

Subject	CO'S
15MAT31 (M-III)	<p>CO1: Find Fourier series of periodic functions.</p> <p>CO2: Evaluate Fourier transform, solve difference equations using Z-Transform.</p> <p>CO3: Apply statistical and numerical methods to fit the given data into appropriate curves and to solve algebraic, transcendental equations.</p> <p>CO4: Apply various numerical techniques to interpolate, evaluate definite integrals</p> <p>CO5: Use curl and divergence vector integration, to verify green's stroke's divergence theorems and to evaluate geodesics.</p>
15EC32 (AEC)	<p>CO1: Acquire knowledge of Working principle, characteristics and basic applications of BJT, construction, working principle of FET, Single stage, cascaded and feedback amplifier configurations, Frequency response characteristics of BJT and FET, Power amplifier classifications such as Class A, Class B and Voltage Regulators etc.</p> <p>CO2: Analyze small signal ac equivalent circuits using BJT and FET, low and high frequency response using BJT and FET, Feedback Circuits in terms of impedances and gain.</p> <p>CO3: Prove the performance of power amplifiers in terms of efficiency.</p> <p>CO4: Design oscillators with the help of feedback circuits.</p> <p>CO5: Interpret performance characteristics of transistors amplifiers and FETs.</p>
15EC33 (DE)	<p>CO1: Apply the fundamental concepts, terminology of logic design and different Boolean postulates to solve the given problem.</p> <p>CO2: Apply the various simplification methods (K-map, Quin-MuClusky, MEV) to simplify the expression in a given problem.</p> <p>CO3: Apply the knowledge of basic combinational components to design the other combinational circuits.</p> <p>CO4: Analyse the concepts of sequential circuits and differentiate the types of sequential circuits.</p> <p>CO5: Design the various sequential circuits like registers, counters, and Mealy and Moore circuits.</p>
15EC34 (NA)	<p>CO1: Understand the basic concepts in analysing networks such as mesh, node, star-delta, source transformation & shifting and evaluate appropriate method to find voltage and current for any given network.</p> <p>CO2: State and prove network theorems such as superposition, millmans, max power transfer...etc and demonstrate appropriate theorems to find the voltage or current in any given network.</p> <p>CO3: Differentiate between series and parallel resonance circuit and also demonstrate using frequency response for any circuit to find performance metrics like quality factor, bandwidth...etc.</p> <p>CO4: Define various 2 port network parameters Z, Y, h, T and establish relationship</p>

	<p>between different parameters and formulate equations governing the behaviour of the network.</p> <p>CO5: List different standard inputs in analyzing the networks like step, ramp, impulse also analyze waveform synthesis using different inputs and apply the concepts of laplace transformation for a given network.</p>
15EC35 (EI)	<p>Co1: Describe analog instruments voltmeters and multimeters with error free readings</p> <p>Co2: Evaluate the functionality of digital instruments (such as DVM's, digital multi meter, digital frequency meter digital measurement of time) for measuring digital frequency, digital time, etc..</p> <p>Co3: Apply the working principle of different oscilloscopes(delayed time base oscilloscope, analog ,sampling and digital storage oscilloscope) and signal generators(standard signal generators, laboratory type, square, pulse, frequency generators) for measuring amplitude, time and frequency</p> <p>Co4: Analyze the function of measuring instruments to calculate power, impedance, electric field strength, PH etc, and AC and DC bridges to measure resistance, capacitance and inductance</p> <p>Co5: Illustrate the functions of transducers (active and passive) with the help of bridge circuits</p>
15EC36 (FT/EE)	<p>CO1: Solve problems on Electric force, electric field intensity due to point, linear, volume charges by applying Coulombs Law and Guass Law</p> <p>CO2: Determine Energy and Potential for various charge distributions and apply continuity equation of current to calculate flow of current, total charge, charge density etc for Conductors</p> <p>CO3: Apply Poissons and Laplace equations for solving boundary value problems associated with electrostatics and magnetostatics.</p> <p>CO4: Analyze the applications of magnetostatics by applying biot-savart law, amphere's circuital law and derive the concepts of magnetic forces and materials to characterize the magnetic circuits.</p> <p>CO5: Analyze Maxwell's equations for Static fields, time varying fields, EM waves in free space, conductors and Evaluate power associated with EM waves using Poynting theorem.</p>
15ECL37 (AE LAB)	<p>CO1: Design and test rectifiers, clipping circuits, clamping circuits and voltage regulators for given specifications.</p> <p>CO2: Design and test BJT/FET amplifiers to find gain and bandwidth for given specifications.</p> <p>CO3: Plot the characteristics of JFET/MOSFET devices and calculate the parameters namely drain resistance, mutual conductance and amplification factor.</p> <p>CO4: Design oscillator circuit using BJT/FET for specific frequency.</p>

	CO5: Calculate the efficiency of Class B push pull power amplifier using BJT.
15ECL38 (DE LAB)	CO1: Demonstrate the truth table of various expressions and combinational circuits using logic gates. CO2: Design, test and evaluate combinational circuits such as Adder, Subtractor and Code converters. 3: Design, test and evaluate combinational circuits such as Decoder, Encoder and Multiplexers. CO4: Construct sequential circuits such as Flip flops, Shift registers and special type shift registers. CO5: Design synchronous and asynchronous counters, MOD N counter and Sequence generator.
15MAT41 (M-IV)	CO1: Apply various numerical methods to solve first order differential equation. CO2: Employ Bessel's and Legendre's differential equations to find the series solution. CO3: Apply the Cauchy-Riemann equations to find the analyticity of a function and determine poles and residues. CO4: To solve probabilistic of repeated nature and find the probability of joint probability distribution. CO5: To set the samples and use the knowledge of Markov chains in attempting engineering problems for feasible random events.
15EC42 (MP)	CO1: Explain the History of evolution of Microprocessors, Architecture of 8086, 8088, 8087, CISC & RISC, Von-Neumann & Harvard CPU architecture CO2: Write 8086 Assembly level programs using the 8086 instruction set CO3: Write modular programs using procedures and macros. CO4: Write 8086 Stack and Interrupts programming CO5: Interface 8086 to Static memory chips and 8255, 8254, 0808 ADC, 0800 DAC, Keyboard, Display and Stepper motors and INT 21 DOS interrupt
15EC43 (CS)	CO1: Derive a mathematical model of a given system (physical, mechanical or electrical) represented through block diagram and signal flow graph CO2: Determine the behaviour of time response and steady state errors of I and II order systems for standard test input signals CO3: Analyze the stability of a system using numerical (Routh's -Harwitz criteria) and graphical (root locus) approach CO4: Evaluate and Correlate the stability of a system using time and frequency responses CO5: Model a control system in continuous and discrete time using state variable technique
15EC44 (SS)	CO1: Understand the mathematical description of continuous and discrete time signals and systems. CO2: Analyze the signals in time domain using convolution difference/differential equations CO3: Classify signals into different categories based on their properties. CO4: Analyze Linear Time Invariant (LTI) systems in time and transform domains. CO5: Build basics for understanding of courses such as signal processing, control system and communication.
15EC45	CO1: Analyze and Compare modulation techniques such as AM, AM-DSBSC, SSB,

(PCS)	<p>VSB, FM and PM in time and Frequency domain.</p> <p>CO2: Demonstrate the generation and detection of AM and FM Wave.</p> <p>CO3: Derive functions like joint Probability, CDF, PDF, PSD, Conditional Probability, moments, correlation for a given single or several Random Variables.</p> <p>CO4: Apply the concepts of Random Variables to Compare the performance of Analog Modulation techniques (AM, FM, DSB-SC) under a given Narrowband noisy signal environment.</p> <p>CO5: Realize the significance of pulse modulation Schemes (PAM, PPM, PWM) and line coding techniques with a digital communication context.</p>
15EC46 (LIC)	<p>CO1: Acquire knowledge related to types of Opamp, basic concepts of Opamp, basic timer circuit of 555 Timer, operating principle of PLL, phase detectors/comparator, VCO and voltage regulators.</p> <p>CO2: Interpret the performance characteristics of practical Opamp considering various parameters like input output voltage range, CMRR, PSRR, Offset voltages and currents, Input/output Impedances, Slew rate and Frequency limitations.</p> <p>CO3: Solve problems related to Opamp characteristics and types of Opamp, PLL, VCO, ADC, DAC and 555 Timer.</p> <p>CO4: Analyze various applications of amplifier like DC and AC amplifiers, voltage and current sources, current amplifiers, instrumentation amplifiers, rectifiers, limiting circuits, clamping circuits, peak detectors, sample and hold circuits, V-I, I-V Converters, log and antilog amplifiers, multiplier and dividers, triangular/rectangular wave generators, Phase shift and Wein bridge oscillators, Differentiator and integrator, crossing detectors, inverting Schmitt trigger circuits, monostable and astable multivibrators, first and second order low pass and high pass active filters, Voltage regulators, 555 Timer as astable and monostable multivibrators, PLL, ADC and DAC.</p> <p>CO5: Apply the knowledge gained about amplifiers in the design of various practical circuits like DC and AC amplifiers, voltage and current sources, current amplifiers, instrumentation amplifiers, rectifiers, limiting circuits, clamping circuits, peak detectors, sample and hold circuits, V-I, I-V Converters, log and antilog amplifiers, multiplier and dividers, triangular/rectangular wave generators, Phase shift and Wein bridge oscillators, crossing detectors, inverting Schmitt trigger circuits, monostable and astable multivibrators, first and second order low pass and high pass active filters, Voltage regulators, 555 Timer as astable and monostable multivibrators, PLL, ADC and DAC.</p>
15ECL47 (MP LAB)	<p>CO1: Program a microprocessor to perform arithmetic, logical and data transfer applications</p> <p>CO2: Program a microprocessor to perform DOS interrupts, branch and loop operations</p> <p>CO3: Interface a microprocessor to various devices for simple applications.</p> <p>CO4: Perform string transfer, string reversing, searching a character in a string with string manipulation instructions of 8086.</p>

	CO5: Utilize procedures and macros for modular programming.
15ECL48 (LIC LAB)	<p>CO1: Design Adder, Integrator, Differentiator circuits, Analog filters (2nd order LPF and HPF), OSCILLATORS (RC phase shift and Wein Bridge Oscillator), DAC and Instrumentation amplifier using op-amp μA 741 for a given design specification.</p> <p>CO2: Design and demonstrate the 555 timer operations in Astable & Monostable configurations to generate signals/pulses for a given requirements.</p> <p>CO3: Demonstrate the analog modulation schemes (AM, FM and PAM) to realize the importance of modulation in analog communication systems.</p> <p>CO4: Demonstrate DSBSC generation using balance modulator IC 1496/1596 and frequency synthesis using phase locked loop.</p> <p>CO5: Design RF mixer using BJT/FET and appreciate the role of RF mixer in Superheterodyne Receivers.</p>
10AL51 (ME)	<p>CO1: To recall and identify the relevance of management concepts & its principles.</p> <p>CO2: To describe, discuss and relate management functions adopted within an organization.</p> <p>CO3 :Realize the social responsibilities towards business and entrepreneurship.</p> <p>CO4 :To assess and modify different solution to small scale industries with the aid of financial institutions.</p>
10EC52 (DSP)	<p>CO1: Explain the frequency domain sampling and reconstruct discrete time signal.</p> <p>CO2: Compute DFT of a discrete time sequence using definition of DFT and properties.</p> <p>CO3: Evaluate Linear Convolution of Long input sequence and Impulse response using Overlap save and add methods.</p> <p>CO4: Develop FFT Algorithms to reduce the computation time of DFT</p> <p>CO5: Design Analog and Digital IIR Filters, FIR Filters using windowing techniques. Construct digital IIR and FIR filters in Direct form I, direct form II, Cascade, Parallel and Lattice Structures</p>
10EC53 (AC)	<p>CO1: Understand the need for modulation and acquire the skills to design, analyze, and assess the amplitude modulation qualitatively and quantitatively.</p> <p>CO2: Acquire the skills to design, analyze, and assess the angle modulation qualitatively and quantitatively.</p> <p>CO3: Classify various noises , their sources and the impact of noise on the analog communication systems.</p> <p>CO4: Compare the performance of various modulation schemes based on their noise performance</p> <p>CO5: Analyze and quantify random process</p>
10EC54 (MWR)	<p>CO1: Explain and Analyze the various parameters related to microwave Transmission lines, Waveguides and strip lines by using graphical (Smith Chart) method and numerical calculations.</p>

	<p>CO2:Describe the working principle of various microwave diodes and microwave passive devices for high frequency applications.</p> <p>CO3:Analyze the concept of Microwave network theory with the help of S-Parameters targeting to microwave passive devices.</p> <p>CO4:Understand the basic principle of Radar, Radar operating frequencies with Applications and design parameters of Radar system</p> <p>CO5:Relate the importance of microwave engineering and digital signal processing in the growth of RADAR technology.</p>
10EC55 (ITC)	<p>CO1:Examine mathematically the performance parameters of the digital communication system (information system) to solve complex engineering problems related to it.</p> <p>CO2:Analyze statistical modeling of independent and dependent information sources (Ex: Markov Source) for the given specifications.</p> <p>CO3:Discuss the design considerations for fundamental Source coding to encode the source output by constructing r-ary codes with the help of suitable optimum source coding algorithm (Shannon's encoding algorithm</p> <p>CO4:Analyze the design aspects of communication channels (Continuous and Discrete Channel Modeling) in terms of channel capacity and entropy functions.</p> <p>CO5:Design optimum channel encoder and decoder using different error control coding schemes (Block codes and Convolutional Codes) and realize the importance of Error control coding.</p>
10EC56 (VLSI)	<p>CO1: Demonstrate of fabrication process and behaviour of NMOS, PMOS transistor and CMOS inverter.</p> <p>CO2: Draw the Schematic, Stick, Layout diagram of logic gates using nMOS, CMOS and Bi-CMOS logic.</p> <p>CO3: Understand and Construct different logic structures- Pseudo N-MOS, Pseudo CMOS, Dynamic CMOS, Domino CMOS, Clocked CMOS, CVSL.</p> <p>CO4: Apply basic circuit concepts (Sheet Resistance & Area Capacitance) for transistors, inverter delays and understand the importance of scaling factors for MOSFET.</p> <p>CO5: Identify the Performance parameters of various subsystems, systems and memory elements.</p>
10ECL57 (DSP LAB)	<p>CO1:Verify sampling theorem for given modulating and carrier frequency</p> <p>CO2:Evaluate linear and circular convolution of two given sequences</p> <p>CO3:Compute Correlation of given sequences and verify its properties</p> <p>CO4:Compute N point DFT of a given sequence and plot magnitude and phase spectrum</p> <p>CO5:Design FIR and IIR to meet the given specifications</p>
10ECL58 (AC+LIC LAB)	<p>CO1: Design and implement active filters. Also design & implement of Class C tuned amplifier, frequency synthesis using PLL</p> <p>CO2: Design and implement multivibrators using 555Timer IC</p> <p>CO3: Design and implement Precision Rectifiers, Schmitt Trigger and DAC circuits using Op-Amp IC μA 741</p>

	CO4: Analyze different analog modulation schemes
10EC61 (DC)	<p>CO1:Understand the need for Digital communication and acquire the skills to analyze sampling, quantization, encoding processes qualitatively and quantitatively.</p> <p>CO2:Design various digital formats (line coding) viz RZ/NRZ Unipolar, Bi polar and Polar formats and their PSDs</p> <p>CO3:Analyze various Digital Modulation Schemes like ASK, FSK and PSK and their performance</p> <p>CO4:Analyse the signal space representation, representation of digitally modulated signals, spectral characteristic of digitally modulated signals -Gram Schmidt Orthogonalization.</p> <p>CO5:Understand and assess Spread spectrum techniques</p>
10EC62 (MP)	<p>CO1:Outline 8086 processor architecture and Classify different addressing modes of 8086.</p> <p>CO2:Apply instruction set of 8086 microprocessor in programming and Apply the concepts of 8086 in learning any latest processor.</p> <p>CO3:Apply concepts of multiprocessing systems, 8086 interfacing for learning advanced processors.</p> <p>CO4:Understand the system bus architecture based on modes and external interfaces.</p> <p>CO5:Outline the concepts of different external interfaces.</p>
10EC63 (MEC)	<p>CO1: Demonstrate and understand the MOS Theory- physical structure,operation, terminal characteristics, circuit models and basic circuit applications of NMOS, PMOS and CMOS.</p> <p>CO2: Analyse & Design a microelectronic Circuit for single stage amplifier using MOSFETs and BJTs.</p> <p>CO3: Design a Multistage amplifiers to meet stated operating specifications(input/output and gain characteristics).</p> <p>CO4: Understand the Feedback Structure-Properties,Topologies & operational Amplifiers(operation & input/output and gain characteristics).</p> <p>CO5: Design & Analyse the performance for various digital CMOS Circuits.</p>
10EC64 (AWP)	<p>CO1:Interpret the data from the given specifications of the unknown antenna to calculate the antenna parameters-Beam area, HPBW, BWFN, Directivity, Gain, Antenna Efficiency, Antenna Aperture etc. as per the requirements mentioned.</p> <p>CO2:Apply the Concept of Point sources to Analyse the standard N element antenna arrays(Such as Broad Side, End fire and Extended End fire Arrays) in terms of their Array factor, Radiation Pattern and Element spacing and excitation.</p> <p>CO3:Illustrate the classification of antenna types based on the hardware structure,</p>

	<p>Radiation pattern and Applications of usage and Analyse the various performance parameters of different types of antennas (Dipole antenna, Monopole antenna, Loop antenna, Slot antenna, Microstrip Patch antenna, Yagi Uda antenna etc.)</p> <p>CO4:Discuss three standard types of wave propagation modes (Ground wave, Space wave and Ionosphere wave Propagation) based on the Atmospheric Structure, frequency of operation and applications of usage.</p> <p>CO5:Discuss the performance parameters, irregularities and nature of the Ionospheric layer to analyze the sky wave propagation.</p>
10EC65 (OS)	<p>CO1: Discuss overview of operating system and Classify the operating systems.</p> <p>CO2: Outline the structure of operating system.</p> <p>CO3: Highlight the concept of processes and memory management.</p> <p>CO4: Identify the processes in UNIX AND SOLARIS and mailbox.</p> <p>CO5: Differentiate the scheduling strategies.</p>
10EC665 (C++)	<p>CO1:Understand the concept of object oriented programming and Compare different datatypes and apply suitable datatypes in a C++ program.</p> <p>CO2:Differentiate various operators and understand the control statements to write C++ program.</p> <p>CO3: Understand the concept of functions and integrate new function techniques in C++ programs and Design an efficient program using exception handling techniques.</p> <p>CO4: Create classes and objects and integrate constructors and destructors in class to develop C++ program.</p> <p>CO5: Integrate inheritance and operator overloading concepts to design C++ program.</p>
10ECL67 (ADC LAB)	<p>CO1: Demonstrate Generation & Detection of Digital Modulation Schemes- ASK,FSK,PSK.</p> <p>CO2: Measure losses, NA of a given Optical Fibre. Establish Analog link and Digital Link.</p> <p>CO3: Measure Directivity and Gain of given Patch antenna</p> <p>CO4: Measure different characteristics of Microwave devices (Directional coupler, Power divider and Ring Resonator)</p> <p>CO5: Measure Frequency, Wavelength, Power and Attenuation of Klystron Bench.</p>
10ECL68 (MP LAB)	<p>CO1:Program a microprocessor to perform arithmetic, logical and data transfer application.</p> <p>CO2:Understand assembler directives, DOS interrupts, branch and loop operations</p> <p>CO3:Interface a microprocessor to various devices for simple applications.</p> <p>CO4:Effectively utilize microprocessor peripherals.</p> <p>CO5:Utilize procedures and macros for modular programming.</p>

<p>10EC71 (CCN)</p>	<p>CO1: Identify various network models, telephone and cable networks. CO2: Compare various error and flow control models CO3: Interpret various wired and wireless LAN standards CO4: Analyse different contention protocols CO5: Categorize different network addressing schemes CO6: Analyse different routing algorithms.</p>
<p>10EC72 (OFC)</p>	<p>CO1:Recall the concepts of optical fiber. CO2:Compare Optical Sources & Detectors and Select the components of Optical System. CO3:Analyze Optical receiver concepts CO4:Apply the concepts of analog and digital links and distinguish various components of WDM. CO5:Discuss optical amplifiers and networks.</p>
<p>10EC73 (PE)</p>	<p>CO1:Understand and justify different types of power semiconductors devices, power electronic circuits and firing circuits. CO2:Analyse and design of different types of Controlled rectifiers, AC voltage controllers, commutation methods, DC choppers and Inverters. CO3:Apply integration, differentiation principles and derive various parameters of above concepts. CO4:Solve numerical problems on above concepts.</p>
<p>10EC74 (ESD)</p>	<p>CO1:Defining the Embedded system and associated parameters. CO2:Discuss hardware side in Embedded system. CO3:Categorise memories and embedded system design and development. CO4:Focus on Real-Time Kernels and Operating Systems in Embedded system. CO5:Estimate Performance Analysis and Optimization of various parameters in Embedded system.</p>
<p>10EC751 (DSPA)</p>	<p>CO1:Distinguish between DSP processor and general purpose processor. CO2:Demonstrate the concepts of DFT, IDFT, FFT, Interpolation and Decimation filters. CO3:Explain architectural features of programmable DSP and identify different types of addressing modes,Instructions and interrupts. CO4:Write FFT, Interpolation, Decimation, FIR and IIR filter algorithms. CO5:Implement filter algorithms on DSP for real time signal processing and Implement real time applications by using DSP Processor</p>
<p>10EC762 (RTS)</p>	<p>CO1: Define, discuss and clarify real time systems. CO2: Classify various computer hardware and its interface. CO3: Analyze the concepts of operating system. CO4: Estimate scheduling strategies. CO5: Create a design document for development of RTS system.</p>
<p>10ECL77</p>	<p>CO1:Demonstrate the behavior of basic gates, buffer and transmission gate using</p>

(VLSI Lab)	<p>Verilog coding.</p> <p>CO2:Realize the operation of flip-flops, adders, counters and SAR and verify the results.</p> <p>CO3:Design and draw Schematic, layout and verify LVS, DC and transient analysis of a CMOS Inverter.</p> <p>CO4:Design and draw Schematic, layout and verify DC, AC and transient analysis of CMOS differential amplifier, common source amplifier, common drain amplifier.</p> <p>CO5:Design and draw Schematic, layout and verify the simulation results of R-2R DAC using CMOS logic.</p>
10ECL78 (PE Lab)	<p>CO1: Interpret the characteristics of SCR,TRIAC, MOSFET, and IGBT</p> <p>CO2: Design Load controller using</p> <ol style="list-style-type: none"> a) RC triggering circuit b) UJT firing Circuit c) TRIAC DIAC combination. <p>CO3: Demonstrate various types of conversion</p> <ol style="list-style-type: none"> a) 1ϕ Fully controlled bridge converter with R & RL Load. b) Voltage commutated chopper. c) Parallel /Series inverters. <p>CO4: Observe experimentally generation of firing signal for thyristors.</p> <p>CO5: Evaluate the speed controlling of DC motor, Universal motor & Stepper motor.</p>
10EC81 (WC)	<p>CO1: Understand the examples of wireless communication syatems, paging systems, cordless telephone systems.</p> <p>CO2: Understand the second generation , third generation wireless networks, wireless in local loop, wireless LAN, bluetooth and personal area networks.</p> <p>CO3: Understand the concepts of spectrum allocation, basic cellular system, frequency reuse, channel assignment strategies, handoff strategies, interference, improving coverage and capacity, cell splitting.</p> <p>CO4: Understand various multiple access techniques: FDMA,TDMA,spread spectrum multiple access,SDMA .</p> <p>CO5: Understand the difference between wireless and fixed telephone networks, development of wireless networks and GSM technology, orthogonal frequency division multiplexing, overviews of the LAN industry, evolution of the WAN industry</p>
10EC82 (DSS)	<p>CO-1.Explain the evolution of switching systems</p> <p>CO-2.Analyze the telecommunication traffic</p> <p>CO-3.Asses the different switching networks</p> <p>CO-4.Apply the different methods to maintain the switching systems</p>

	CO-5. Asses the strategy for improving the software quality of digital switching system
10EC833 (ONW)	<p>CO1:Defining the Optical Networks and associated parameters.</p> <p>CO2:Discuss various components in Optical Networks.</p> <p>CO3:Categorise Transmission System Engineering in system model, power penalty etc.</p> <p>CO4:Focus on Wavelength routing and wavelength assignment in Optical Networks.</p> <p>CO5:Devise various virtual topologies and control and management.</p>
10EC843 (GSM)	<p>CO1:Identify subsystems and Interfaces of a GSM PLMN , recognize the importance of interference reducing mechanisms in improving the performance of a GSM system and map GSM layers onto OSI layers.</p> <p>CO2:Classify GSM logical channels, GSM bursts and describe GSM frame structure and mobility management with necessary flow diagrams.</p> <p>CO3:Analyse different ITU speech codecs based on transmission bit rate,delay,complexity,quality and list and differentiate basic telecommunication services provided by GSM PLMN .</p> <p>CO4:Describe call setup,MS terminated call, call release ,handover flow scenarios in GSM and examine GSM Data services(SMS,GPRS) , primary privacy and security mechanisms.</p> <p>CO5:Outline the important aspects for planning ,designing of a GSM wireless network and requirements needed to manage a wireless network along with the roles of five management functional areas.</p>
10ECP85 (Project)	<p>CO1:Interpret various Engineering problems</p> <p>CO2:Design and carryout a project for current industrial standards</p> <p>CO3:Demonstrate an ability to work in laboratory and industrial site on multidisciplinary tasks in teams</p> <p>CO4:Observe experimentally the impact of engineering solutions on society and need for sustainable development</p> <p>CO5:Evaluate knowledge of contemporary issues and able to apply effectively for project management</p>
10ECS86 (Seminar)	<p>CO1:Students will better understand the role that effective presentations have in public/professional contexts and gain experience in formal/ informal presentation</p> <p>CO2:Students will demonstrate the ability to discern the assignment's intended audience and objectives and respond appropriately</p> <p>CO3:Students will be able to construct a paper consistent with expectations of the discipline, including an appropriate organization, style, voice and tone</p> <p>CO4:Students will be able to access information in a variety of ways appropriate to a discipline, including locating and using library collections and services and</p>

other search tools and databases.

CO5:Students will demonstrate the ability to collaborate with others as they work on intellectual projects (reading, writing, speaking, researching...).