R.M.K. ENGINEERING COLLEGE

(An Autonomous Institution)
RSM Nagar, Kavaraipettai – 601 206

Department of Electronics and Communication Engineering

Course Outcomes – ODD & EVEN Semester 2023-24

THIRD SEMESTER

22EC303 – Electromagnetic fields and Transmission lines

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CO1	Compute electric fields and potentials due to static charges.
CO2	Illustrate static magnetic fields, magnetic potential and its applications.
CO3	Interpret Maxwell's equations in integral, differential and phasor forms and explain their physical meaning.
CO4	Solve transmission line equations and its parameters.
CO5	Explain standing wave ratio and input impedance in high frequency transmission lines.
CO6	Analyze impedance matching by stubs using smith charts and MATLAB programming.

22GE201 – Tamils and Technology

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Identify the role of weaving and ceramic technology in ancient Tamil Culture.
CO2	Identify the role of weaving and ceramic technology in ancient Tamil Culture.
CO3	Identify the different types of manufacturing technology used in Tamil society and their significance.
CO4	Classify agricultural and irrigation technologies in ancient Tamil society and its current relevance.
CO5	Discuss the fundamentals of scientific Tamil and Tamil computing

22MA302 ─ Statistics and Linear Algebra (Lab Integrated)

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Apply the concept of testing of hypothesis.
CO2	Demonstrate the different types of experimental designs.
CO3	Interpret the control charts for variables and attributes.
CO4	Identify the bases and dimensions.
CO5	Find the eigenvalues and eigenvectors using linear transformations.

22EC301 – Signals and Systems (Lab Integrated)

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Interpret the properties of Signals and Systems.
CO2	Determine Fourier series, Fourier transform and Laplace transform of Continuous Time signals.
CO3	Examine Continuous Time LTI systems using Fourier and Laplace transforms.
CO4	Employ DTFT and Z transform in Discrete Time signal analysis.
CO5	Examine the Discrete time LTI systems using DTFT and Z transform.
CO6	Demonstrate Convolution operation for Continuous and Discrete time systems.

22EC302 – Analog Electronics (Lab Integrated)

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Design simple electronic circuits based on transistors
CO2	Design a BJT and MOSFET amplifier for the given specifications and analyze its frequency response.
CO3	Construction of feedback amplifier and oscillator circuit for the given specifications
CO4	Distinguish different classes of power amplifiers and employ it.
CO5	Understand the contemporary issues related to analog electronic circuits.
CO6	Design, simulation, modelling and hardware implementation of analog circuits with discrete components

22IT201 – Problem solving and Python Programming (Lab Integrated)

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Implement simple Python programs.
CO2	Develop Python programs using functions.
CO3	Represent and solve compound data using Python lists, tuples, dictionaries.
CO4	Implement and perform operations on files, modules and packages.
CO5	Apply Exceptions, Standard Libraries, and IDE for application development.

Practical

22CS313 – Aptitude and Coding Skills I

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CO1	Develop vocabulary for effective communication and reading skills.
CO2	Build the logical reasoning and quantitative skills.
CO3	Develop error correction and debugging skills in programming

22EC313-Product Development Lab-3

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Develop their intellectual skills for understanding the concepts, rules or procedures.
CO2	Develop their cognitive strategy to think, organize, learn and behave.
CO3	Demonstrate the ability to provide conceptual design strategies for a product.
CO4	Describe procedure for designing a prototype.
CO5	Recognize interdisciplinary strategies for solving complex problems.
CO6	Apply integrative strategies for solving complex problems.

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FOURTH SEMESTER

22GE301 – Universal Human Value II: Understanding

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CO1	Would become more aware of themselves, and their surroundings (family, society, nature).
CO2	Would become more responsible in life, and in handling problems with sustainable solutions, while keeping human relationships and human nature in mind.
CO3	Would have better critical ability.
CO4	Would become sensitive to their commitment towards what they have understood (human values, human relationship, and human society).
CO5	Would be able to apply what they have learnt to their own self in different day-to-day settings in real life, at least a beginning would be made in this direction.

22MA402– Probability and Random Process (Lab Integrated)

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Calculate the statistical measures of standard distributions.
CO2	Compute the correlation & regression for two dimensional random variables.
CO3	Find the steady state probabilities of the Markov chain
CO4	Estimate the auto correlation and its power spectral densities of the random processes.
CO5	Determine the output power spectral density of linear system with random inputs.

22EC401 – Control Engineering (Lab Integrated)

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Develop mathematical model of linear mechanical and electrical systems
CO2	Model the time response analysis of first and second order systems
CO3	Analyze the frequency response of open and closed loop systems
CO4	Design the compensators for Linear Systems
CO5	Analyze stability methods for Linear Systems
CO6	Examine the state variables, controllability and observability of linear and time invariant systems

22EC402 – Linear Integrated Circuits (Lab Integrated)

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Express the AC and DC characteristics of Op-amp with its compensation techniques.
CO2	Elucidate the functions of Op-amp in linear and nonlinear applications
CO3	Classify and comprehend the working principle of data converters.
CO4	Illustrate the function of application specific ICs such as, Analog Multiplier, PLL and its applications.
CO5	Comprehend the effect of voltage regulators in power supply.
CO6	Design and evaluate various waveform generator circuits using Op-amp.

22EC403 – Analog and Digital Communication (Lab Integrated)

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Compare the Spectral efficiency of various Amplitude Modulation Schemes.
CO2	Summarize the concepts of Generation and Detection of Frequency Modulation
CO3	Demonstrate the performance of various Pulse coding Techniques.
CO4	Differentiate the different pass band transmission schemes
CO5	Construct different Source and Error control codes
CO6	Implement different Digital modulation schemes and coding techniques

22CS414 – Aptitude and Coding Skills II

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Develop advanced vocabulary for effective communication and reading skills
CO2	Build an enhanced level of logical reasoning and quantitative skills.
CO3	Develop error correction and debugging skills in programming.
CO4	Apply data structures and algorithms in problem solving.

22EC411 – Productive Development Lab 4

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CO1	Understand and explain the real time problems through literatures.
CO2	Analyze the methods to develop solution to the systems.
CO3	Classify, compare and analyze business opportunities for a new product.
CO4	Summarize and prepare reports for the experimental determinations
CO5	Evaluate the performance and effectiveness of the existing problems.
CO6	Develop life-long learning skills for a productive career

22EC412-Testing and Sensor Actuators

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Describe the fundamental principles and features of the sensors.
CO2	Test the sensors functionality with the Sensor Diagnostic tool.
CO3	Validate the effect of failed sensors and actuators in engine.
CO4	Grade the effective use of the tools

20EC501- Digital Communication

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Understand the limits set by information theory
CO2	Understand the various waveform coding schemes
CO3	Design and implement base band transmission schemes
CO4	Design and implement band pass signaling schemes
CO5	Analyze the spectral characteristics of band pass signaling schemes and their noise performance
CO6	Design Error control coding schemes

20EC502- Transmission Lines and waveguides

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Solve transmission line equations and its parameters.
CO2	Explain signal propagation at Radio frequencies.
CO3	Illustrate impedance matching by stubs using smith charts.
CO4	Investigate the field components of TE, TM, TEM waves in Parallel planes.
CO5	Examine the field components of TE, TM waves in Rectangular and Circular waveguides.
CO6	Discuss the principle of cavity resonators

20EC503- VLSI Design (Lab Integrated)

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Understand the fundamental principles of VLSI circuit design in digital domain
CO2	Realize the combinational circuits using different logic families
CO3	Understand the memory design in sequential logic circuits
CO4	Analyze the architectural choice and performance tradeoff involved in datapath unit design.
CO5	Understand the different FPGA architectures and its testing
CO6	Design Simulate to verify the functionality of logic modules using EDA tools and familiarize fusing of logical modules on FPGAs

20EC902- FPGA Architecture and Applications

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	To discover FPGA Design flow
CO2	To realize and design the finite state machines
CO3	To develop VHDL/Verilog models and synthesize targeting for Virtex, Spartan FPGAs
CO4	To analyze various FPGA routing architectures
CO5	To understand the widespread implementation of FPGAs using short case studies
CO6	To distinguish the architectural and resource difference between Altera and Xilinx

20EC901- Introduction to Internet of Things

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Identify IoT enabling technologies.
CO2	Discover different IoT Architecture.
CO3	Understand communication, network and security protocols
CO4	Develop IoT based applications with Raspberry Pi
CO5	Infer the applications of IoT in Real-world scenario.
CO6	Discover the advancements of IoT in various sectors

20EC403- Computer Networks

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	To distinguish the architectural and resource difference between Altera and Xilinx
CO2	Choose the required functionality at each layer for given application
CO3	Identify solution for each functionality at each layer
CO4	Trace the flow of information from one node to another node in the network
CO5	Understand and differentiate the various unicast and multicast protocols for routing data
CO6	Quote the various utilities of the application layer and identify its functionalities

20EC947 Semiconductor devices and Fabrication Processes

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Explore the properties of MOS capacitors
CO2	Analyze the various characteristics of MOSFET devices.
CO3	Analyze the short channel effects of MOSFET.
CO4	Describe the various CMOS design parameters
CO5	Explain the impact of design parameters on performance of the device.
CO6	Explore the concepts of fabrication process.

20EC946 Image and Video Analytics

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Understand the requirements of image processing
CO2	Illustrate the principles and techniques of digital image in applications related to digital imaging system
CO3	Demonstrate the image recognition and motion recognition.
CO4	Understand the fundamentals of digital video processing.
CO5	Illustrate the motion estimation, segmentation and modelling.
CO6	Design and Analysis of video processing in application.

20EC957 Information Storage and Cloud Computing

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	To understand the key dimensions of the challenge of Cloud Computing.
CO2	To assess the economics, financial and technological implications for selecting cloud computing for organization.
CO3	To describe and apply storage technologies.
CO4	To identify leading storage technologies that provide cost-effective IT solutions for medium to large scale businesses and data centres.
CO5	To describe important storage technology features such as availability, replication, scalability and performance.
CO6	To describe and apply storage security and management technique

20EC943 Deep Learning and Its Applications

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Recognize the characteristics of deep learning models that are useful to solve real-world problems.
CO2	Understand different methodologies to create application using deep nets.
CO3	Identify and apply appropriate deep learning algorithms for analyzing the data for variety of problems.
CO4	Implement different deep learning algorithms.
CO5	Design the test procedures to assess the efficacy of the developed model.
CO6	Combine several models in to gain better results

20EC953 Advanced Wireless Communication

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Understand the importance of MIMO in today's communication
CO2	Identify different effects of radio propagation in Wireless Channel.
CO3	Evaluate the channel impairment mitigation techniques using Block codes.
CO4	Evaluate the channel impairment mitigation techniques using Trellis Codes
CO5	Understand and differentiate various Layered Space Time Codes.
CO6	Identify the various methods for improving the data rate of wireless communication system

20EC948 RFIC Design

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	To understand the principles of operation of an RF receiver front end.
CO2	To design and apply constraints for LNAs, Mixers and frequency synthesizers.
CO3	To analyze and design mixers.
CO4	To design different types of oscillators and perform noise analysis.
CO5	To design PLL and frequency synthesizer.
CO6	To understand passive components at RF frequencies and required circuit theory.

20AI007 Artificial Intelligence

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Explain the foundations of AI and various Intelligent agents
CO2	Apply search strategies in problem solving and game playing
CO3	Explain logical agents and first-order logic
CO4	Apply problem-solving strategies with knowledge representation mechanism for solving hard problems
CO5	Describe the basics of learning and expert systems.

Practical

20EC511- Communication Systems Laboratory

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Practice Analog Modulation techniques
CO2	Implement sampling theorem and Time Division Multiplexing
CO3	Analyze the characteristics of Digital Modulation techniques.
CO4	Demonstrate different Line Coding Schemes.
CO5	Simulate Various Digital modulation Schemes.
CO6	Test Error Control Coding Schemes in Communication System.

20EC512- Course based project – I

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Develop their Intellectual skills to understand concepts, rules or procedures.
CO2	Develop their cognitive strategy to think, organize, learn and behave.
CO3	Demonstrate the ability to provide conceptual design strategies for a product.
CO4	Describe procedure for designing of prototype
CO5	Recognize interdisciplinary strategies for solving complex problems.
CO6	Apply integrative strategies for solving complex problems.

20CS512-Advanced Aptitude and Coding Skills – I

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Develop vocabulary for effective communication and reading skills
CO2	Build the logical reasoning and quantitative skills.
CO3	Develop error correction and debugging skills in programming.

20EC601R- Discrete Time Signal Processing

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Compute DFT for the given sequence.
CO2	Realise IIR filters for given specification.
CO3	Realise FIR filters using different methods.
CO4	Illustrate the effects of finite precision representation on digital filters.
CO5	Interpret the effect of quantization on digital filters.
CO6	Summarize the characteristics and architectural features of Digital Signal Processors.

20EC602R- Antennas and Wave Propagation

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Identify basic antenna parameters and contrast radiation pattern of antenna.
CO2	Comprehend the radiation mechanism of wired antennas and dipoles.
CO3	Design and analyze antenna arrays.
CO4	Design and analyze special antennas such as frequency independent and aperture antennas.
CO5	Identify the type of radio-wave propagation for different communication.
CO6	Appropriate identification of an antenna for a specific application.

20EC603R- Embedded Systems (Lab Integrated)

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Describe the architecture and programming of the ARM processor.
CO2	Interpret the concepts of embedded system design and analysis
CO3	Infer the basic concepts of embedded programming
CO4	Illustrate the performance and optimization techniques of embedded programming components.
CO5	Summarize Embedded system applications
CO6	Write interfacing programs to formulate mini projects using embedded systems.

20EC908R- RTL Design with VHDL/Verilog HDL

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Understand the basics of Verilog RTL Simulation and Synthesis flow.
CO2	Design combinational Logic circuit for the real time and practical scenario
CO3	Understand the synthesizable sequential design issues
CO4	Design Complex structure for the required functionality
CO5	write a test bench code for functional verification
CO6	Understand the basics of Verilog RTL Simulation and Synthesis flow.

20EC914R- Low Power VLSI Design

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	To know the sources of power consumption in CMOS circuits
CO2	To design and analyze various MOS logic circuits
CO3	To apply low power techniques for low power dissipation
CO4	To estimate the power dissipation of ICs
CO5	Able to develop algorithms to reduce power dissipation by software
CO6	To learn the design concepts of low power circuits.

20EC907R- Sensors and Actuator Devices

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Build schematic for IoT solutions with sensors.
CO2	Design and develop IoT based sensor systems.
CO3	Select the appropriate sensors for various industrial applications
CO4	Evaluate the wireless sensor technologies for IoT.
CO5	Design and develop an IoT Prototype project
CO6	Identify the IoT networking components with respect to sensors.

20EC913R- Artificial Intelligence and Machine Learning

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Evaluate Artificial Intelligence (AI) methods and describe their foundations.
CO2	Discuss types of Machine Learning
CO3	Evaluate the predictive models and analyse the Probabilities based on data.
CO4	Apply Linear and Logistic Regression algorithms.
CO5	Apply Decision Tree, Ensemble Model and Clustering
CO6	Discuss current scope and limitations of AI and societal implications

20EC911R- Multimedia Compression and Communication

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Understand the basic ideas of compression algorithms related to multimedia components.
CO2	Understand the principles and standards of Text and Audio Compression Technique
CO3	Understand the principles and standards of Image and Video Compression Techniques
CO4	Apply the various techniques in real-time applications
CO5	Implement various applications using compression algorithms
CO6	To carry out research and development in the field of multimedia systems and algorithms

20EC915R 4G/5G Communication Networks

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Explain the basic features of 4G/5G communication technology.
CO2	The students will able to work with cellular networks and wireless protocols.
CO3	The students will able to work the principle of MIMO AMD NOMA.
CO4	The students will able to familiar with wireless protocols.
CO5	The students know the network security issues and challenges.
CO6	Explain the basic features of satellite internet, IoT and 5G smart antennas.

20EC949 VLSI Algorithms and Architectures

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Analyze the algorithms needed for synthesis.
CO2	Explore the partitioning, placement and floor planning algorithm.
CO3	Describe the various global routing algorithm.
CO4	Analyze the classification of channel routing algorithm.
CO5	Describe the routing architecture of FPGA.
CO6	Implement application with FPGA.

20EC941 Industrial and Medical IoT

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Develop conceptual design of Medical and Industrial IoT architecture.
CO2	Apply sensors and various protocols for industry standard solutions.
CO3	Articulate privacy and security measures for industry standard solutions.
CO4	Study about Internet of Medical Things (IoMT) and its applications in healthcare industry.
CO5	Design various applications using IoT in Healthcare Technologies.
CO6	Demonstrate and build the project successfully by hardware/sensor requirements, coding, emulating and testing.

20EC956 Satellite Communication & Navigation Systems

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Discuss Satellite navigation and global positioning system
CO2	Understand deep space networks and inter planetary missions
CO3	Demonstrate an understanding of the different interferences and attenuation mechanisms affecting the satellite link design.
CO4	Demonstrate an understanding of the different communication, sensing and navigational applications of satellite.
CO5	Familiar with the implementation aspects of existing satellite based systems.
CO6	Understand the CHANDRAYAN mission and its working

20AI009 Machine Learning Algorithms

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CO1	Explain the basics of Machine Learning and Supervised Algorithms
CO2	Understand the various classification algorithms.
CO3	Study dimensionality reduction techniques
CO4	Elaborate on unsupervised learning techniques
CO5	Understand various Graphical models and understand the basics of reinforcement learning

20EC950 VLSI Design Testing and Verification

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CO1	Model different fault models.
CO2	Simulate faults and generate test patterns for combinational circuits.
CO3	Apply scan-based testing.
CO4	Recognize the BIST techniques for improving testability.
CO5	Understand boundary scan-based test architectures.
CO6	Perform Fault Diagnosis.

20EC945 Design of Smart Cities

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CO1	Acquaint knowledge on smart cities planning and development.
CO2	Develop work break down structure, scheduling and project management of smart cities.
CO3	Work out the most energy efficient technique.
CO4	Understand technologies, infrastructure, and concept of planning and latest methodology.
CO5	Understand process of planning and drafting a plan for smart city
CO6	Understand the importance of different smart system

20EC955 Software Defined Networks

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CO1	Analyze the evolution of software defined networks
CO2	Express the various components of SDN and their uses
CO3	Explain the use of SDN in the current networking scenario
CO4	Design and develop various applications of SDN
CO5	Apply the concept in building SDN framework
CO6	Discuss the use cases.

20AI011 Data Science Using Python

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CO1	Explain the fundamentals of data science.
CO2	Experiment python libraries for data science.
CO3	Apply and implement basic classification algorithms.
CO4	Implement clustering and outlier detection approaches.
CO5	Present and interpret data using visualization tools in Python.

20EC611R Digital Signal Processing Laboratory

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Simulate various discrete time signals
CO2	Analyse frequency response for the given system
CO3	Implement digital filters in DSP
CO4	Apply convolution and correlation in various applications of DSP
CO5	Implement DSP systems using DSP processor
CO6	Develop DSP based systems for various signal processing applications

20EC612R Course Based Project II

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Understand and explain the real time problems through literatures.
CO2	Analyze the methods to develop solution to the systems.
CO3	Classify, compare and analyze business opportunities for a new product.
CO4	Summarize and prepare reports for the experimental determinations.
CO5	Evaluate the performance and effectiveness of the existing problems.
CO6	Develop life-long learning skills for a productive career.

20CS614 Advanced Aptitude and Coding Skills II

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Develop advanced vocabulary for effective communication and reading skills.
CO2	Build an enhanced level of logical reasoning and quantitative skills.
CO3	Develop error correction and debugging skills in programming.
CO4	Apply data structures and algorithms in problem solving.

20EC701 - RF and Microwave Engineering

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CO1	Describe the basics of learning and expert systems.
CO2	Analyze a RF transceiver system for wireless communication.
CO3	Describe the characteristics of passive microwave components
CO4	Summarize the characteristics of active microwave devices
CO5	Explain the generation of microwave signals.
CO6	Experiment the measurement of microwave signal and parameters.

20EC702 - Optical Communication and Networks

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CO1	Describe the various optical fiber modes and configurations
CO2	Illustrate various signal degradation factors associated with optical fiber.
CO3	Evaluate various optical sources and their use in the optical communication system to select the optimum transmitter.
CO4	Analyze the optical receiver performance and measure various fiber parameters for designing optical fiber.
CO5	Analyze the digital transmission and its associated parameters on system performance.
CO6	Estimate the power budget required for optical network design and improve the performance of WDM/EDFA system

20CE917 - Professional Ethics in Engineering

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CO1	Summarize the importance of human values in work place.
CO2	Discuss the senses of engineering ethics, moral dilemmas, moral autonomy and uses of ethical theories
CO3	Describe the role of engineers as responsible experimenters and necessity of codes of ethics in engineering..
CO4	Describe the role of engineers as responsible experimenters and necessity of codes of ethics in engineering..
CO5	Analyze the global issues related to environmental ethics, computer ethics, weapons development and the role of engineers as expert witnesses and advisors
CO6	Apply ethics in society and discuss the ethical issues related to engineering.

20EC912 - Cognitive Radio

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CO1	Understand the intricacies in Microwave System design.
CO2	Understand the intricacies in Microwave System design.
CO3	Understand the intricacies in Microwave System design.
CO4	Understand the intricacies in Microwave System design.
CO5	Understand the intricacies in Microwave System design.
CO6	Understand the intricacies in Microwave System design.

20EC916 – Satellite Communication

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CO1	Acquire knowledge of communication via satellite system.
CO2	Analyse the significance of various types of subsystems that make up a satellite system.
CO3	Design and analyse link budget.
CO4	Design compare and analyse access techniques
CO5	Learn advanced techniques and regulatory aspects of satellite communication
CO6	Analyse the applications of satellite systems

20IT005- Web design and development

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CO1	Design Website using HTML
CO2	Design Website using CSS and JS
CO3	Design Responsive Sites
CO4	Manage, Maintain and Support Web Apps
CO5	Design and develop Website having advanced UI

Practical

20EC711 - Advanced Communication Laboratory

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CO1	To understand passive components at RF frequencies and required circuit theory.
CO2	Analyze the mode characteristics of fiber
CO3	Analyze the Eye Pattern, Pulse broadening of optical fiber and the impact on BER.
CO4	Estimate the Wireless Channel Characteristics.
CO5	Analyze the performance of Wireless Communication System.
CO6	Understand the intricacies in Microwave System design.

20EC713 - Design Thinking Laboratory

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CO1	Understand the intricacies in Microwave System design.
CO2	Understand the intricacies in Microwave System design.
CO3	Understand the intricacies in Microwave System design.
CO4	Understand the intricacies in Microwave System design.
CO5	Understand the intricacies in Microwave System design.
CO6	Understand the intricacies in Microwave System design.

20IT928 - Professional Readiness for Innovation, Employability and Entrepreneurship

COs	Course Outcome: The students, after the completion of the course, are expected to ….
CO1	Understand the intricacies in Microwave System design.
CO2	Understand the intricacies in Microwave System design.
CO3	Understand the intricacies in Microwave System design.
CO4	Understand the intricacies in Microwave System design.
CO5	Understand the intricacies in Microwave System design.
CO6	Understand the intricacies in Microwave System design.

20EC8811 PROJECT WORK

COs	Course Outcome: The students, after the completion of the course, are expected to….
CO1	Analyze the various factors and techniques currently in use in their respective field of study
CO2	Evaluate a new and border field of engineering not restricted by any boundary
CO3	Develop their ability to solve their specific problem right from its identification
CO4	Study about different literature reviews till the successful solutions
CO5	Appraise the solution by formulating proper methodology related to the problem
CO6	Simplify the challenging engineering practical problems in real world