



CMR ENGINEERING COLLEGE

Kandlakoya (V), Medchal Road, Hyderabad – 501401.

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Course Outcomes of All Courses (R13 Regulation)

Course Name: English (C101)	
Course Code.CO No.	Course Outcomes (CO's)
C101.1	Recall and reproduce the theme in a given context
C101.2	Interpret the contextual meaning of words
C101.3	Appraising renowned personalities by reading their biographies and identify their special contribution
C101.4	Examine the given content and comprehend the writers opinion
C101.5	Express the students view in the given context with justification
C101.6	Develop coherent, cohesive technical report
Course Name: Mathematics – I (C102)	
Course Code.CO No.	Course Outcomes (CO's)
C102.1	Interpret the applicability of mean value theorems. Determine the maxima and minima of a function. Determine the radius of curvature and find its evolutes and envelops and to trace a curve.
C102.2	Evaluate multiple integrals, measure the area and volume of given regions.

C102.3	Solve problems related to Differential equations and relate its applications to engineering subjects.
C102.4	Apply Laplace Transforms to find solutions of Ordinary Differential equations.
C102.5	Demonstrate an understanding of Vector differentiation, Vector integration and their applications.
Course Name: Mathematical Methods(C103)	
Course Code.CO No.	Course Outcomes (CO's)
C103.1	Determine the Rank, Echelon form, Eigen value and Eigen vector of a matrix.
C103.2	Solve the linear system of equations and diagonalise the given matrix by using Eigen values and vectors.
C103.3	Solve the Algebraic and Transcendental equations to find roots, solve ordinary differential equations by using numerical methods.
C103.4	Construct the curve between two variables and calculate the derivative and integral of y at any given x.
C103.5	Construct the Fourier series for a given periodic function
C103.6	Build the Partial differential equations and solves by using different methods.
Course Name: Engineering Physics (C104)	
Course Code.CO No.	Course Outcomes (CO's)
C104.1	Classify the various types of bonding in solids, List their properties and bond strengths
C104.2	Classify different types of crystals and analyze the structures of solids by X-Ray diffraction

C104.3	Compare the properties of different types of particles, their behavior and solve their wave functions.
C104.4	Distinguish different types of Semiconductor devices and examine their properties.
C104.5	Choose the Dielectric and Magnetic materials based on their properties and Evaluate the strength of dipoles
C104.6	Apply the Principles of light in construction of optical fiber cables, Categorize Nano materials by fabrication methods and Elaborate architectural acoustics
Course Name: Engineering Chemistry (105)	
Course Code.CO No.	Course Outcomes (CO's)
C105.1	Explain different types of conductance, electrode, electrode potential, corrosion and determine EMF of a cell using Nernst equation.
C105.2	Identify the materials & methods that prevent corrosion in a particular environment
C105.3	Compare and contrast the chemical behavior & physical properties of polymers Explain the setting and hardening of cement, Classify different types of refractories and lubricants and Elaborate the importance of nanotechnology in several engineering field.
C105.4	Identify different types of boiler troubles, choose appropriate method for softening and cleaning of water.
C105.5	Explain different sources of energy and determine Calorific value of fuel
C105.6	Elaborate the different phases in the formation of alloys, distinguish between adsorption, absorption.
Course Name: Engineering Drawing (C106)	
Course Code.CO No.	Course Outcomes (CO's)
C106.1	Construct engineering curves of conics sections, cycloid curves, involutes and scales.

C106.2	Construct projections of points, straight lines & planes inclined to one or both the projection planes
C106.3	Construct Projections of solids and sectional solids inclined to one or both the projection planes
C106.4	Construct intersections of solids or penetrations of solids.
C106.5	Convert orthographic projections to isometric and vice versa.
	Develop isometric views for objects
C106.6	Develop surfaces for cones, cylinders, prisms and pyramid projections.
	Draw perspective projections of planes and solids.
Course Name: Computer Programming & Data Structures(C107)	
Course Code.CO No.	Course Outcomes (CO's)
C107.1	Demonstrate/Define computer System and Software development.
C107.2	Design and develop programs involving selection structures and looping structures.
C107.3	Manage large programs using functions and arrays.
C107.4	Implement memory management techniques and string processing
C107.5	Organize heterogeneous data and large amount of data in storage devices.
C107.6	Implement different data structures to develop applications.

Course Name:Computer Programming Lab(C108)	
Course Code.CO No.	Course Outcomes (CO's)
C108.1	To design algorithm, flowchart and pseudopodia
C108.2	Develop c programs using control structures
C108.3	Develop c programs using functions and arrays
C108.4	Develop c programs for managing memory and processing strings
C108.5	Develop c programs to organize heterogeneous data and to process files
C108.6	Develop c programs to implement linear data Structures
Course Name:Engineering Physics/ Engineering Chemistry Lab (C109)	
Course Code.CO No.	Course Outcomes (CO's)
C109.1	Analyze the various properties of light and Determine the related parameters of light.
C109.2	Discuss working of electronic components and built the circuits by selecting the appropriate components
C109.3	Select modern instruments to elucidate concentration of unknown solutions.
C109.4	Explain chemical equation and to Determine the equivalence point in Acid-Base titration.
C109.5	Conclude the results based on Interpretation of data and graph.

Course Name:English Language Communication Skills Lab(C110)

Course Code.CO No.	Course Outcomes (CO's)
C110.1	Adopt active listening skills
C110.2	Acquire standard pronunciation
C110.3	Develop effective Reading Skills
C110.4	Communicate language confidently ensuring fluency, accuracy and intelligibility.
C110.5	Compose concise, clear and coherent write ups.

Course Name:IT Workshop / Engineering Workshop(C111)

Course Code.CO No.	Course Outcomes (CO's)
C111.1	Make use of carpentry tools, Fitting tools, Black smithy tools and tin smithy tools to produce simple shapes.
C111.2	Build electrical circuits commonly used in house wiring.
C111.3	Develop sand moulds, welding joints, using relevant tools.
C111.4	Demonstrate the use of power tools used in construction and wood working.
C111.5	Identify the computer hardware and assemble the components
C111.6	Demonstrate the installation of windows and Linux operating system.

Course Name: Mathematics-III(C211)	
Course Code.CO No.	Course Outcomes (CO's)
C211.1	Apply the Frobenius method to obtain a series solution for the given linear 2nd ODE.
C211.2	Identify Bessel equation and Legendre equation and solve them with the help of series solutions method
C211.3	Use recurrence relations and orthogonality properties of Bessel and Legendre polynomials
C211.4	Analyze the complex functions in view of their analyticity, Integration using Cauchy's integral
C211.5	Expand complex functions in the Taylor's and Laurent series theorem
C211.6	Determine the conformal transformations of complex functions
Course Name:Probability Theory & Stochastic Processes(C212)	
Course Code.CO No.	Course Outcomes (CO's)
C212.1	Define probability & different theorems of probability
C212.2	Explain single, multiple Random Variables and distribution and density functions of Random Variables.
C212.3	Apply the knowledge of mathematical operations on Random Variables to find the moments.
C212.4	Test the temporal characteristics of a Random Process
C212.5	Measure the spectral characteristics of a Random Process

Course Name:Switching Theory & Logic Design (C213)	
Course Code.CO No.	Course Outcomes (CO's)
C213.1	Demonstrate basic digital logic fundamentals such as number systems, binary codes and Boolean algebra.
C213.2	Define basic building blocks of digital systems like gates and minimize Boolean expressions using K-map method.
C213.3	Analyze and design combinational and sequential circuits.
C213.4	Design counters with the knowledge of combinational and sequential circuits.
C213.5	Design state diagrams using Mealy and Moore circuits and algorithmic state machines for sequential logics.
Course Name:Electric circuits(C214)	
Course Code.CO No.	Course Outcomes (CO's)
C214.1	Recall basic electrical, magnetic circuit concepts and define various electrical parameters.
C214.2	Classify network reduction techniques and explain concepts of reactance, impedance, susceptance, admittance, phase bandwidth, Q-factor.
C214.3	Utilize J-notation, Kirchhoff's laws, graph theory to identify currents, voltages, power
C214.4	Simplify voltage-current relationships with locus diagrams, resonance, basic-cut set, tie-set matrices.
C214.5	Interpret network with loop, mesh, nodal methods.
C214.6	Predict real world applications using network theorems.

Course Name: Electronic Devices & Circuits(C215)	
Course Code.CO No.	Course Outcomes (CO's)
C215.1	Demonstrate the characteristics of different diodes and their working principles
C215.2	Design rectifiers with different filters using diodes.
C215.3	Explain the construction and operation of BJT and FET's
C215.4	Explain the construction and operation of BJT and FET's amplifiers
C215.5	Design biasing and stabilization circuits for BJT and FET.
Course Code: Signals & Systems(C216)	
Course Code.CO No.	Course Outcomes (CO's)
C216.1	Illustrate any arbitrary signal in terms of complete set of orthogonal functions
C216.2	Apply Fourier series and Fourier transform to periodic and non periodic signals
C216.3	Analyze the signal transmission through a linear system.
C216.4	Prove the sampling theorem.
C216.5	Analyze the Laplace transform and Z transform for solution of differential and difference equations.
Course Name: Electronic Devices & Circuits Lab(C217)	

Course Code.CO No.	Course Outcomes (CO's)
C217.1	Identify and test the behavior of passive and active electronic components and equipment.
C217.2	Evaluate the V-I characteristics of semiconductor diodes.
C217.3	Analyze the operation of rectifiers and their design with different filters
C217.4	Estimate the input and output characteristics of BJT in various configurations.
C217.5	Determine the bandwidth of BJT and FET amplifiers
C217.6	Demonstrate the V-I characteristics of UJT, SCR
Course Name: Basic Simulation Lab(C218)	
Course Code.CO No.	Course Outcomes (CO's)
C218.1	Analyze the generation of Various Signals and Sequences in MATLAB, including the operations on Signals and Sequences
C218.2	Demonstrate the importance of Fourier Transform, Laplace Transform and Z Transform in the analysis of signals and systems.
C218.3	Determine the Convolution and Correlation between Signals and sequences.
C218.4	Prove the sampling theorem
C218.5	Analyze the concepts of Linearity, Stationary of random process, Gibb's phenomenon, wiener-khinchin relations and Gaussian function
Course Name:Principles of Electrical Engineering(C221)	

Course Code.CO No.	Course Outcomes (CO's)
C221.1	Analyze the steady state and the transient states in the electrical circuits
C221.2	Classify and design different types of filters and attenuators.
C221.3	Determine the various parameters such as Z,Y, ABCD, h parameters of the two port network
C221.4	Explain the construction of the machines and perform the different tests on the machines.
C221.5	Distinguish the types of machines and interprets the performance of the machines by determining its torque, efficiencies
C221.6	Explain the construction, working principle of a transformer and determine the regulation, efficiencies of the transformer
Course Name:Electromagnetic Theory & Transmission Lines(C222)	
Course Code.CO No.	Course Outcomes (CO's)
C222.1	Demonstrate and interpret fundamentals related to electrostatic fields and magneto static field.
C222.2	Analyze problems related to electrostatic fields and magneto static field.
C211.3	Apply the governing laws in free space and various material mediums to provide the solution
C222.4	Incorporate the vector calculus concepts in free space and various material mediums to analyze the behavior of conductors and dielectric materials with different electromagnetic wave's characteristics
C222.5	Evaluate the properties of transmission line in field theory and able to analyze the behavior of conductors and dielectric materials with different electromagnetic wave's characteristics in various mediums
Course Name:Pulse & Digital Circuits(C223)	

Course Code.CO No.	Course Outcomes (CO's)
C223.1	Demonstrate generation of pulse wave with non linear and linear elements
C223.2	Explain Clippers, clampers, Switching characteristics of transistors and sampling gates
C223.3	Construct various multi-vibrators using transistors, design of sweep circuits and sampling gates
C223.4	Design a flip flop, free running multi vibrators
C223.5	Test high pass and low pass RC circuits and their responses for several signals.
Course Name:Environmental Studies(C224)	
Course Code.CO No.	Course Outcomes (CO's)
C224.1	Define basic definitions and can explain complex relationship between Predators, Prey and the plant community.
C224.2	Categorize resources in natural environment and its relationships with human activities as well as human impacts.
C224.3	Demonstrate an awareness, knowledge and appreciation of the intrinsic values of ecological processes and communities.
C224.4	Assess different scientific research strategies, including collection, management, evaluation and interpretation of environmental data and role of information technology in environment.
C224.5	Examine the transnational character of environmental problems, protection acts and ways of addressing them, including interactions across local to global scales.
C224.6	Formulate an action plan for suitable alternatives that integrate science, humanist and social perspectives, for the remediation or restoration of degraded environment
Course Name:Electronic Circuit Analysis(C225)	

Course Code.CO No.	Course Outcomes (CO's)
C225.1	Design and Analyse single and multi stage amplifiers
C225.2	Analyze BJT amplifiers at low and high frequencies
C225.3	Analysis the different types of amplifiers, operation and its characteristics
C225.4	Analyse large signal amplifiers
C225.5	Design and analyze tuned amplifiers
Course Name:Digital Design Using Verylog(C226)	
Course Code.CO No.	Course Outcomes (CO's)
C226.1	Describe Verilog hardware description languages (HDL) keywords, Identifiers, Comments, numbers, Strings, Logic values, data types, Scalars, vectors
C226.2	Design Combinational and Sequential Digital circuits using behavioral modeling
C226.3	Design Combinational and Sequential Digital circuits using dataflow modeling
C226.4	Design Combinational and Sequential Digital circuits using GATE level modeling
C226.5	Write Register Transfer Level (RTL) models of digital circuits and verify them by Using different test bench techniques
Course Name:Electrical Technology Lab(C227)	
Course Code.CO No.	Course Outcomes (CO's)

C227.1	Identify Circuit Currents and Voltages using Kirchhoff's Laws
C227.2	Apply Network Theorems to Identify Circuit Parameters
C227.3	Examine AC circuits to Solve for Resonance and Time Response
C227.4	Illustrate Various Parameters for Two-Port Network
C227.5	Determine Characteristics & Efficiency for Different Machines
C227.6	Measure Efficiency and Regulation of a Transformer
Course Name:Electronic Circuit &Pulse Circuits Lab (C228)	
Course Code.CO No.	Course Outcomes (CO's)
C228.1	Build electronic circuits using Multisim simulation software
C228.2	Design and simulate single and multistage amplifiers.
C228.3	Design and simulate oscillators and feedback amplifiers
C228.4	Analyze Class A and Class B amplifiers.
C228.5	Analyze MOS amplifiers and Darlington pair
Course Name:Control Systems(C311)	
Course Code.CO No.	Course Outcomes (CO's)

C311.1	Classify the control systems and concept of feedback in control systems.
C311.2	Apply different rules and techniques to determine the transfer function of the block diagrams, signal flow graphs and mathematical models
C311.3	Analyze time response of different ordered systems and the stability of the systems using R-H criterion & root locus techniques.
C311.4	Determine the stability of the system using BODE plot, Polar plot
C311.5	Develop the state models from block diagram
C311.6	Discuss the observability & controllability and compensators
Course Name:Computer Organization & Operating System(C312)	
Course Code.CO No.	Course Outcomes (CO's)
C312.1	Demonstrates the Basic structure of a digital computer.
C312.2	Summarized Arithmetic operations of binary number system.
C312.3	Analyze The organization of the Control Unit, Arithmetic and Logical Unit, Memory Unit and the I/O unit.
C312.4	Explain Operating system functions, types, system calls.
C312.5	Determine Memory management techniques and dead lock avoidance.
C312.6	Develop Operating system file system and implementation and its interface.
Course Name:Antennas & Wave Propagation(C313)	
Course Code.CO No.	Course Outcomes (CO's)

C313.1	Understand the basic terminology and concepts of antennas
C313.2	To attain knowledge on the basis parameters those are considered in the antenna design process and the analysis while designing the antenna
C313.3	To have knowledge on antenna and types as well as their usage in real time field
C313.4	To understand the features of antennas test range (ATR) to perform various measurements
C313.5	Aware of the wave spectrum and respective base band antenna usage and also to know the propagation of the waves at different frequencies through different layers in the existing layered free space environment structure
Course Name:Electronic Measurements & Instrumentation(C314)	
Course Code.CO No.	Course Outcomes (CO's)
C314.1	Discuss the static and dynamic characteristics of measurement system.
C314.2	Analyze the AC and DC voltmeters and current meters also analyze the signal analyzers.
C314.3	Discuss the different types of signal generators and oscilloscopes.
C314.4	Classify and analyze the different types of transducers.
C314.5	Design the different types of bridges.
C314.6	Demonstrate the Measurement of Physical Parameters.
Course Name:Analog Communications (C315)	
Course Code.CO No.	Course Outcomes (CO's)

C315.1	Explain the basic blocks in communication systems, need for modulation and amplitude modulated signal generation and demodulation techniques.
C315.2	Compare the different analog modulation techniques and explain the generation and detection methods of DSB, SSB, and VSB.
C315.3	Analyze the various types of Frequency modulation and demodulation
C315.4	Discuss the different types of noise and the effect of noise in AM, DSB, SSB, FM Modulation and design the various blocks of the AM and FM receivers
C315.5	Demonstrate the different types of pulse analog modulation techniques such as PAM, PWM, and PPM including generation and demodulation
Course Name:Linear & Digital IC Applications(C316)	
Course Code.CO No.	Course Outcomes (CO's)
C316.1	Explain the basic fundamentals of linear and digital integrated circuits.
C316.2	Analyze the linear and non-linear applications of operational amplifiers.
C316.3	Make use of theory for applications of analog multipliers and Phased Locked Loop(PLL) .
C316.4	Demonstrate the operation of Analog to Digital Converters (ADC) and Digital to Analog Converters (DAC).
C316.5	Classify waveform generations and special function ICs with operation.
C316.6	Develop basic digital circuits using combinational and sequential design.
Course Name:Analog Communications Lab (C317)	
Course Code.CO No.	Course Outcomes (CO's)

C317.1	Design the different types of continuous modulation and demodulation techniques (Amplitude, DSB, SSB, and Frequency) pulse modulation (PAM, PWM, and PPM).
C317.2	Compare the pre-emphasis and de-emphasis circuits used in analog communication and study of spectrum analyzer
C317.3	Verify Time and Frequency Division Multiplexing with De-multiplexing Technique.
C317.4	Calculate the gain in Automatic Gain Control and compare with feedback to without feedback
C317.5	Analyze the operation of frequency synthesizer and Sampling Circuit

Course Name:IC Applications & HDL Simulation Lab(C318)

Course Code.CO No.	Course Outcomes (CO's)
C318.1	Examine the characteristics of OP-AMP and its applications with Linear ICs.
C318.2	Test different families of Digital Integrated Circuits
C318.3	Analyze and Design filters, oscillators and Wave form generators voltage regulators and ADC and DAC Converters using OP-AMP and Timers
C318.4	Design combinational & sequential logic circuits using digital IC's
C318.5	Design PLL circuits using IC565

Course Name:Digital Communications(C321)

Course Code.CO No.	Course Outcomes (CO's)
C321.1	Explain the concepts of PCM and DM,S/N ratio of PCM and DM.

C321.2	Apply the concepts of different digital modulation techniques.
C321.3	Implement the concepts of eye diagrams, probability of errors for ASK, PSK, FSK, CROSS TALK.
C321.4	Illustrate about INFORMATION THEORY
C321.5	Demonstrate the concepts of different error detecting and error correcting codes like block codes, cyclic codes and convolution codes and spread spectrum communications.
Course Name:Microprocessors & Microcontrollers(C322)	
Course Code.CO No.	Course Outcomes (CO's)
C322.1	Classify and Analyze the instruction set of 8086.
C322.2	Develop the assembly programs in 8086 processor. It helps to design a complete microprocessor based systems.
C322.3	Develop the interfacing of microprocessor & microcontroller with I/O devices.
C322.4	Classify and Analyze the instruction set of 8051.
C322.5	Develop the assembly programs in 8051. It helps to design a complete microcontroller based systems
Course Name:Digital Signal Processing(C323)	
Course Code.CO No.	Course Outcomes (CO's)
C323.1	Apply mathematical tools such as DFT, DTFT to analyze a processing system.
C323.2	Utilize FFT algorithms in frequency and time domain analysis in processing of digital signals

C323.3	Design IIR filters to meet specific magnitude and phase requirements
C323.4	Design FIR filters to meet specific magnitude and phase requirements
C323.5	Construct IIR and FIR filters using direct forms, cascade and parallel forms
C323.6	Compare the tradeoffs between normal and multi rate DSP techniques and can explore the finite length word effects

CourseName:Managerial Economics & Financial Analysis(C324)

Course Code.CO No.	Course Outcomes (CO's)
C324.1	Define the economic techniques in market dynamics and pricing methods
C324.2	Develop production function to carry out efficient productivity and cost analysis to determine price of commodity.
C324.3	Organize basic resources of production function and valuate them for capital budget decisions
C324.4	Decide an action for business objectives
C324.5	Evaluate the basic accounting functions & make use of accounting principles for financial analysis. Interpret the financial statements through ratio analysis for a company.

Course Name:Human Values and Professional Ethics(C325)

Course Code.CO No.	Course Outcomes (CO's)
C325.1	To relate the meaning of morals and professional ethics importance in day to Day life for a harmonious living.
C325.2	Understand and classify the value, real value and the value education. The Natural acceptance and experimental validation

C325.3	To Know and apply the basic Human Aspirations for continuous happiness and prosperity in their lives.
C325.4	To Discover the Sukh and Suvidha and the interaction and relations of the body and mind
C325.5	To understand the value of family this is the basic unit of the human interaction and the life in the society

Course Name:VLSI Design(C326)

Course Code.CO No.	Course Outcomes (CO's)
C326.1	Explain fundamentals of IC technology and testing of CMOS circuits.
C326.2	Choose an appropriate inverter using electrical properties of MOS circuits
C326.3	Draw layout of any logic circuit using concepts of stick diagrams and design rules.
C326.4	Analyze characteristics of different types of logic gates.
C326.5	Design memories and building blocks of data path of sub system.
C326.6	Design logic circuits using PLA's, PAL's, FPGA's and CPLD's.

Course Name:Microprocessors & Microcontrollers Lab(C327)

Course Code.CO No.	Course Outcomes (CO's)
C327.1	Classify and Analyze the instruction set of 8086.
C327.2	Develop the assembly programs in 8086 processor. It helps to design a complete microprocessor based systems.

C327.3	Develop the interfacing of microprocessor & microcontroller with I/O devices
C327.4	Classify and Analyze the instruction set of 8051.
C327.5	Develop the assembly programs in 8051. It helps to design a complete microcontroller based systems
Course Name:Digital Signal Processing Lab(C328)	
Course Code.CO No.	Course Outcomes (CO's)
C328.1	Implement mathematical tools such as DFT, FT to a processing system using MATLAB.
C328.2	Apply FFT algorithms to sequences
C328.3	Design IIR filters to meet specific magnitude and phase requirements
C328.4	Design FIR filters to meet specific magnitude and phase requirements
C328.5	Estimate the I/D sampling rate conversions
C328.6	Solve impulse response for first order and second order systems
Course Name:Management Science(C411)	
Course Code.CO No.	Course Outcomes (CO's)
C411.1	Define functions of Management & Scientific Theory.
C411.2	Explain more information about different methods of production and will have more understanding about different work study procedures.

C411.3	Classify different inventory procedures like six sigma, EOQ, ABC and other supply chain management principles & describe their methods.
C411.4	Examine concepts of HRM and principles of wages and incentives and will be able to classify CMM levels, job evaluation and merit rating procedure
C411.5	Analyze the importance of program evaluation review techniques and critical path methods in a network analysis.
Course Name:Embedded System Design (C412)	
Course Code.CO No.	Course Outcomes (CO's)
C412.1	Describe the differences between the general computing system and the embedded system, also recognize the classification of embedded systems
C412.2	Explain The Core Of The Embedded System
C412.3	Become Familiar with programming environment used to develop embedded system
C412.4	Design real time embedded systems using the concepts of RTOS.
C412.5	Modify to them proposing alternative solutions in embedded systems
Course Name:Microwave Engineering(C413)	
Course Code.CO No.	Course Outcomes (CO's)
C413.1	Illustrate electromagnetic theory for calculations of waveguides and transmission lines.
C413.2	Analyze different microwave components and tubes.
C413.3	Identify Microwave Solid State Devices.

C413.4	Measure Power, Frequency, Wavelength, VSWR, Q Using Microwave Bench
C413.5	Apply microwave engineering techniques in real time applications
Course Name:Computer Networks (C414)	
Course Code.CO No.	Course Outcomes (CO's)
C414.1	Define the basic concepts and Standard Models of Computer Networks.
C414.2	Identify the network devices and their functions within a network
C414.3	Apply knowledge of Computer Network Concepts to solve problems in Error Control and Access control mechanisms
C414.4	Analyze the routing and congestion control mechanisms
C414.5	. Discriminate the addressing mechanisms
C414.6	Design and implement user interface applications for peer to peer communication
Course Name:Digital Image Processing(C415)	
Course Code.CO No.	Course Outcomes (CO's)
C415.1	Students will be able to describe the fundamental concepts of Digital Image Transforms
C415.2	Students will be able to understand Image enhancement in Spatial and Frequency domain,image restoration , image segmentation, Image compression,Image processing algorithms in MATLAB.
C415.3	Students will have the skill base necessary to further explore advance the topics of Digital Image Processing.

C415.4	Students will be in a position to make a positive profession contribution in the field of Digital Signal Processing.
C415.5	Students should have a clear impression of the breadth and practical scope of digital image processing and have arrived at a level of understanding that is the foundation for most of the work currently underway in this field..
Course Name:Cellular & Mobile Communications (C416)	
Course Code.CO No.	Course Outcomes (CO's)
C416.1	Illustrate the limitations of conventional Mobile Telephone System and analyze the operation of cellular system.
C416.2	Demonstrate the differences in characteristics among different types of cellular communication systems and need for enhancements.
C416.3	Design of Antenna system to reduce Co-channel interference and assess mobile propagation.
C416.4	Distinguish the adjacent channel interference, near end far end interference and UHF TV interference.
C416.5	Demonstrate the cell coverage for signal and traffic, diversity techniques and mobile antennas.
C416.6	Discuss the frequency management, channel assignment and types of handoff.
Course Name:Advanced English Language Communication Skills Lab (C417)	
Course Code.CO No.	Course Outcomes (CO's)
C417.1	Accomplishment of sound Vocabulary and its proper use contextually
C417.2	Develop a flair for writing and a felicity with words and written expression especially in the professional context.
C417.3	Enhance speaking abilities to effectively take part in Social and Professional Communication

C417.4	Gathering and organizing ideas relevantly and coherently for participation in Debates and Group Discussions.
C417.5	Preparing the students for facing Interviews confidently and training them through Mock Interviews for Face-to-face interviews, Tele-conference and Video-Conference.
Course Name: Microwave Engineering & Digital Communications Lab (C418)	
Course Code.CO No.	Course Outcomes (CO's)
C418.1	Illustrate the characteristics of various microwave generators
C418.2	Measure Scattering parameters of various microwave components using microwave bench
C418.3	Determine electrical parameters of various microwave components using microwave bench.
C418.4	Demonstrate various digital modulation schemes.
C418.5	Analyze how a continuous signal is converted to digital signal.
Course Name: Sattelite Communications (C421)	
Course Code.CO No.	Course Outcomes (CO's)
C421.1	Ability to know the knowledge of satellite communication and orbital importance.
C421.2	To know the importance of different kinds of subsystems and satellite link design.
C421.3	Ability to know the effect of atmospheric effect on satellite communication.
C421.4	Able to calculate the multiple access technique like TDMA, CDMA, FDMA and DAMA.

C421.5	Able to demonstrate the impact of GPS, Navigation for tracking and launching the satellite.
C421.6	It is able to know the different transmission methods by packeting like Aloha, slotted Aloha and pure Aloha.
Course Name: Radar Systems(C422)	
Course Code.CO No.	Course Outcomes (CO's)
C422.1	Student will able to Define the principles of radio navigation systems.
C422.2	Student will able to Design simple radar systems and the associated signal processing, at block diagram level.
C422.3	Student will able to justify the principles of Synthetic Aperture Radar, its use in geophysical remote sensing and surveillance applications, and the digital processing used to form SAR images.
C422.4	Student will able to Demonstrate the essential principles of operation of radar systems.
C422.5	Student will able to Make use of appropriate mathematical and computer models relevant to radar systems to calculate system performance, and assess the limitations of particular cases.
C422.5	Student will able to Analyze the detection of radar signals in noise and radar receivers
Course Name: Wireless Communications & Networks (C423)	
Course Code.CO No.	Course Outcomes (CO's)
C423.1	Recalling the concept of cellular system design fundamentals.
C423.2	Understand the various kinds of wireless networks and its operations.
C423.3	Ability to understand the design and analysis of the traditional and emerging wireless networks

C423.4	Explain the importance of radio propagation in wireless communications such as large scale path loss, small scale path loss and fading.
C423.5	Discuss and analyze the importance of the equalization and diversity in wireless communication
Course Name:Industry Oriented Mini Project(C424)	
Course Code.CO No.	Course Outcomes (CO's)
C424.1	Design Ability to identify basic requirements for a application and propose a cost effective solution
C424.2	Ethics Student should be able to do work in team possessing leadership quality
C424.3	Ability Through practical assignments learn the various design methods for solving a problem analysis.
C424.4	Develop skill to build design techniques for various problem analyses
C424.5	Summarize the fundamental concepts and techniques used in mini project
C424.6	Make up Project enables the student to understand the business process.
Course Name:Seminar (C425)	
Course Code.CO No.	Course Outcomes (CO's)
C425.1	Spell for basic concepts of science and technology
C425.2	Contrast the understanding perceptive of techniques applicable to their domain.
C425.3	Construct the solutions upon their own knowledge

C425.4	Enhance their Presentation and Communication skills
C425.5	Make up them to pursue their placements and higher studies
Course Name:Major Project(C426)	
Course Code.CO No.	Course Outcomes (CO's)
C426.1	Apply knowledge to generate, develop, and evaluate ideas and information to solve the problem in the area of Electronics & Communication Engineering
C426.2	Identify the basic requirements for the design of application and propose societal, environmental and cost effective solution.
C426.3	Apply appropriate techniques, resources, modern engineering and IT tools for modeling and simulation of the system.
C426.4	To acquire the skills to communicate effectively
C426.5	Commit to professional ethics and responsibilities.
C426.6	To acquire collaborative skills through working in a team to achieve common goals
Course Name:Comprehensive Viva(C427)	
Course Code.CO No.	Course Outcomes (CO's)
C427.1	Recall the fundamentals of mathematics, science and Engineering
C427.2	Relate comprehensive understanding of techniques applicable to their own area of professional practice
C427.3	Improves the Discipline in interacting with others

C427.4	Enhance their Presentation and Communication skills
C427.5	Build confidence to face the interviews