IC 555 and IC 565
		CO3	Acquire the knowledge about the Data converters
		CO4	Classify various active filter configurations based on frequency response and construct using 741 OpAmp.
		CO5	Analyze and design non linear applications like multiplier, comparator and etc, using Op-Amp.



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Subject code	Course Name	COs	Course Outcomes
EC406PC	ANALOG AND DIGITAL COMMUNICATIONS LAB	CO1	Demonstrate generation and detection of analog and digital modulation techniques.
		CO2	Explain sampling, PCM, delta modulation, adaptive delta modulation and superheterodyne receiver.
		CO3	Demonstrate generation and detection of analog and digital modulation techniques. Frequency Division Multiplexing & De multiplexing
		CO4	Pulse Amplitude Modulation & Demodulation
		CO5	Pulse Width Modulation & Demodulation

Subject code	Course Name	COs	Course Outcomes
EC407PC	IC APPLICATIONS Lab	CO1	Design and analyse the various linear applications of op-am, Inverting and Non-Inverting Amplifiers using Op Amps, Adder and Subtractor using Op
		CO2	Design and analyse the various op-amp Integrator Circuit using IC 741. Differentiator Circuit using Op Amp..
		CO3	Design and analyse filter circuits using op-amp Active filter Applications-LPF, HPF (First Order)
		CO4	IC 741 waveform Generators-Sine, Square wave and Triangular Waves
		CO5	Multivibrators using IC555 timer



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Subject code	Course Name	COs	Course Outcomes
EC408PC	ELECTRONIC CIRCUIT ANALYSIS LAB	CO1	Comprehend the fundamentals of multistage amplifiers, feedback, power amplifiers and oscillator circuits
		CO2	Analyze the circuit design process and simulate the common base, commonemitter and common collector amplifier circuits
		CO3	Analyze the circuit design process and simulate the RC Phase shift OscillatorCircuit Hartley and Colpitt's Oscillators Circuit
		CO4	Acquaint with the design and simulate the RC coupled and Cascade amplifiercircuits
		CO5	Design a Monostable Multivibrator



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Subjectcode	Course Name	COs	Course Outcomes
MC409HS	Gender Sensitization Lab	CO1	To provide an integrated and interdisciplinary approach to understand the social and cultural construction of gender that shapes the experiences of women and men in society
		CO2	Students will be sensitized to basic dimensions of the biological, sociological, psychological and legal aspects of gender. This will be achieved through discussion of materials derived from research, facts, everyday life, literature, and film.
		CO3	Students will attain a finer grasp of how gender discrimination works in our society and how to counter it. Students will acquire insight into the gendered division of labour and its relation to politics and economics.
		CO4	Men and women students and professionals will be better equipped to work and live together as equals.
		CO5	Students will develop a sense of appreciation of women in all walks of life. Through providing accounts of studies and movements as well as the new laws that provide protection and relief to women.



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ACADEMIC YEAR: 2018-2019/2019-2020/2020-2021/2021-2022

III YEAR- I SEMESTER

Subject Code	Course Name	COs	Course Outcomes
EC501PC	MICROPROCESSORS AND MICROCONTROLLERS	CO1	Understands the internal architecture, organization and assembly language programming 8086 processors.
		CO2	Understands the internal architecture, organization and assembly language programming of 8051/controllers
		CO3	Understands the interfacing techniques to 8086 and 8051 based systems
		CO4	Understands the internal architecture of ARM processors
		CO5	Design electrical circuitry to the Microprocessor I/O ports in order to interface the processor to external devices



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Subject Code	Course Name	COs	Course Outcomes
EC502PC	DATA COMMUNICATIONS AND NETWORKS	CO1	Know the Categories and functions of various Data communication Networks
		CO2	Design and analyze various error detection techniques.
		CO3	Demonstrate the mechanism of routing the data in network layer
		CO4	Know the significance of various Flow control and Congestion control Mechanisms
		CO5	Know the Functioning of various Application layer Protocols.

Subject	Course Name	COs	Course Outcomes
EC503PC	CONTROL SYSTEMS	CO1	Understand the modeling of linear-time-invariant systems using transfer function and state space representations.
		CO2	Understand the concept of stability and its assessment for linear-time invariant systems.
		CO3	Design simple feedback controllers.
		CO4	Employ time domain analysis to predict and diagnose transient performance parameters of the system for standard input functions.
		CO5	Formulate different types of analysis in frequency domain to explain the nature of stability of the system



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Subject code	Course Name	COs	Course Outcomes
SM504MS	BUSINESS ECONOMICS AND FINANCIAL ANALYSIS	CO1	The students will understand the various Forms of Business and the impact of economic variables on the Business
		CO2	The Demand, Supply, Production, Cost, Market Structure, Pricing aspects are learnt
		CO3	The Students can study the firm's financial position by analyzing the Financial Statements of Company.
		CO4	Build up decision making skill under uncertain business climate
		CO5	To interpret the basics of financial accounting and relevance of accounting principles

Subject code	Course Name	COs	Course Outcomes
EC513PE	ELECTRONIC MEASUREMENTS AND INSTRUMENTATION	CO1	Measure electrical parameters with different meters and understand the basic definition of measuring parameters
		CO2	Use various types of signal generators, signal analyzers for generating
		CO3	Operate an Oscilloscope to measure various signals.
		CO4	Measure various physical parameters by appropriately selecting the transducers
		CO5	Apply the complete knowledge of various electronics instruments



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Subject code	Course Name	COs	Course Outcomes
EC505PC	MICROPROCESSORS AND MICROCONTROLLERS LAB	CO1	Identify relevant information to supplement to the Microprocessor and Microcontroller course. Arithmetic, Logical, String Operations on 16 Bit and 32-Bit Data.Bit level Logical Operations, Rotate, Shift, Swap and Branch
		CO2	Set up programming strategies and select proper mnemonics and run their program on the training boards.
		CO3	Practice different types of programming Assembly Language Programs to Perform Arithmetic (Both Signed and Unsigned) 16 Bit Data Operations, Logical Operations (Byte and Bit Level Operations), Rotate, Shift, Swap and Branch Instructions Time delay Generation Using Timers of 8051. Serial Communication from / to 8051 to / from I/O devices
		CO4	Develop testing and experimental procedures on Program Using Interrupts to Generate Square Wave 10 KHZ Frequency on P2.1 Using Timer 0 8051 in 8 bit Auto reload Mode and Connect a 1 HZ Pulse to INT1 pin and Display on
		CO5	Prepare Interfacing I/O Devices to 8051, 7 Segment Display to 8051. Matrix Keypad to 8051, Sequence Generator Using Serial Interface in 8051.8 bit ADC Interface to 8051.Triangular Wave Generator through DAC interfaces to 8051.



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Subject code	Course Name	COs	Course Outcomes
EC501PC	MICROPROCESSORS AND MICROCONTROLLERS	CO1	Understands the internal architecture, organization and assembly language programming 8086 processors.
		CO2	Understands the internal architecture, organization and assembly language programming of 8051/controllers
		CO3	Understands the interfacing techniques to 8086 and 8051 based systems
		CO4	Understands the internal architecture of ARM processors
		CO5	Design electrical circuitry to the Microprocessor I/O ports in order to interface the processor to external devices

Subject Code	Course Name	COs	Course Outcomes
EC506PC	DATA COMMUNICATIONS AND NETWORKS LAB	CO1	Student will be able to understand network communication using the layered concept, Open System Interconnect (OSI) and the Internet Model.
		CO2	Student will be able to understand the Experiments may be Conducted using Network Simulation software like NS-2, NSG-2.1 and Wire SHARK/equivalent software.
		CO3	TCL Script to create two nodes and links between node transmit data between nodes , the performance of various LAN Topologies, the performance of Drop
		CO4	Student will understand the working principles of LAN and the concepts behind physical and logical addressing, subnetting and supernetting.
		CO5	Student shall understand Evaluate the performance of TCP, New Reno and Vegas performance of AODV and DSR routing protocols ,performance of



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Subject code	Course Name	COs	Course Outcomes
EN508HS	ADVANCED COMMUNICATION SKILLS LAB	CO1	Acquire vocabulary and use it contextually
		CO2	Listen and speak effectively
		CO3	Develop proficiency in academic reading and writing
		CO4	Increase possibilities of job prospects
		CO5	Communicate confidently in formal and informal contexts

Subject code	Course Name	Cos	Course Outcomes
MC510	Intellectual Property Rights-	CO1	Distinguish and Explain various forms of IPRs
		CO2	Identify criteria's to fit one's own intellectual work in particular form of IPRs
		CO3	Apply statutory provisions to protect particular form of IPRs.
		CO4	Identify procedure to protect different forms of IPRs national and international level
		CO5	Understand about new developments of intellectual property



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III YEAR- I SEMESTER

Subject code	Course Name	COs	Course Outcomes
EC601PC	ANTENNAS AND WAVE PROPAGATION	CO1	establish the radiation patterns of VHF, UHF and Microwave antennas and also antenna arrays.
		CO2	Specify the requirements for microwave measurements
		CO3	Classify the different wave propagation mechanisms
		CO4	To identify the antenna array requirements, to determine the characteristics of ULAs
		CO5	To understand the concepts and set-up requirements for microwave measurements

Subject code	Course Name	COs	Course Outcomes
EC602PC	DIGITAL SIGNAL PROCESSING	CO1	Known the evolution of cellular and mobile communication system.
		CO2	The student will be able to understand Co-Channel and Non-Co-Channel interferences.
		CO3	Understand impairments due to multipath fading channel and how to overcome the different
		CO4	Familiar with cell coverage for signal and traffic, diversity, techniques, frequency management
		CO5	Know the difference between cellular and Adhoc Networks



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Subject code	Course Name	COs	Course Outcomes
EC603PC	VLSI DESIGN	CO1	The students understand the significance of Management in their Profession
		CO2	Understand the management concepts
		CO3	Analyze the concepts of management
		CO4	Development of managerial skills for engineers
		CO5	Applications of concepts in practical aspects

Subject code	Course Name	COs	Course Outcomes
EC602PC	DIGITAL SIGNAL PROCESSING	CO1	Known the evolution of cellular and mobile communication system.
		CO2	The student will be able to understand Co-Channel and Non-Co-Channel interferences.
		CO3	Understand impairments due to multipath fading channel and how to overcome the different
		CO4	Familiar with cell coverage for signal and traffic, diversity, techniques, frequency management
		CO5	Know the difference between cellular and Adhoc Networks



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Subject code	Course Name	COs	Course Outcomes
EC611PE	OBJECT ORIENTED PROGRAMMING THROUGH JAVA	CO1	Develop Applications for Range of Problems Using Object-Oriented Programming Techniques
		CO2	Design Simple Graphical User Interface Applications.
		CO3	Introduces The Principles Of Inheritance And Polymorphism;
		CO4	Introduces The Implementation Of Package
		CO5	Introduces The Design Of Graphical User Interface Using Applets And Swings.

Subject code	Course Name	COs	Course Outcomes
EC612PE	MOBILE COMMUNICATIONS AND NETWORKS	CO1	Known the evolution of cellular and mobile communication system.
		CO2	Able to understand Co-Channel and Non-Co-Channel interferences
		CO3	Understand impairments due to multipath fading channel and how to overcome the different fading effects.
		CO4	Familiar with cell coverage for signal and traffic, diversity, techniques, frequency management, Channel assignment and types of handoff.
		CO5	Know the difference between cellular and Adhoc Networks and design goals of MAC Layer protocol.



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Subject code	Course Name	COs	Course Outcomes
EC613PE	EMBEDDED SYSTEM DESIGN	CO1	Able to get overview of Design Principles of Embedded System.
		CO2	To understand the selection procedure of Processors in the embedded domain.
		CO3	Design Procedure for Embedded Firmware. 3. To visualize the role of Real time Operati
		CO4	To visualize the role of Real time Operating Systems in Embedded Systems.
		CO5	To evaluate the Correlation between task synchronization and latency issues

Subject code	Course Name	COs	Course Outcomes
EC604PC	DIGITAL SIGNAL PROCESSING LAB	CO1	Develop and Implement DSP algorithms in software using a computer language such as C with TMS320C6713 floating point Processor
		CO2	Generation of Sinusoidal Waveform / Signal based on Recursive Difference Equations
		CO3	Obtain Fourier series coefficients by formula and using FET and compare for half sine wave.
		CO4	Analyze and Observe Magnitude and phase characteristics
		CO5	Generation of Narrow Band Signal through Filtering



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Subject code	Course Name	COs	Course Outcomes
EC605PC	e-CAD LAB	CO1	Design entry and simulation of combinational & sequential circuits and functional verification
		CO2	Synthesis, p&r and post p&r simulation for combinational and sequential circuits.
		CO3	Implementation of the combinational & sequential circuits on FPGA hardware
		CO4	Write verilog and VHDL code for different circuits and understanding design styles.
		CO5	Write Verilog and VHDL code for FSM.

Subject code	Course Name	COs	Course Outcomes
EC606PC	SCRIPTING LANGUAGES LAB	CO1	Ability to understand the differences between Scripting languages and programming languages
		CO2	Able to gain some fluency programming in Ruby, Perl, TCL able to Write a Ruby script
		CO3	Write a Ruby script to accept a filename from the user print the extension of that
		CO4	Write a TCL script that multiplies the numbers from 1 to 10
		CO5	Write a Ruby script to print the elements of given array



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Subject code	Course Name	COs	Course Outcomes
MC609	ENVIRONMENTAL SCIENCE	CO1	Based on this course, the Engineering graduate will understand /evaluate / develop technologies
		CO2	Appreciate the ethical, cross-cultural, and historical context of environmental issues
		CO3	Reflect critically about their roles and identities as citizens, consumers and environmental actors
		CO4	Appreciate that one can apply systems concepts and methodologies
		CO5	Appreciate key concepts from economic, political, and social analysis



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE OUTCOMES (CO'S) OF B.Tech IV YEAR I & II SEMESTERS

ACADEMIC YEAR: 2018-2019/2019-2020/2020-2021/2021-2022

IV YEAR- I SEMESTER

Subject code	Course Name	COs	Course Outcomes
EC701PC	MICROWAVE AND OPTICAL COMMUNICATIONS	CO1	Known power generation at microwave frequencies and derive the performance characteristics.
		CO2	realize the need for solid state microwave sources and understand the principles of solid state devices
		CO3	distinguish between the different types of waveguide and ferrite components, and select proper components for engineering applications
		CO4	understand the utility of S-parameters in microwave component design and learn the measurement procedure of various micro wave parameters
		CO5	Understand the mechanism of light propagation through OpticalFibers.



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Subject code	Course Name	COs	Course Outcomes
EC713PE	DIGITAL IMAGE PROCESSING	CO1	Explore the fundamental relations between pixels and utility of 2-D transforms in image processor.
		CO2	Understand the enhancement, segmentation and restoration processes on an image.
		CO3	Implement the various Morphological operations on an image
		CO4	Understand the need of compression and evaluation of basic compression algorithms.
		CO5	Describe object detection and recognition techniques

Subject code	Course Name	COs	Course Outcomes
EC711PE	ARTIFICIAL NEURAL NETWORKS	CO1	Understand the similarity of Biological networks and Neural networks
		CO2	Perform the training of neural networks using various learning rules.
		CO3	Understanding the concepts of forward and backward propagations.
		CO4	To explore the Neuro dynamic models for various problems.
		CO5	Understand and Construct the Hopfield models.



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Subject code	Course Name	COs	Course Outcomes
EC712PE	SCRIPTING LANGUAGE	CO1	Know about basics of linux and linux networking
		CO2	use linux environment and write programs for automation
		CO3	Understand the concepts of scripting language
		CO4	Able to differentiate scripting and non scripting languages
		CO5	Able to create and run scripts using PERL/TCI/PYTHON

Subject code	Course Name	COs	Course Outcomes
SM702MS	PROFESSIONAL PRACTICE,LAW ÐICS	CO1	The students will understand the importance of professional practice, Law and Ethics in their personal lives and professional careers
		CO2	The students will learn the rights and responsibilities as an employee, team member and a global
		CO3	Understanding basic purpose of profession, professional ethics and various moral and social issues
		CO4	Acquiring knowledge of various roles of Enbginer In applying ethical principles at various professional levels
		CO5	Acquire knowledge of Law relating to intellectual property



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Subject code	Course Name	COs	Course Outcomes
EC703PC	MICROWAVE AND OPTICAL COMMUNICATIONS LAB	CO1	Verify characteristics of Reflex Klystron
		CO2	Estimate the power measurements of RF Components such as directional couplers
		CO3	Analyze various parameters of Waveguide Components.
		CO4	Demonstrate characteristics of various optical sources.
		CO5	Measure data Rate, Numerical Aperture and Losses in Optical Link.

Subject code	Course Name	COs	Course Outcomes
EC704PC	Industrial Oriented Mini Project/ Summer Internship	CO1	Students will be able to practice acquired knowledge within the chosen area
		CO2	Identify, discuss and justify the technical aspects of the chosen project with a comprehensive and systematic approach.
		CO3	Reproduce, improve and refine technical aspects for engineering projects.
		CO4	Work as an individual or in a team in development of technical projects.
		CO5	Communicate and report effectively project related activities and findings



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Subject code	Course Name	COs	Course Outcomes
EC705PC	Seminar	CO1	Establish motivation for any topic of interest and develop a thought process for technical presentation.
		CO2	Organize a detailed literature survey and build a document with respect to technical publications
		CO3	Analysis and comprehension of proof-of-concept and related data
		CO4	Effective presentation and improve soft skills
		CO5	Make use of new and recent technology (e.g. Latex) for creating technical Reports

Subject code	Course Name	COs	Course Outcomes
EC706PC	Project Stage-I	CO1	Demonstrate a sound technical knowledge of their selected project topic.
		CO2	Undertake problem identification, formulation and solution.
		CO3	Design engineering solutions to complex problems utilising a systems approach.
		CO4	Conduct an engineering project



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		CO5	Communicate with engineers and the community at large in written and oral Forms
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IV YEAR II SEMESTER

Subject code	Course Name	COs	Course Outcomes
EC811PE	SATELLITE COMMUNICATIONS	CO1	Understand basic concepts and frequency allocations for satellite communication, orbital
		CO2	Envision the satellite sub systems and design satellite links for specified C/N.
		CO3	Understand the various multiple access techniques for satellite communication systems and
		CO4	Define orbital mechanics and launch methodologies
		CO5	Known the concepts of LEO, GEO Stationary Satellite Systems and satellite Navigation

Subject code	Course Name	COs	Course Outcomes
EC812PE	RADAR SYSTEMS	CO1	Able to explore the concepts of radar and its frequency bands.
		CO2	Able to Derive the complete radar range equation.
		CO3	Understand the need and functioning of CW, FM-CW and MTI radars
		CO4	Students will know various Tracking methods.
		CO5	Derive the matched filter response characteristics for radar receivers.



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Subject code	Course Name	COs	Course Outcomes
EC813PE	WIRELESS SENSOR NETWORKS	CO1	To acquire the knowledge about various architectures and applications of Sensor Networks
		CO2	Analyze and compare various architectures of Wireless Sensor Networks
		CO3	Understand Design issues and challenges in wireless sensor networks
		CO4	Analyze and compare various data gathering and data dissemination methods.
		CO5	Design, Simulate and Compare the performance of various routing and MAC protocol

Subject code	Course Name	COs	Course Outcomes
EC821PE	SYSTEM ON CHIP ARCHITECTURE	CO1	Able to understand SOC Architectural features.
		CO2	To acquire the knowledge on processor selection criteria and limitations
		CO3	To acquires the knowledge of memory architectures on SOC.



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	CO4	Able to gain the knowledge of customization using case studies.
	CO5	To understands the interconnection strategies and their customization on SOC.

Subject code	Course Name	COs	Course Outcomes
EC822PE	TEST AND TESTABILITY	CO1	Able to understand the need for testing
		CO2	To acquire the knowledge of fundamental concepts in fault and fault diagnosis
		CO3	Able to test pattern generation using LFSR and CA
		CO4	Design for testability rules and techniques for combinational circuits
		CO5	Understand introduction of scan architectures

Subject code	Course Name	COs	Course Outcomes
EC823PE	LOW POWER VLSI DESIGN	CO1	Understand the need of Low power circuit design.
		CO2	Attain the knowledge of architectural approaches
		CO3	Analyze and design Low-Voltage Low-Power combinational circuits.
		CO4	Known the design of Low-Voltage Low-Power Memories
		CO5	Summarize the power optimization and trade-off techniques in digital circuits.



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Subject code	Course Name	COs	Course Outcomes
	TOTAL QUALITY MANAGEMENT	CO1	Explain quality standards and need for standardization
		CO2	Implement quality measurement systems in various applications
		CO3	Prepare and use control charts for SQC
		CO4	Implement six sigma approach for various industrial applications
		CO5	Explain standards for total quality management

Subject code	Course Name	COs	Course Outcomes
CS802PC	PROJECT STAGE - 2	CO1	Demonstrate a sound technical knowledge of their selected project topic.
		CO2	Undertake problem identification, formulation and solution.
		CO3	Design engineering solutions to complex problems utilizing a systems approach.
		CO4	Conduct an engineering project
		CO5	Communicate with engineers and the community at large in written an oral forms



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DEPARTMENT OF SCIENCE & HUMANITIES

COURSE OUTCOMES (CO'S) OF B.Tech I YEAR I & II SEMESTERS

BRANCH : ECE

ACADEMIC YEAR:2022-2023

I YEAR -I SEMESTER

Subject Code	Course Name	COs	Outcomes
MA101BS	Matrices And Calculus	CO1	Students are able to do the matrix representation of a set of linear equations and analyse the solution of the system of equations.
		CO2	Students are able to find the Eigenvalues and Eigen vectors and reduce the quadratic form to canonical form using orthogonal transformations.
		CO3	Students are able to do the applications on the mean value theorems and evaluate the improper integrals using Beta and Gamma functions.
		CO4	Students are trained to find the extreme values of functions of two variables with/ without constraints.
		CO5	Students are able to evaluate the multiple integrals and apply the concept to find areas, volumes.



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Subject Code	Course Name	COs	Outcomes
PH102BS	Applied Physics	CO1	Students are able to understand the basic principles of quantum physics and band theory of solids.
		CO2	Students are able to understand the underlying mechanism involved in construction and working principles of various semiconductor devices.
		CO3	Students are able to explore the fundamental properties of dielectric, magnetic materials and energy for their applications
		CO4	Students are able to identify the importance of nanoscale, quantum confinement and various fabrications techniques.
		CO5	Students are able to understand various aspects of Lasers and Optical fiber and their applications in diverse fields.

Subject Code	Course Name	COs	Outcomes
EC103ES	C Programming for Engineers	CO1	Students are able to learn the fundamentals of computers and draw flowcharts for solving arithmetic and logical problems.
		CO2	Students are trained to develop modular reusable code by understanding concepts of functions.
		CO3	Students learned the syntax and semantics of C Programming Language.
		CO4	Students learn to formulate algorithms and programs using arrays, pointers, strings and structures.
		CO5	Students are able to write a programs using Searching and sorting algorithms□.



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Subject Code	Course Name	COs	Outcomes
ME104ES	Engineering Workshop	CO1	Students are provided with hands on experience about use of different engineering materials, tools, equipments and processes those are common in the engineering field.
		CO2	Students are enabled to study and practice on machine tools and their operations.
		CO3	Made students to practice on manufacturing components using workshop trades including carpentry and fitting.
		CO4	Students are able to apply basic electrical engineering knowledge for house wiring.
		CO5	Students are able to produce welding and joining processes.

Subject Code	Course Name	COs	Outcomes
EN105HS	English for Skill Enhancement	CO1	Students are trained to develop study skills and communication skills in various professional situations.
		CO2	Students are able to understand the importance of vocabulary and sentence structures and choose appropriate vocabulary and sentence structures for their oral and written communication.
		CO3	Students are able to demonstrate their understanding of the rules of functional grammar.
		CO4	Students are trained to develop comprehension skills from the known and unknown passages and take an active part in drafting paragraphs, letters, essays, abstracts, précis and reports in various contexts.
		CO5	Students are able to acquire basic proficiency in reading and writing modules of English.



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Subject Code	Course Name	COs	Outcomes
EC106ES	Elements of Electronics and Communication Engineering	CO1	Students are able to identify the different components used for electronics applications.
		CO2	Students are enabled to identify the different passive and active components.
		CO3	Students are able to study the CRO and measure the frequency and phase of given signal.
		CO4	Students are trained to measure different parameters using various measuring instruments.
		CO5	Students are able to distinguish various signal used for analog and digital communications.

Subject Code	Course Name	COs	Outcomes
PH107BS	Applied Physics Laboratory	CO1	Students gain the knowledge on the determination of the Planck's constant using Photo electric effect and identify the material whether it is n-type or p-type by Hall experiment.
		CO2	Students are able to appreciate quantum physics in semiconductor devices and optoelectronics.
		CO3	Students gain the knowledge of applications of dielectric constant.
		CO4	Students are able to understand the variation of magnetic field and behaviour of hysteresis curve.
		CO5	Students are able to carry out data analysis.



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Subject Code	Course Name	COs	Outcomes
EC108ES	C Programming for Engineers Laboratory	CO1	Students are able to formulate the algorithms for simple problems and translate given algorithms to a working and correct program.
		CO2	Students are able to correct syntax errors as reported by the compilers and identify and correct logical errors encountered during execution.
		CO3	Students are able to represent and manipulate data with arrays, strings and structures.
		CO4	Students are able to use pointers of different types.
		CO5	Students are able to create, read and write to and from simple text and binary files and modularize the code with functions so that they can be reused.

Subject Code	Course Name	COs	Outcomes
EN109HS	English Language and Communication Skills Laboratory	CO1	Students are enabled to develop their listening skills so that they may appreciate the role in the LSRW skills approach to language and improve their pronunciation.
		CO2	Students are able to understand the nuances of English language through audio- visual experience and group Activities.
		CO3	Students are able to neutralise their accent for intelligibility.
		CO4	Students are trained to use language appropriately for public speaking, group discussions and interviews.
		CO5	Students are able to speak with clarity and confidence which in turn enhances their employability skills.



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I YEAR -II SEMESTER

Subject Code	Course Name	COs	Outcomes
MA201BS	Ordinary Differential Equations and Vector Calculus	CO1	Students learned to identify whether the given differential equation of first order is exact or not□.
		CO2	Students are able to solve higher differential equation and apply the concept of differential equation to real world problems.
		CO3	Students are enabled to solve ordinary differential equations using Laplace transforms techniques.
		CO4	Students are able to understand the physical quantities involved in engineering field related to vector valued functions.
		CO5	Students learned the basic properties of vector valued functions and their applications to line, surface and volume integrals

Subject Code	Course Name	COs	Outcomes
CH202BS	Engineering Chemistry	CO1	Students are able to understand the basic properties of water and its usage in domestic and industrial purposes.
		CO2	Students acquired the basic knowledge of electrochemical procedures related to corrosion and its control.
		CO3	Students learned the fundamentals and general properties of polymers and other engineering materials.
		CO4	Students imbibe the basic concepts of petroleum and its products and predict potential applications of chemistry and practical utility in order to become good engineers and entrepreneurs.
		CO5	Students are able to acquire required knowledge about engineering materials like cement, smart materials and Lubricants.

Subject Code	Course Name	COs	Outcomes
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ME203ES	Computer Aided Engineering Graphics	CO1	Students are able to apply computer aided drafting tools to create 2D and 3D objects.
		CO2	Students are able to sketch conics and different types of solids.
		CO3	Students are able to appreciate the need of Sectional views of solids and Development of surfaces of solids.
		CO4	Students are able to read and interpret engineering drawings.
		CO5	Students are enabled to do the Conversion of orthographic projection into isometric view and vice versa manually and by using computer aided drafting.

Subject Code	Course Name	COs	Outcomes
EE204ES	Basic Electrical Engineering	CO1	Students are able to understand and analyze basic Electrical circuits.
		CO2	Students are able to understand Single & Three phase AC circuits.
		CO3	Students studied the construction and working principle of Transformers.
		CO4	Students studied the construction and working principle of different type of DC Machines and AC Machines.
		CO5	Students gained the knowledge of various electrical installations and the concept of power, power factor and its improvement.



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Subject Code	Course Name	COs	Outcomes
EC205ES	Electronic Devices and Circuits	CO1	Students are able to understand the characteristics of Diodes
		CO2	Students acquired the knowledge on applications of Diodes.
		CO3	Students learned the principle of operations and different types of configuration of Bipolar Junction Transistors(BJT)
		CO4	Students learned the principle of operations and different types of configuration of JFET.
		CO5	Students acquired the knowledge about the role of special purpose devices and their applications.

Subject Code	Course Name	COs	Outcomes
CS206ES	Applied Python Programming Laboratory	CO1	Students are able to install and run the Python interpreter and learn control structures.
		CO2	Students are able to develop the application specific codes using python.
		CO3	Students are able to understand Strings, Lists, Tuples and Dictionaries in Python
		CO4	Students are able to verify programs using modular approach, file I/O, Python standard library.
		CO5	Students are able to implement Digital Systems using Python.



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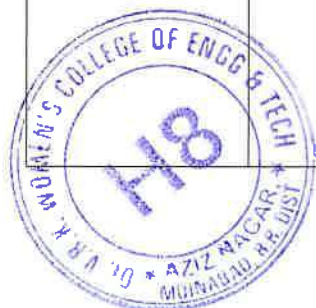


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Subject Code	Course Name	COs	Outcomes
CH207BS	Engineering Chemistry Laboratory	CO1	Students are able to estimate the hardness of water to check its suitability for drinking purpose.
		CO2	Students are able to perform estimations of acids and bases using conductometry, potentiometry and pH metry methods.
		CO3	Students will learn to prepare polymers such as Bakelite and nylon-6 in the laboratory.
		CO4	Students are able to determine the parameters of rate of corrosion of mild steel in various conditions.
		CO5	Students will learn skills related to the lubricant properties such as saponification value, surface tension and viscosity of oils.

Subject Code	Course Name	COs	Outcomes
EE208ES	Basic Electrical Engineering Laboratory	CO1	To measure the electrical parameters for different types of DC and AC circuits using conventional and theorems approach.
		CO2	Students are able to understand the response of different types of Electrical circuits for different excitations.
		CO3	Students are able to determine the performance of DC Shunt Machine.
		CO4	Students are able to determine the performance of Three phase induction motors.
		CO5	Students are able to understand basic characteristics of Transformers and its calculations.



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Subject Code	Course Name	COs	Outcomes
EC209ES	Electronic Devices and Circuits Laboratory	CO1	Students are able to learn the PN junction diode characteristics in forward bias and reverse bias.
		CO2	Students acquire the knowledge of various semiconductor devices and their use in real life.
		CO3	Students are able to design aspects of biasing and keep them in active region of the device for functional circuits.
		CO4	Students are able to study the switching characteristics of a transistor.
		CO5	Students are able to acquire the knowledge about the role of special purpose devices and their applications.



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE OUTCOMES (CO'S) OF B.Tech II YEAR I & II SEMESTERS

ACADEMIC YEAR:2022-2023

II YEAR -I SEMESTER

Subject Code	Course Name	COs	Outcomes
MA301BS	NUMERICAL METHODS AND COMPLEX VARIABLES	CO1	Students will able to express any periodic function in terms of sine and cosine and find the root of a given polynomial and transcendental equations
		CO2	Students are able to estimate the value for the given data using interpolation
		CO3	Students are able to find the numerical solutions for a given first order ODE's
		CO4	Students are able to analyze the complex function with reference to their analyticity, integration using Cauchy's integral and residue theorems
		CO5	Students are able to Taylor's and Laurent's series expansions in complex function

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Subject Code	Course Name	COs	Outcomes
EC302PC	ANALOG CIRCUITS	CO1	Students are able to design the amplifiers with various biasing techniques.
		CO2	Students are able to learn the concepts of high frequency analysis of transistors
		CO3	Students are able to design single stage amplifiers using BJT and FET.
		CO4	Students are able to design multistage amplifiers and understand the concepts of High Frequency Analysis of BJT.
		CO5	Students are able to utilize the concepts of negative feedback to improve the stability of amplifiers and positive feedback to sustained oscillations.

Subject Code	Course Name	COs	Outcomes
EC303PC	NETWORK ANALYSIS AND SYNTHESIS	CO1	Students are able to learn network analysis by applying network topologies
		CO2	Students are able to gain the knowledge on basic RLC circuits behaviour.
		CO3	Students are able to analyse the Steady state and transient analysis of RLC Circuits
		CO4	Students are able to understand about characterizon of two port network parameters.
		CO5	Students will analyse the design aspect of various filters and attenuators



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Subject Code	Course Name	COs	Outcomes
EC304PC	DIGITAL LOGIC DESIGN	CO1	Students are able to acquire the knowledge on numerical information in different forms and Boolean Algebra theorems.
		CO2	Students are able to learn basic techniques for the design of digital circuits and fundamental concepts used in the design of digital systems.
		CO3	Students are able to define Postulates of Boolean algebra and to minimize combinational functions, and design the combinational circuits
		CO4	Students are able to design and analyse sequential circuits for various cyclic functions.
		CO5	Students will characterize logic families and analyze them for the purpose of AC and DC parameters.

Subject Code	Course Name	COs	Outcomes
EC305PC	SIGNALS AND SYSTEMS	CO1	Students are able to Characterize various signals, systems and their time and frequency domain analysis, using transform techniques.
		CO2	Students are able to identify the conditions for transmission of signals through systems and conditions for physical realization of systems.
		CO3	Students are able to understand Laplace and Z-transforms their properties for analysis of signals and systems.
		CO4	Students are able to use sampling theorem for baseband and band pass signals for various types of sampling and for different duty cycles.
		CO5	Students are able to apply the correlation and PSD functions for various applications.



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Subject Code	Course Name	COs	Outcomes
EC306PC	ANALOG CIRCUITS LABORATORY	CO1	Students will able to design amplifiers with required Q point and analyse amplifier characteristics
		CO2	Students are able to calculate h-parameters from the Characteristics through I/O characteristics of CE,CB,CC amplifiers
		CO3	Students are able to examine the effect multistage amplification on frequency response
		CO4	Students are able to characterize LTI systems driven by stationary random process by using ACFs and PSDs.
		CO5	Students are able to understand the concepts of Noise and Information theory in Communication systems

Subject Code	Course Name	COs	Outcomes
EC307PC	DIGITAL LOGIC DESIGN LABORATORY	CO1	Students will able to acquire the knowledge on numerical information in different forms and Boolean Algebra theorems.
		CO2	Students are able to define Postulates of Boolean algebra
		CO3	Students are able to minimize combinational functions, and design the combinational circuits
		CO4	Students are able to design and analyze sequential circuits for various cyclic functions
		CO5	Students are able to characterize logic families and analyze them for the purpose of AC and DC parameters.





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Subject Code	Course Name	COs	Outcomes
EC308PC	BASIC SIMULATION LABORATORY	CO1	Students will able to generate, analyze and perform various operations on Signals/Sequences both in time and Frequency domain
		CO2	Students are able to analyze and Characterize Continuous and Discrete Time Systems both in Time and Frequency domain along with the concept of Sampling
		CO3	Students are able to generate different Random Signals and capable to analyze their Characteristics
		CO4	Students are able to verify sampling theorem
		CO5	Students are able to apply the Concepts of Deterministic and Random Signals for Noise removal Applications and on other Real Time Signals

Subject Code	Course Name	COs	Outcomes
MC309	CONSTITUTION OF INDIA	CO1	Students will able to discuss the growth of the demand for civil rights in India for the bulk of Indians before the arrival of Gandhi in Indian politics.
		CO2	Students are able to discuss the intellectual origins of the framework of argument that informed the conceptualization of social reforms leading to revolution in India
		CO3	Students are able to discuss the circumstances surrounding the foundation of the Congress Socialist Party [CSP] under the leadership of Jawaharlal Nehru
		CO4	Students are able to discuss the eventual failure of the proposal of direct elections through adult suffrage in the Indian Constitution
		CO5	Students are able to discuss the passage of the Hindu Code Bill of 1956.



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IIYEAR-IISEMESTER

Subject Code	Course Name	COs	Outcomes
EC401PC	PROBABILITY THEORY AND STOCHASTIC PROCESSES	CO1	Students will understand the concepts of probability through sets, experiments, sample spaces
		CO2	Students are able to perform operations on single and multiple Random variables.
		CO3	Students are able to determine the Spectral and temporal characteristics of Random Signals
		CO4	Students are able to characterize LTI systems driven by stationary random process by using ACFs and PSDs.
		CO5	Students are able to understand the concepts of Noise and Information theory in Communication systems

Subject Code	Course Name	COs	Outcomes
EC402PC	ELECTROMAGNETIC FIELDS AND TRANSMISSION LINES	CO1	Students will able to acquire the knowledge of Basic Laws, Concept sand proofs related to Electrostatic Fields and Magneto static Fields.
		CO2	Students are able to Characterize the static and time-varying fields, establish the corresponding sets of Maxwell's Equations and Boundary Conditions
		CO3	Students are able to analyze the Wave Equations and classify conductors, dielectrics
		CO4	Students are able to evaluate the UPW Characteristics for several practical media of int
		CO5	Students are able to analyze the Design aspect of transmission line parameters and configurations.



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Subject Code	Course Name	COs	Outcomes
EC403PC	ANALOG AND DIGITAL COMMUNICATIONS	CO1	Students will to develop ability to analyze system requirements of Analog and digital communication systems.
		CO2	Students are able develop ability to analyze system requirements of Analog and digital communication systems. able to design and analyze various Analog and Digital Modulation and Demodulation techniques
		CO3	Students are able to model the noise present in continuous wave Modulation techniques
		CO4	Students are able to acquire the vortical knowledge of each block in AM, FM transmitters and receivers.
		CO5	Students are able to understand the concepts of baseband transmissions.

Subject Code	Course Name	COs	Outcomes
EC404PC	LINEAR AND DIGITAL IC APPLICATIONS	CO1	Students will understand the basic building blocks of linear integrated circuits
		CO2	Students will have a thorough understanding of operational amplifiers with linear integrated circuits
		CO3	Students are able to attain the knowledge of functional diagrams and design applications of IC555 and IC565
		CO4	Students are able to acquire the knowledge and design the Data converters
		CO5	Students are able to choose the proper digital integrated circuits by knowing their characteristics.



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Subject Code	Course Name	COs	Outcomes
EC405PC	ELECTRONIC CIRCUIT ANALYSIS	CO1	Students will design the power amplifiers
		CO2	Students will design the tuned amplifiers and analyse is frequency response
		CO3	Students are able to design Multivibrators and sweep circuits for various applications.
		CO4	Students are able to understand features and methods of Time base generators
		CO5	Students are able to utilize the concepts of synchronization, frequency division and sampling gates.

Subject Code	Course Name	COs	Outcomes
EC406PC	ANALOG AND DIGITAL COMMUNICATIONS LABARATORY	CO1	Students will design and implement various Analog modulation and demodulation Techniques and observe the time and frequency domain characteristics
		CO2	Students will design and understand spectrum analysis of AM and FM
		CO3	Students are able to design and implement various Pulse modulation and demodulation Techniques and observe the time and frequency domain characteristics
		CO4	Students are able to apply different types of Sampling with various Sampling rates and duty Cycles
		CO5	Students are able to design and implement various Digital modulation and demodulation Techniques and observe the waveforms of these modulated Signals practically



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Subject Code	Course Name	COs	Outcomes
EC407PC	LINEAR AND DIGITAL IC APPLICATIONS LABORATORY	CO1	Students will design and implementation of various analog circuits using 741 ICs
		CO2	Students will design and implementation of various Multivibrators using 555 timer.
		CO3	Students will understand to design code converters and verify truth tables
		CO4	Students are able to design and implement various circuits using digital ICs
		CO5	Students are able to design and implement ADC, DAC and voltage regulators.

Subject Code	Course Name	COs	Outcomes
EC408PC	ELECTRONIC CIRCUIT ANALYSIS LABORATORY	CO1	Students will design power amplifiers and find its efficiency
		CO2	Students will design tuned amplifiers and find its Q-factor
		CO3	Students will design various multivibrators and sweep circuits. Understand the necessity of linearity
		CO4	Students are able to design sampling gates and understanding the concepts of frequency division
		CO5	Students will understand to prove practically Schmitt Trigger generates square wave



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Subject Code	Course Name	COs	Outcomes
MC410	GENDER SENSITIZATION LAB	CO1	Students will develop a better understanding of important issues related to gender in contemporary India.
		CO2	Students will be sensitized to basic dimensions of the biological, sociological, psychological and legal aspects of gender.
		CO3	Students will attain a finer grasp of how gender discrimination works in our society and how to counter it
		CO4	Students will acquire insight into the gendered division of labour and its relation to politics and economics
		CO5	Students will develop a sense of appreciation of women in all walks of life. Through providing accounts of studies and movements as well as the new laws that provide protection and relief to women, the textbook will empower students to understand and respond to gender violence



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