Electronics and Communication Engineering

R15 Regulation   **Course Outcomes (COs)**

I B. Tech - I Semester

S.No	Subject Name	Subject Code	Course Outcomes	
1	Functional English	15A52101	C111.1	Describe the communication and writing skills in general communication.
			C111.2	Develop the writing and life skills in structural manner of real time scenarios.)
			C111.3	Apply the knowledge of writing and speaking skills to enhance the career opportunities.
			C111.4	Illustrate the concepts of writing and speaking skills to develop the skills in job opportunities.
			C111.5	Analyze the concepts of various real time scenarios to represent in an effective model.
2	Mathematics - I	15A54101	C112.1	Analyze the ordinary differential equations to provide solutions of various engineering applications.
			C112.2	Apply the mathematical knowledge of higher order differential equations to solve various engineering problems.
			C112.3	Describe the knowledge of Mean Value theorems, functions of several variables and Radius of Curvature for engineering applications.
			C112.4	Evaluate the Multiple integrals to determine areas and volumes of engineering applications.
			C112.5	Apply the techniques of vector calculus to solve various engineering problems.
	Computer		C113.1	Describe computer programming concepts to solve a problem.
			C113.2	Choose appropriate control structure to solve the real world problems.
			C113.3	Apply the knowledge of pointers for dynamic memory

3	Programming	15A05101			management of an application..
			C113.4		Apply the concepts of Arrays, pointers and structures to develop programs.
			C113.5		Demonstrate the knowledge of Files to organize the data in a disk.
4	Engineering Chemistry	15A51101	C114.1		Describe the various water treatment techniques used for the softening and purification of water in industrial applications.
			C114.2		Demonstrate the various preparation mechanisms of different polymers in engineering applications.
			C114.3		Apply the concepts of electro chemistry and knowledge of protection of metals in engineering and scientific applications.
			C114.4		Analyze the fuels and their synthesis to understand working of Internal Combustion and Diesel engines.
			C114.5		Demonstrate the concepts of cement, refractories, lubricants &carbon clusters in various engineering applications.
5	Environmental studies	15A01101	C115.1		To comprehend the concepts of environment and its importance in our daily life and develop and apply various water conservation methods and conservation of other natural resources also.
			C115.2		To identify the importance of environmental education for protection of life cycles of various bio systems which are essential for bio sphere.
			C115.3		To develop new innovative methods for controlling of environmental pollution which may affecte the human health.
			C115.4		To analyze environmental issues related to society and find solutions for environmental problems.
			C115.5		To analyze the effects of increasing human population as well as health associated problems and develop measures to be taken to protect human health.
6	ELCS -LAB	15A52102	C116.1		Apply knowledge in seeking right pronunciation with better accent through stress, intonation and rhythm.
			C116.2		Develop speaking skills and active participation in the learning process and become expertise lifelong learning Skills.
			C116.3		Demonstrate the learning skills through participate in Group Discussions, Debates, placemnet Interviews and in Public

S.No	Subject Name	Subject Code		Course Outcomes
7	Engineering chemistry lab	15A51102	C117.1	Develop skills in determining the effects of hard water and also importance of knowing effects of presence of excess oxygen, acids and bases in water.
			C117.2	Demonstrate the practical knowledge about flow of lubricant with varying temperatures.
			C117.3	Analyze the amount of iron &manganese through different techniques and applying the knowledge in control of corrosion.
8	Computer Programming Lab	15A05102	C118.1	Design and develop programs by selecting the right Identifiers, data types & operators, control statements, arrays and strings for effective Computation.
			C118.2	Develop the solution of a given problem by applying Functions, pointers, structures &unions.
			C118.3	Develop the solution of a given problem through files and Debug erroneous programs related to the problem.

I B. Tech - II Semester

S.No	Subject Name	Subject Code		Course Outcomes
1	English for Professional Communication	15A52201	C121.1	Demonstrate listening, reading and writing skills of communication in general and obtain general awareness in science.
			C121.2	Develop the oral communication skills in real life scenarios.
			C121.3	Illustrate the life and presentational skills for competitive opportunities.
			C121.4	Apply the life skills to deliver presentation effectively in placements.
			C121.5	Develop employability skills to enhance career opportunities.
	Mathematics – II	15A54201	C122.1	Analyze the techniques of Laplace transforms and determine the solutions of ODE in engineering problems,
			C122.2	Describe the mathematical knowledge of Fourier Series to solve various engineering problems,

2			C122.3	Illustrate the concepts of Fourier transforms to solve various engineering problems.
			C122.4	Apply the Partial differential equations to generate mathematical models for engineering applications.
			C122.5	Apply the techniques of Z-Transforms to solve difference equations in engineering applications.
3	Network Analysis	15A04201	C123.1	Determine the network parameters for a given dc and ac network circuits .
			C123.2	Analyze the response of RL, RC & RLC circuits in time & frequency domains of a given electrical circuit.
			C123.3	Describe the Forced Response and Complex forcing function of Sinusoidal for a given electrical network.
			C123.4	Illustrate the resonant frequency and bandwidth of a simple series or parallel RLC circuit.
			C123.5	Relate different two port network parameters and filters in a electrical networks .
4	Engineering Physics	15A56101	C124.1	Describe the concepts of physical optics, lasers and fibre optics in various engineering applications.
			C124.2	Illustrate the X-Ray diffraction techniques for determination of crystal structures & production and detection of ultrasonic waves for non destructive testing of materials.
			C124.3	Analyze the knowledge of basic quantum mechanics and free electron theory of metals to describe the properties of metals.
			C124.4	Demonstrate the physics of semiconductors for electronic devices & properties of various magnetic materials for engineering applications.
			C124.5	Illustrate the concepts of super conducting materials and nano-materials for scientific and engineering applications.
5	Engineering Drawing	15A03101	C125.1	Demonstrate the Principles of Engineering Drawing, BIS conventions and importance of various curves in engineering for solving engineering problems.
			C125.2	Apply the concepts of Engineering scales for drawing view of projection points of a problem.
			C125.3	Analyze the procedure of projection of lines and regular plane surfaces for development of engineering models.

			C125.4	Construct the development of surfaces by understanding the projection of solids concept.
			C125.5	Demonstrate the strategies of projections and visualization skills for conversion of Isometric views into orthographic projections.
6	NETWORK ANALYSIS LAB	15A04202	C126.1	Understand the concept of circuit elements Lumped circuits ,waveforms, circuit laws and network reduction
			C126.2	Analyze the electrical network using Mesh and Nodal analysis by applying Network Theorems
			C126.3	Understand the concept of Active ,Reactive ,Apparent and Power factor, Resonance and filters
			C126.4	Analyze the transient response of AC and DC circuits
7	ENGINEERING PHYSICS LAB	15A56101	C127.1	Identify the importance of optical phenomenon like Interference and diffraction and illustrste the knowledge about diffraction phenomenon and applications of lasers.
			C127.2	Apply practical application knowledge of optical fiber and lasers by the study of their relative parameters.
			C127.3	Apply the knowledge of semiconductor and magnetic materials in day to day science applications.
8	Engineering & IT Workshop	13A99103	C128.1	Design and development of sheet metal objects by surface development and join the metals for obtaining desired shape.
			C128.2	Build a Personal Computer and Install operating systems and prepare the computer ready to use.
			C128.3	Develop presentation and documentation of a given tasks through Microsoft Windows and access the Internet & test Interconnect two or more computers for information sharing.

II B. Tech - I Semester

S.No	Subject Name	Subject Code		Course Outcomes
1	Mathematics-III	15A54301	C211.1	Analyze engineering problems using the concepts of Matrices.
			C211.2	Solve the algebraic and transcendental equations using various numerical methods.
			C211.3	Apply the concepts of interpolation techniques to estimate the suitable value for the given data.
			C211.4	Apply the concepts of curve fitting to fit the curves for the given data.
			C211.5	Solve the Ordinary Differential equations of various engineering problems through Numerical methods.
2	Electronic Devices and Circuits	15A04301	C212.1	Illustrate the operating principles of P-N Diode & special purpose electronic devices.
			C212.2	Demonstrate the working principle of rectifiers & filters.
			C212.3	Interpret the working principle and characteristics of transistors.
			C212.4	Analyze the biasing techniques of BJT and FET.
			C212.5	Analyze the BJT & FET amplifier circuits using small signal model.
3	Switching Theory and Logic Design	15A04302	C213.1	Translate the numeric information in to different forms.
			C213.2	Apply K-Map and Tabular methods to minimize Boolean functions.
			C213.3	Choose appropriate standard combinational functions to build complex digital circuits.
			C213.4	Make use of the standard sequential functions to build complex digital circuits.
			C213.5	Relate the modeling of various programmable logic devices.
	Signals and Systems	15A04303	C214.1	Interpret the concept of various signals, systems and Fourier series for Continuous time signals.
			C214.2	Apply Fourier transform and Sampling Theorem for Continuous time signals.

4			C214.3	Analyze the characteristics of linear systems.
			C214.4	Apply DTFT for various discrete time signals.
			C214.5	Analyze Laplace and Z-transform for continuous and discrete time systems.
5	Probability Theory and Stochastic Processes	15A04304	C215.1	Calculate the probabilities by using an appropriate sample spaces .
			C215.2	Compute the statistical averages for two random variables using probability density and distribution functions using probability density and distribution functions.
			C215.3	Interpret the concept of Power Spectrum Density & Cross Power Spectrum density related to temporal characteristics.
			C215.4	Interpret the concept of Power Spectrum Density & Cross Power Spectrum density related to spectral characteristics.
			C215.5	Apply the principles of a random process for solving system related problems.
6	Electrical Technology	15A02306	C216.1	Describe the construction, operating principle of DC Generators.
			C216.2	Illustrate the testing methods of DC Motors.
			C216.3	Describe the construction, operation, types and equivalent circuit of a single phase transformer.
			C216.4	Summarize the different speed control methods used in three phase induction motors.
			C216.5	Analyze the various regulation methods used in three phase synchronous generators.
7	Electronic Devices and Circuits Laboratory	15A04305	C217.1	Illustrate V-I characteristics of PN and Zener diode and its use in rectifier circuits
			C217.2	Verify input-output characteristics of transistor configurations and their use in amplifiers.
			C217.3	Illustrate the V-I characteristics of UJT and SCR.
			C217.4	Analyze the performance of amplifiers circuits
	Electrical	15A02307	C218.1	Verify magnetization characteristics of DC generator & motor and find critical field resistance with efficiency.

S.No	Subject Name	Subject Code		Course Outcomes
8	Technology and Basic Simulation Laboratory		C218.2	Demonstrate the OC & SC test of single phase transformer and find the efficiency.
			C218.3	Analyze various operations on signals and LTI systems using different transforms

II B. Tech - II Semester

S.No	Subject Name	Subject Code		Course Outcomes
1	Mathematics-IV	15A54402	C221.1	Analyze the engineering problems through the methods of special functions.
			C221.2	Demonstrate the concepts of Bessel's functions and Legendre polynomials to solve various engineering problems.
			C221.3	Apply the concepts of complex differentiation methods to solve various engineering problems .
			C221.4	Evaluate the various engineering problems through the knowledge of complex integration.
			C221.5	Evaluate the improper real integrals of various engineering applications through the concepts of residue theorem.
2	Electronic Circuit Analysis	15A04401	C222.1	Illustrate the working principle of feedback amplifiers and oscillators.
			C222.2	Demonstrate the frequency response of amplifiers.
			C222.3	Analyze the parameters of multi stage amplifiers.
			C222.4	Compute the parameters of various power amplifiers.
			C222.5	Interpret the concept of Tuned amplifiers.
3	Analog Communication Systems	15A04402	C223.1	Interpret the concept of amplitude modulation and demodulation.
			C223.2	Illustrate the concept of angle modulation and demodulation.
			C223.3	Analyze the effect of noise on the performance of communication systems.

			C223.4	Demonstrate the fundamentals of analog pulse modulation schemes.
			C223.5	Analyze the information theory and encoding techniques.
4	Electromagnetic Theory and Transmission Lines	15A04403	C224.1	Apply the Coulomb's law and Gauss law to different charge distributions.
			C224.2	Make use of Biot-Savart Law, Ampere's Circuit law to static current distributions.
			C224.3	Analyze the electric and magnetic fields.
			C224.4	Interpret the Characteristics of EM Wave.
			C224.5	Illustrate the concepts of transmission lines.
5	Data Structures	15A05201	C225.1	Apply the knowledge of arrays and linked lists for various applications.
			C225.2	Apply the knowledge of stacks and queues for various applications.
			C225.3	Develop the tree and graph models of the given problem through tree and graph concepts .
			C225.4	Analyze the sorting algorithms to evaluate the time & space complexities.
			C225.5	Analyze the searching algorithms to evaluate the time & space complexities.
6	Control Systems Engineering	15A02303	C226.1	Analyze the transfer function of various systems
			C226.2	Summarize the Time-domain responses of first and second-order systems
			C226.3	Describe the stability of a closed-loop control system by RH Criterion & Root Locus.
			C226.4	Illustrate the methods of frequency responses for stability.
			C226.5	Analyze the system equations in state-variable form.
7	Electronic Circuit Analysis Laboratory	15A04404	C227.1	Analyze the single and multistage amplifiers at low, mid and high frequencies using simulation software and hardware.
			C227.2	Analyze different oscillator characteristics using simulation software and hardware.

S.No	Subject Name	Subject Code		Course Outcomes
8	Analog Communication Systems Laboratory	15A04405	C228.1	Analyze behaviour of analog modulations and pulse modulations systems in the time domain
			C228.2	Analyze practical behavior of different elements available in analog communication system such as filters, amplifiers, etc.
			C228.3	Verify the characteristics of radio receiver and antenna measurements
9	Comprehensive Online Examination-I	15A04406	C229.1	Recall fundamental engineering knowledge
			C229.2	Demonstrate the ability of online learning
			C229.3	Apply the concept of problem solving ability

The top partial row (above S.No 8) reads:

| | | | C227.3 | Verify the efficiency and frequency response of power amplifiers using simulation software and hardware. |

III B. Tech - I Semester

S.No	Subject Name	Subject Code		Course Outcomes
1	Computer Organization	15A04511	C311.1	Illustrate the Concepts of Functional Architecture and Basic Operations of Computing devices.
			C311.2	Apply the representation of Arithmetic Operations performed in digital computer and illustrate the basic processing unit to execute Computer instruction.
			C311.3	Analyze the Memory System and their impact for Computer performance. (BL - 4)
			C311.4	Demonstrate the basic knowledge of I/O devices and Interfacing of I/O devices of a computing system.
			C311.5	Choose the Concepts of Pipeline Processing and Interconnection Structure of computers.
2	Antennas and Wave Propagation	15A04501	C312.1	Demonstrate the concept of antenna parameters to measure the performance of antenna.
			C312.2	Analyze the working principles of VHF, UHF and Microwave Antennas-I.
			C312.3	Interpret the concepts of VHF, UHF and Microwave Antennas-II.
			C312.4	Analyze parametric integral expressions for a given current source.

			C312.5	Organize the concept of EM wave propagation.
3	Digital Communication Systems	15A04502	C313.1	Illustrate the concept of digital modulation schemes.
			C313.2	Analyze the performance of base band digital modulation and demodulation techniques.
			C313.3	Demonstrate the signal space analysis.
			C313.4	Illustrate the concept of Pass band digital modulation and demodulation techniques.
			C313.5	Analyze the digital communication coding techniques.
4	Linear Integrated Circuits and Applications	15A04503	C314.1	Analyze the analysis of BJT Differential Amplifiers and the characteristics of operational amplifier
			C314.2	Interpret the Closed loop Op-amp Configuration circuits with the analysis of gain and Frequency Response using an op-amp.
			C314.3	Examine the analysis of linear applications using IC 741 op-amp.
			C314.4	Inspect the analysis of Nonlinear and specialized applications using ICs (741, 555, 565, 566, MPY634).
			C314.5	Classify the working principle of data converters .
5	Digital System Design	15A04504	C315.1	Demonstrate the electrical behavior of Digital Logic families.
			C315.2	Analyze the digital logic circuits using hardware description languages.
			C315.3	Develop the Combinational Digital System using basic IC structures.
			C315.4	Model sequential circuits using VHDL.
			C315.5	Write VHDL programs of Sequential logic integrated circuits.
	MEMS & Micro systems	15A04506	C316.1	Demonstrate the basic MEMS devices.
			C316.2	Illustrate fabrication techniques for MEMS.
			C316.3	Interpret the concept of Microelectronic technology for MEMS micro sensors.

6			C316.4	Analyze the processing techniques for MEMS accelerometers.
			C316.5	Demonstrate the applications of MEMS in various fields.
7	IC Applications Laboratory	15A04507	C317.1	Apply the linear and nonlinear applications of op amps in real time applications.
			C317.2	Analyse various analog filters using Op-amp for the given specifications
			C317.3	Analyse various oscillators using Op-amp
			C317.4	Design the PLL and VCO for the given specifications.
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8	Digital Communication Systems Laboratory	15A04508	C318.1	Describe different modulation techniques in digital communications.
			C318.2	Interpret spectra of different digital modulation schemes.
			C318.3	Analyse digital modulation techniques using MATLAB.
9	Audit course – Social Values & Ethics	15A99501	C319.1	To learn and practice social values and responsibilities
			C319.2	Develop the roles and responsibility of social activity.
			C319.3	Contribute to the development of the society and organization they work
			C319.4	Learn themselves into professionals & follow professional ethics

III B. Tech - II Semester

S.No	Subject Name	Subject Code	Course Outcomes	
1	Managerial Economics and Financial Analysis	15A52301	C321.1	Understand the role and responsibilities of a managerial economist in modern business scenario.
			C321.2	Apply the demand of a product by using demand forecasting methods..
			C321.3	Apply the Break Even Point (BEP) with the help of production and cost analysis.
			C321.4	Understand their learning's about competitive markets and business economic environment.
			C321.5	Analyze the process of preparing financial statements to know financial position of the firm.
2	Microprocessors & Microcontrollers	15A04601	C322.1	Interpret the working principles of 8086 micrprocessor .
			C322.2	Analyze the Instruction formats and addressing modes 8086 processor.
			C322.3	Demonstrate the features, architecture & addressing modes and instruction set of MSP 430.
			C322.4	Analyze the modes of MSP 430.
			C322.5	Illustrate the principles of serial communication interfaces used with MSP 430.
3	Electronic Measurements and Instrumentation	15A04602	C323.1	Illustrate the principles involved in the Electronic meters
			C323.2	Demonstrate the operation of CRO
			C323.3	Analyze the working of function generator, wave analyzers, logic analyzers and spectrum analyzers.
			C323.4	Measure the passive parameters using ac & dc bridges.
			C323.5	Interpret the working principle of transduction for measuring non-electrical quantities

4	Digital Signal Processing	15A04603	C324.1	Compute the time response and frequency response of Discrete Fourier Transforms.
			C324.2	Analyze the concepts of Fast Fourier Transform Algorithms.
			C324.3	Demonstrate the principles of realization techniques of FIR & IIR filters.
			C324.4	Design the FIR filters and IIR filters.
			C324.5	Illustrate the concepts of Multi rate Digital Signal Processing.
5	VLSI Design	15A04604	C325.1	Analyze the fabrication process and Basic electrical properties of MOS , CMOS and BICMOS Circuits.
			C325.2	Apply the concepts, rules to stick diagrams and layout design for CMOS Circuits.
			C325.3	Design the logic gate circuits using gate level design and physical design.
			C325.4	Design of basic arithmetic building blocks and sensitization of ASICs.
			C325.5	Demonstrate the concepts of VHDL Synthesis, simulation and methods for testing and testability .
6	Neural Networks & Fuzzy Logic	15A02605	C326.1	Describe the concepts of Rule based System, Architecture and Expert Systems of Artificial Intelligence system .
			C326.2	Illustrate the different models and techniques for desired output in Artificial Neural Networks
			C326.3	Summarize the application of Artificial Neural Networks for electrical system and Control system Problems .
			C326.4	Analyze the basic concepts of fuzzy sets and membership Functions and Defuzzification for Fuzzy logic system .
			C326.5	Summarize the applications of fuzzy logic to Electrical systems.
	Microprocessors & Microcontrollers Laboratory	15A04607	C327.1	Design and implement programs on 8086 microprocessor.

7			C327.2	Demonstrate the concepts related to I/O and memory interfacing
			C327.3	Simulate interfacing and programming GPIO ports in C using MSP430
			C327.4	Design and implement MSP430 microcontroller based systems
8	Digital Signal Processing Laboratory	15A04608	C328.1	Analyze discrete time signals & systems using MATLAB
			C328.2	Design & implement IIR & FIR filters for different specifications
			C328.3	Design DSP based real time processing systems to meet desired needs of the society
9	Comprehensive Online Examination-II	15A04609	C329.1	Recall fundamental engineering knowledge
			C329.2	Demonstrate the ability of online learning
			C329.3	Apply the concept of problem solving ability
10	Advanced English Language Communication Skills (AELCS) Laboratory (Audit Course)	15A52602	C3210.1	Apply sound vocabulary and its proper use contextually
			C3210.2	Build Writing skills and felicity in written expression.
			C3210.3	Bulid presentation skills through poster and oral
			C3210.4	Improve the Communication Skills.

IV B. Tech - I Semester

S.No	Subject Name	Subject Code		Course Outcomes(COs)
1	Optical Fiber Communication	15A04701	C411.1	Demonstrate the optical fiber communication link,structure,propagation and transmission properties of an optical fiber.
			C411.2	Interpret the signal degradation in optical fibers due to various losses.
			C411.3	perform the characteristics of fiber sources and coupling.
			C411.4	Determine the characteristics of fiber optical receivers.
			C411.5	Design of digital and analog optical fiber links based on budgets .
2	Embedded Systems	15A04702	C412.1	Understand the concept of Embedded systam, Microcontroller and their interactions.
			C412.2	Design of embedded systems leading to 32-bit application development.
			C412.3	Understand the key concepts of embedded systems such as I/O, timers, interrupts and interaction with peripheral devices.
			C412.4	Review and implement the protocols used by microcontroller to communicate with external sensors and actuators in real world.
			C412.5	Intrepret the concept of Embedded Networking and IoT concepts based upon connected MCUs
3	Microwave Engineering	15A04703	C413.1	Explain Microwave Transmission phenomenon.
			C413.2	Determine Wave parameters relevant to Microwave transmissions in Waveguides.
			C413.3	Explain Principle of operation of Passive Microwave Components.
			C413.4	Explain Principle of operation Active Microwave Devices.
			C413.5	Determine Microwave measurements.
	Data Communications	15A04704	C414.1	List the layered concept in communication networks

4	and Networking		C414.2	Determine the concept of error control in data link layer
			C414.3	Explain the IEEE standards of LAN & WAN
			C414.4	Apply the various network parameters in routing algorithms
			C414.5	Analyze the concept of network security and cryptography for transport layer
5	Radar Systems	15A04705	C415.1	Explain the principles of operation of radar systems.
			C415.2	Describe the design of radar signals and FM radar.
			C415.3	Explain the performance of MTI radar system and its application.
			C415.4	Analyse the performance of simple tracking radar systems.
			C415.5	Apply the design equations to phased array antennas.
6	CELLULAR & MOBILE COMMUNICATION	15A04709	C416.1	Understand impairments due to multipath fading channel.
			C416.2	Understand the fundamental techniques to overcome the different fading effects.
			C416.3	To understand Co-channel and Non Co-channel interferences
			C416.4	Able to familiar with cell coverage for signal and traffic, diversity techniques and mobile antennas.
			C416.5	Understanding of frequency management, channel assignment and types of handoff.
7	Microwave and Optical Communication Laboratory	15A04711	C417.1	Analyze the waveguides in different modes of operation.
			C417.2	Intepret the limitations of conventional tubes at microwave frequencies and different microwave oscillators & amplifiers.
			C417.3	Analyse the optical fiber communications link.
8	VLSI & Embedded Systems Laboratory	15A04712	C418.1	Analyze the electrical characterisitcs, inverter configurations and combinational circuits of MOS transistor.
			C418.2	Intepret the various approaches to minimize the switched capacitance in MOS device.
			C418.3	Analyse the various approached to ,ini,ize the leakage power.

IV B. Tech - II Semester

S.No	Subject Name	Subject Code		Course Outcomes(COs)
1	Low Power VLSI Circuits & Systems	15A04802	C421.1	Illustrate the knowledge about various CMOS fabrication process and its modeling and infer about the second order effects of MOS transistor characteristics .
			C421.2	Analyze the different types of metal–oxide–semiconductor (MOS) inverters.
			C421.3	Summarize the sources of power dissipation in digital IC systems & understand the impact of power on system performance and reliability .
			C421.4	Demonstrate a system level approach to minimize the switched capacitance which involves optimizing algorithms, architectures, logic design, circuit design, and physical design.
			C421.5	Utilize modern CAD tools for IC design, simulation, verification and automated logic synthesis layout and analyze leakage sources and reduction techniques.
2	RF Integrated Circuits	15A04804	C422.1	Explain the Architecture of RF system.
			C422.2	Analyze MOSFET Amplifier for RF IC design.
			C422.3	Describe RF receiver front end systems for wireless communication.
			C422.4	Describe RF power amplifiers, VCO and PLL.
			C422.5	Outline Modern RF transceiver architectures.
3	Comprehensive Viva Voce	15A04805	C423.1	Recall the fundamentals of mathematicsand Engineering.
			C423.2	Relate comprehensive understanding of techniques applicable to their own area of professional practice.
			C423.3	Develop their Communication skills and Build confidence to face the interviews
4	Technical Seminar	15A04806	C424.1	Survey in research oriented field and develop the literature documentation.
			C424.2	Develop the competency skills in the field of engineering interdisciplinary approaches for better understanding of technological advances.

			C424.3	Develop the life long learning skills on the recent trends & technologies to Communicate effectively on complex engineering activities.
5	Project Work	15A04807	C425.1	Identify the problem by using the fundamental knowledge and skills.
			C425.2	Design a solution.to complex problems in a systematic approach.
			C425.3	Demonstrate a strong working knowledge and interact with team manner in a professional manner.