

CONSOLIDATED LIST OF COURSE OUTCOMES

Department of Electronics & Communication Engineering

Sl. No	Course Code & Course Name	Course Outcome Number	Course Outcome
1	MA101Calculus	C101.1	To provide some basic tools which are useful in modelling and analysing physical phenomena.
		C101.2	To analyse the physical phenomena involving continuous change of variables.
		C101.3	To evaluate differential and integral calculus of functions of one or more variables and of vector functions.
		C101.4	To evaluate the areas and volumes using integrals
		C101.5	To analyse the application of vector valued functions
		C101.6	To provide basic training in plotting and visualizing graphs of functions and intuitively understanding their properties
2	CY 100 Engineering Chemistry	C102.1	Understand various spectroscopic techniques like UV-Visible, IR, NMR and its applications.
		C102.2	Apply the basic concepts of electrochemistry and corrosion to explore its possible applications in various engineering fields.
		C102.3	Basic knowledge of Thermal analytical techniques and conductivity measurements. Basic knowledge of chromatographic techniques.
		C102.4	Have a scope in the area of material science. Have knowledge of synthesizing nano materials and their application in industry, carbon nano tube technology in every industry now a days.
		C102.5	Have knowledge of chemical properties of fuels. Know the properties of lubricants.
		C102.6	Study various types of water treatment methods to develop skills for treating wastewater.
3	BE110- Engineering Graphics	C103.1	Draw the projection of points and lines located in different quadrants
		C103.2	Prepare multiview orthographic projections of objects by visualizing them in different positions
		C103.3	Draw sectional views and develop surfaces of a given object
		C103.4	Prepare pictorial drawings using the principles of isometric and perspective projections to visualise objects in 3 dimensions.
		C103.5	Convert 3D views to orthographic views and vice versa
		C103.6	Obtain multiview projections and solid models of objects using CAD tools

4	BE101-04- Introduction to Electronics Engineering	C104.1	To understand and identify passive components
		C104.2	Student can identify active components and can design, setup simple circuits using diodes
		C104.3	To understand the basics of BJT and detailed study of its characteristics
		C104.4	To understand and detailed study of JFET&MOSFET
		C104.5	To understand the working of rectifier
		C104.6	Voltage and currents can be measured and monitored using electronic measuring instruments
5	BE103- Introduction to Sustainable Engineering	C105.1	The students should have knowledge about the concept and importance of sustainability
		C105.2	The students should be able to understand different types of pollution and waste generation, their causes, effects and control
		C105.3	The students should be able to understand environmental management standards and environmental impact assessment
		C105.4	The students should be able to understand the concepts of bio mimicking, green engineering, green building, sustainable habitat, sustainable urbanization
		C105.5	Students should have a knowledge of various types of conventional and non-conventional energy sources
		C105.6	Students should be able to understand the role of engineering and technology in sustainable development
6	ME100-Basics of Mechanical Engineering	C106.1	Acquire knowledge on fundamental concepts of thermodynamics and laws of thermodynamics.
		C106.2	Use energy conservation devices from the knowledge of the energy conversion device.
		C106.3	Select and use an appropriate refrigeration and air conditioning systems
		C106.4	Develop and implement basic ideas of the different parts, working of automobile and fundamentals of aerodynamics
		C106.5	Preparation and ability to engage in independent and life-long learning in the context of knowledge on engineering materials.
		C106.6	Select and use the different manufacturing methods
7	CY110- Engineering Chemistry Lab	C107.1	Understand and practice different techniques of quantitative chemical analysis to generate experimental skills and apply these skills to various analyses
		C107.2	Develop skills relevant to synthesize organic polymers and acquire the practical skill to use TLC for the identification of drugs
		C107.3	Develop the ability to understand and explain the use of modern spectroscopic techniques for analysing and interpreting the IR spectra and NMR spectra of some organic compounds
		C107.4	Acquire the ability to understand, explain and use instrumental techniques for chemical analysis

		C107.5	Learn to design and carry out scientific experiments as well as accurately record and analyse the results of such experiments
		C107.6	Function as a member of a team, communicate effectively and engage in further learning. Also understand how chemistry addresses social, economic and environmental problems and why it is an integral part of curriculum
8	ME110- Mechanical Workshop	C108.1	Knowledge achieved to explain the various manufacturing process in the basic mechanical engineering workshop sections- smithy, carpentry, assembling, welding etc.
		C108.2	Identify the various hand tools used in the basic mechanical engineering workshop sections-smithy, carpentry, assembling, welding etc.
		C108.3	Able to choose different measuring devises according to the work.
		C108.4	Ability to name and summarize the operations of various machine tools like lathe, milling, drilling and shaping machines.
		C108.5	Knowledge achieved to disassemble and assemble the machines like IC engines.
		C108.6	Skill achieved to construct models by using basic mechanical workshop sections like welding, moulding, smithy, carpentry etc.
9	EC110- Electronics Workshop	C109.1	Graduates will be able to recognize the appropriate methods to solve electronics and communication problems.
		C109.2	Graduates will be able to acquire basic training and skills to solve basic electronics problems.
		C109.3	Graduates will be able to apply the equations and formulas to solve related practical value problems.
		C109.4	Graduates will be able to calculate the problems in Diodes, biasing of transistor, amplifiers, oscillators and regulator circuits.
		C109.5	Graduates will be able to evaluate communication systems like RADAR, GPS, Entertainment Electronics
		C109.6	Graduates will be able to measure current voltage values using equipment and to analyse a waveform
10	MA102 - Differential Equations	C110.1	Graduates will be able acquire basic knowledge of homogeneous differential equations and methods of solving them.
		C110.2	Graduates will be able acquire basic knowledge of non-homogeneous differential equations and methods of solving them.
		C110.3	Graduates will be able to apply Fourier series for analysing periodic functions in terms of their frequency components.
		C110.4	Graduates will be able form and solve using partial differential equations
		C110.5	Graduates will be able to Identify, analyse and subsequently solve the distribution of heat problems whose behaviour can be described by differential equations.
		C110.6	Graduates will be able to Identify, analyse and subsequently solve the waves whose behaviour can be described by differential equations.

11	PH100 - Engineering Physics	C111.1	To develop an ability to understand the concepts of waves and harmonic oscillations and apply its knowledge in mechanical and electrical systems
		C111.2	Ability to differentiate between interference, diffraction and Polarization in various optical phenomenon
		C111.3	Distinguish between different types of superconductors and study their applications
		C111.4	To study the concepts of quantum mechanics and statistical mechanics
		C111.5	Using the knowledge of acoustics in designing acoustically important Buildings.
		C111.6	To apply the concepts of laser technology in various devices
12	BE100- Engineering Mechanics	C112.1	Solve problems dealing with forces and determine the resultant. Also Identify the forces acting on a body and draw the free body diagram
		C112.2	Solve problems on forces acting on a body in space. Also determine the support reactions of beams subjected to concentrated loads and uniformly distributed loads
		C112.3	Determine the centroid and moment of inertia of composite areas.
		C112.4	Analyse the concept of friction to solve problems of bodies placed on rough surfaces and solve problems on support reactions of beams using principle of virtual work.
		C112.5	Use Newton's second law to solve problems on bodies in motion and apply the concept of instantaneous centre to bodies having combined translation and rotation.
		C112.6	Knowledge on types of Vibration and solve problem using the concept of Simple Harmonic Motion
13	BE102-Design & Engineering	C113.1	Graduates will be able to classify and experiment different stages in design with their significance
		C113.2	Aware of the product oriented and user-oriented aspects that make the design a success.
		C113.3	The students will be able to identify & initiate different creative designs.
		C113.4	Enable the students to analyse the prototype models needed for development of project
		C113.5	Graduates will be able to Select the design requirements for designing various products.
		C113.6	The students can evaluate the product based on intellectual property rights
14	CE 100-Basics of Civil Engineering	C114.1	The students will be able to illustrate the fundamental aspects of Civil engineering
		C114.2	The students will be able to plan and set out a building
		C114.3	Students will be able to explain the concepts of surveying for making horizontal and vertical measurements.
		C114.4	They will able to illustrate the uses of various building materials and explain the method of construction of different components of a building.
		C114.5	Students will be able to illustrate the uses of various building elements.
		C114.6	Students will be able to discuss about various services in a building.

15	EC 100-Basics of Electrical Engineering	C115.1	Students will be able to acquire fundamental knowledge of Electrical circuits and can solve circuit related problems.
		C115.2	Students will be able to recall and state ideas about magnetic circuits.
		C115.3	Students will be able to explain the fundamentals of AC circuits.
		C115.4	Students will be able to analyse three phase systems.
		C115.5	Students will be able to compare and contrast the various types of renewable energy sources.
		C115.6	Students will be able to identify and differentiate between various AC and DC machines.
16	PH110-Engineering Physics Lab	C116.1	Develop analytical/experimental skills and impart prerequisite hands-on experience for engineering laboratories
		C116.2	Understand the need for precise measurement practices for data recording
		C116.3	Understand the principle, concept, working and applications of relevant technologies and comparison of results with theoretical calculations
		C116.4	Analyse the techniques and skills associated with modern scientific tools such as lasers and fibre optics
		C116.5	Develop basic communication skills through working in groups in performing the laboratory experiments and by interpreting the results
		C116.6	To apply the concepts of laser technology in various devices
17	CE110-Civil Workshop	C117.1	Student should be able to set out a building using tape
		C117.2	Student should be able to set out a building using cross staff
		C117.3	Student should be able to determine area and mass moment of inertia of
		C117.4	to construct one and a half and two brick walls using English bond
		C117.5	Student should be able to calculate the area and volume of various features of a building
		C117.6	Student should be able to determine the compressive strength of brick and cement mortar cubes using compression testing machine
18	EE110-Electrical Workshop	C118.1	Students will be able to recognize supply arrangements and their limitations, standard voltages and their tolerances, safety aspects of electrical systems and importance of protective measures in wiring systems.
		C118.2	Students will identify the types of wires, cables and other accessories used in wiring.
		C118.3	Students should be able to wire up and predict estimate of simple lighting circuits for domestic buildings and distinguish between light and power circuits
		C118.4	Students will be able to measure electrical circuit parameters like current, voltage and power in a circuit.
		C118.5	Students will be able to explain the usage of Multimeters and LCR Q meters
		C118.6	Creating awareness of energy conservation in electrical systems.

19	MA201-Linear Algebra & Complex Analysis	C201.1	Graduates will be able to identify the analytic functions and harmonic functions.
		C201.2	Graduates will be able to understand the conformal mappings and to find regions that are mapped under certain Transformations
		C201.3	Graduates will be able to evaluate the complex integrals
		C201.4	Graduates will be able to evaluate the complex integrals as an applications of residue theorems
		C201.5	Graduates will be able to understand the concept of vector space, to solve the system of linear equations
		C201.6	Graduates will be able to and to evaluate the Eigen value, Eigen vectors of a matrix and diagonalize a matrix.
20	EC201-Network Theory	C202.1	Graduates will be able to understand the basic circuit elements, circuit variables and Kirchhoff laws.
		C202.2	Graduates will be able to solve problems using mesh and node analysis.
		C202.3	Graduates will be able to analyse circuits in the phasor form.
		C202.4	Graduates will be able to analyse circuits in Laplace domain.
		C202.5	Graduates will be able to understand the concept of two port networks
		C202.6	Graduates can understand tuned circuits & resonance.
21	EC203- Solid State Devices	C203.1	Graduates will be able to define and understand the concepts in semiconductor physics.
		C203.2	Graduates will be able to describe and apply the generation and recombination processes in semiconductors.
		C203.3	Graduates will be able to explain the structure, creation of electric field and working of PN junction semiconductor diodes.
		C203.4	Graduates will be able to illustrate the minority carrier distribution across PN junction semiconductor diodes.
		C203.5	Graduates will develop skills and can-do research in new concepts and devices.
		C203.6	Graduates can summarize concepts that studied relating different modes of operation and the various current components in BJTs and analyse energy band diagram of PN junction diodes, BJTs, metal semiconductor junctions and MOS capacitors.
22	EC205- Electronic Circuits	C204.1	Graduates will get basic ideas about lowpass high pass circuits and bit
		C204.2	Graduates will be able to explain small signal analysis of CE, CB and CC configurations
		C204.3	Graduates will be able to illustrate Analysis of high frequency response of CE, CB and CC amplifiers
		C204.4	Graduates will understand details about Feedback amplifiers
		C204.5	To know basics of Power amplifiers
		C204.6	understand Transistor based voltage regulator design and analysis

23	EC207- Logic Circuit Design	C205.1	Compare various positional number systems and binary codes
		C205.2	Apply Boolean algebra in logic circuit design
		C205.3	Design combinational and sequential circuits
		C205.4	Design and implement digital systems using basic programmable blocks
		C205.5	Formulate various digital systems using HDL
		C205.6	Designing of Finite state Machine
24	HS210 -Life Skills	C206.1	knowledge about concept and importance of sustainability
		C206.2	understand about different types of pollution and waste generation, their causes effects and control
		C206.3	understand environmental management standards and environmental impact assessment
		C206.4	understand the concept of bio mimicking, green Engineering and green building
		C206.5	knowledge about various types of conventional and non-conventional energy sources
		C206.6	understand the role of engineering and technology in sustainable development
25	EC231 Electronic Devices & Circuits Lab	C207.1	To understand VI Characteristics of rectifier and Zener diodes
		C207.2	To Understand RC integrating and differentiating circuits
		C207.3	To Understand Characteristics of BJT in CE configuration and evaluation of parameters
		C207.4	Able to design Feedback amplifiers (current series, voltage series) - gain and frequency response
		C207.5	Able to design Low frequency oscillators –RC phase shift, Wien bridge,
		C207.6	Able to design Multivibrators -A stable, Monostable and Bistable
26	EC233 - Electronics Design Automation Lab	C208.1	An ability to apply knowledge of computer, science, and engineering to the analysis of electrical and electronic engineering problems.
		C208.2	An ability to design systems which include hardware and software components.
		C208.3	An ability to identify, formulate and solve engineering problems.
		C208.4	An ability to use modern engineering technique
		C208.5	To study Different software's for design electronic circuits
		C208.6	To study and design complex engineering problems
27	MA204 Probability Distributions,	C209.1	students would have become familiar with quantifying and analysing random phenomena using various discrete random variable models of probability distributions
		C209.2	students would have become familiar with quantifying and analysing random phenomena using various continuous random variable models of probability distributions

	Random Processes	C209.3	Students would have become familiar with quantifying and analysing random phenomena using multiple random variables
		C209.4	students would also have learned the concepts of random process
		C209.5	Students would have become familiar with some special random processes and to apply Markov Chain in prediction of future events
		C209.6	Some of the fundamental numerical methods learned in the course would help them to solve a variety of mathematical problems by the use of computers when analytical methods fail or are difficult
28	EC202 Signals and Systems	C210.1	To Understand the continuous and discrete time signals
		C210.2	To understand CT signals in Fourier series and interpret the properties of Fourier
		C210.3	convolutions, correlation and to describe the orthogonality
		C210.4	of signals.
29	EC204 Analog Integrated Circuits	C211.1	Understand Differential amplifiers and Operational amplifiers:
		C211.2	To understand the basics of Op-amp
		C211.3	To understand Op-amp applications
		C211.4	To study A stable and monostable multivibrators and Active filters
		C211.5	Study Specialized ICs and its applications such as Timer IC 555, PLL IC 565 and IC 723
		C211.6	To understand Data Converters
30	EC206 Computer Organization	C212.1	To understand the functional units of a computer
		C212.2	To identify the different types of instructions
		C212.3	To understand various addressing modes
		C212.4	To learn the design concepts of multi cycle processor
		C212.5	To understand the I/O addressing system
		C212.6	To categorize the different types of memories
31	EC208 Analog Communication Engineering	C213.1	Students will be able to understand and apply the need for modulation
		C213.2	Students will be able to understand and apply modulation techniques in a communication system
		C213.3	Students will be able to understand effect of noise in communication system
		C213.4	Students will have sound knowledge and able to understand the radio transmitters
		C213.5	Students will have sound knowledge and able to understand the radio Receivers
		C213.6	Students will have sound knowledge of the working of a communication system like the telephone system
32		C214.1	knowledge about concept and importance of sustainability

	HS200 Business Economics	C214.2	understand about different types of pollution and waste generation, their causes effects and control
		C214.3	understand environmental management standards and environmental impact assessment
		C214.4	understand the concept of bio mimicking, green Engineering and green building
		C214.5	knowledge about various types of conventional and non-conventional energy sources
		C214.6	understand the role of engineering and technology in sustainable development
33	EC230 Logic Circuit Design Lab	C215.1	Student should be able to demonstrate functioning of various digital ICS
		C215.2	Student should be able to analyse and design various applications of digital circuits
		C215.3	Student should be able to explain the working of standard digital ICs
		C215.4	Student should be able to explain basic building blocks in digital circuits
		C215.5	Student should be able to design and implement combinational circuits
		C215.6	Student should be able to design and implement sequential circuits
34	EC232 Analogue Integrated Circuits Lab	C216.1	Familiarization of Operational amplifiers
		C216.2	Student should be able to design Schmitt trigger circuit using Op –Amps
		C216.3	Student should be able to design A stable and Monostable multivibrator using Op -Amps
		C216.4	Student should be able to design Timer IC NE555
		C216.5	Student should be able to design IC voltage regulators
		C216.6	Study of PLL IC: free running frequency lock range capture range
35	EC301 Digital Signal Processing	C301.1	The students will understand the fundamentals of discrete time signals, systems and their properties.
		C301.2	The students will understand various finite word length effects in digital filters.
		C301.3	The students will be able to design an analog butterworth IIR filter.
		C301.4	The students will be able to design a digital FIR filter using window technique.
		C301.5	The students will understand the basics of Discrete Fourier Transform
		C301.6	The students will understand the basics of Fast Fourier Transform.
36	EC303 Applied Electromagnetic Theory	C302.1	Analyse fields and potentials due to static charges
		C302.2	Explain the physical meaning of the differential equations for electrostatic and magnetic fields
		C302.3	Understand how materials are affected by electric and magnetic fields
		C302.4	Understand the relation between fields under time varying situations
		C302.5	Understand principles of propagation of uniform plane waves
		C302.6	Outline electromagnetic interference and compatibility

37	EC305 Microprocessors & Microcontrollers	C303.1	Understands various types of processors, architecture and its operations
		C303.2	Learns the machine cycles their functions and interfacing
		C303.3	Understands the concept of memory organizations and architecture of 8051
		C303.4	Develops programming skills in 8051
		C303.5	Understands the types of interrupts, timers, counters
		C303.6	Understands the interfacing modules
38	EC307 Power Electronics & Instrumentation	C304.1	Graduates will be able to explain the model circuits of power system components and per unit systems.
		C304.2	Graduates will be able to perform analysis of power systems subject to symmetrical and unsymmetrical faults.
		C304.3	Graduates will be capable of defining, explaining, establishing and solving equations for power flows based on nodal admittance and impedance matrix.
		C304.4	Graduates can explain the concepts of automatic generation control, load frequency control and automatic voltage control.
		C304.5	Graduates can outline the principles of economic load dispatch and unit commitment.
		C304.6	Graduates will be able to analyse the power system stability criterion.
39	HS300 Principles of Management	C305.1	To recall and identify the relevance of management concepts
		C305.2	To describe, discuss and relate management techniques adopted within an organization
		C305.3	To apply management techniques for meeting current and future management challenges faced by the organization
		C305.4	To compare the management theories and models critically and to inspect and question its validity in the real world
		C305.5	To assess and modify different theories of management so as to relate it to current management challenges
		C305.6	To apply principles of management in order to execute the role as a manager
40	EC365 Biomedical Engineering	C306.1	Discuss the overview of anatomy and physiological systems of the body
		C306.2	Illustrate the sources of bio electric potentials and electrodes.
		C306.3	Describe the principle, working and applications of various diagnostic and therapy related equipment's.
		C306.4	Illustrate the working of various instruments for clinical laboratory.
		C306.5	List the applications of medical imaging systems.
		C306.6	Discuss the importance of telemetry in patient care and patient safety in electromedical equipment.
41	EC341 Design Project	C307.1	The students will be able to think innovatively on the development of components, products.
		C307.2	To analyse the problem requirements and arrive workable design solutions
		C307.3	To familiarize with the EDA software

		C307.4	To familiarize with the processes or technologies in the engineering field
		C307.5	To understand Testing of a Circuit
		C307.6	To study about the communication between the various modules in the design
42	EC333 Digital Signal Processing Lab	C308.1	The students will be able to design and simulate systems related to DSP.
		C308.2	The students will be able to realize various systems related to DSP
		C308.3	To study design using DSP kit
		C308.4	To study Filters in DSP
		C308.5	To develop algorithm for different programs
43	EC335 Power Electronics & Instrumentation Lab	C309.1	To design and implement basic power electronic circuits
		C309.2	To design and demonstrate basic power electronic devices
		C309.3	To study the working of transducers
		C309.4	To use transducers for application
		C309.5	To train the usage of digital instruments
		C309.6	To equip student groups to design and implement simple power electronic circuits individually
44	EC302 Digital Communication	C310.1	To understand the concept of Random process & pulse code modulations
		C310.2	To apply the knowledge of ISI problems in Digital Communication to derive Nyquist criterion for zero ISI
		C310.3	To study the geometrical representation of signals & mathematical modelling of channels
		C310.4	To understand the error probability for various digital modulation schemes
		C310.5	To study the principle of spread spectrum communication & to understand the concept of FHSS & DSSS
		C310.6	To understand various multiple access techniques
45	EC304 VLSI	C311.1	To give the knowledge about IC fabrication details and material preparations
		C311.2	To impart knowledge on Lay put design
		C311.3	To impart the skills of analysis and design of MOSFET and CMOS Logic design
		C311.4	To know about the Pass transistor logic
		C311.5	To know about CMOS memory
		C311.6	To impart knowledge about adder circuits in VLSI
46	EC306 Antenna & Wave Propagation	C312.1	To have a sound understanding of the various parameters used for characterizing antennas: their optimum values and their measurements
		C312.2	To know about different antenna types such as short dipole and half wave dipole
		C312.3	To have a sound understanding of the concept of antenna arrays, its analysis and their different types

		C312.4	Will have a sound understanding of the different antenna types and their applications
		C312.5	To understand Principle of Log periodic antenna array, Helical antenna and Design of rectangular Patch antennas.
		C312.6	Will have able to understand the various modes of radio propagation and relate it to real communication instances
47	EC308 Embedded System	C313.1	To have a thorough understanding of the basic structure and design of embedded system
		C313.2	To study the different ways of communicating with I/O devices and standard I/O interfaces
		C313.3	To gain knowledge about memory devices and systems
		C313.4	To study the programming concepts of embedded system
		C313.5	To learn different process and its functions
		C313.6	To study the architecture of system -on chip and some design examples
48	EC312 Object Oriented Programming	C314.1	apply object-oriented principles in software design process.
		C314.2	develop Java programs for real applications using java constructs and libraries.
		C314.3	understand and apply various object-oriented features like inheritance, data
		C314.4	abstraction, encapsulation and polymorphism to solve various computing problems using java
		C314.5	implement Exception Handling in java.
		C314.6	use graphical user interface and Event Handling in java.
49	EC366 Real Time Operating Systems	C315.1	To understand the fundamental of operating systems and its structure
		C315.2	To know about various scheduling concepts and its priority
		C315.3	To apply principle and working of deadlock Systems
		C315.4	To explain the principle and working of memory allocation strategies
		C315.5	To have a basic idea of I/O management and operating system design
		C315.6	To know about the comparison and case study of RTOS control systems
50	EC332 Communication Engg. Lab (Analog & Digital)	C316.1	To provide experience on design, testing and analysis of few electronic circuits used in communication engineering.
		C316.2	The students will be able to understand the basic concepts of circuits used in communication systems.
51	EC334 Microcontroller Lab	C317.1	To understand Assembly Language programming of Microcontroller.
		C317.2	To Program Micro controllers
		C317.3	To interface simple peripheral devices to a Microcontroller

		C317.4	To implement interfacing of various peripheral devices to the microcontroller through assembly language programming.
		C317.5	To function effectively as an individual and in a team to accomplish the task
		C317.6	To equip student groups to design and implement simple embedded systems.
52	EC352 Comprehensive Exam	C318.1	The students will be confident in discussing the fundamental aspects of any engineering problem/situation and give answers in dealing with them
		C318.2	To prepare students to have successful careers in in the core areas of Electronics and communication Engineering and related companies of national and international repute to excel.
		C318.3	To train students in with objective types multiple choice questions and mock interviews in the core areas of Electronics and communication Engineering.
		C318.4	To train the students to develop the ability to succeed in competitive exams for higher education in postgraduate programs & research (GATE / GRE / PSU's).
		C318.5	The ability to face the test and interview conducted by different companies and succeed
		C318.6	To train the students towards higher studies in Technology or Management depending on their inclination & aptitude. For postgraduate programs & research (GATE / GRE / PSU's).
53	EC401 Information Theory & Coding	C401.1	To understand the basics of information theory and source coding
		C401.2	To understand the knowledge of Shannon's source coding theorem and channel coding theorem
		C401.3	To understand continuous source and channels
		C401.4	To Apply the knowledge of coding theorem for designing an efficient and error free communication link.
		C401.5	To Analyse various coding schemes
		C401.6	To Design an optimum decodes for various coding schemes used.
54	EC403 Microwave & Radar Engg	C402.1	To introduce the various microwave sources
		C402.2	To Know about Cross field Oscillators
		C402.3	To know the measurement of various parameters
		C402.4	To know about microwave hybrid structures
		C402.5	To know about Microwave solid state devices
		C402.6	To understand the basic concepts, types, working of radar and introduce to radar transmitters and receivers.
55	EC405 Optical Communication	C403.1	Know the working of optical source and detectors.
		C403.2	Compare the performance of various optical modulation schemes.
		C403.3	Apply the knowledge of optical amplifiers in the design of optical link.
		C403.4	Analyse the performance of optical amplifiers.

		C403.5	Know the concept of WDM
		C403.6	Describe the principle of FSO and LiFi.
56	EC407 Computer Communication	C404.1	Understanding Different types of network topologies and protocols.
		C404.2	Understanding The layers of the OSI model and TCP/IP with their functions
		C404.3	Learning The concept of subnetting and routing mechanisms
		C404.4	Learning The basic protocols of computer networks.
		C404.5	Understanding how protocols can be used to assist in network design and implementation.
		C404.6	Understanding Security aspects in designing a trusted computer communication system
57	EC409 Control Systems	C405.1	Students will be able to represent systems mathematically and derive their transfer function model.
		C405.2	Students will be able to analyse the time response and frequency response of the systems for various input signals
		C405.3	Students will be able to determine the stability of system
		C405.4	Students understand the performance of different basic controllers
		C405.5	Students will be able to perform state variable analysis of systems
		C405.6	Students will be able to analyse a digital control system
58	EC465 MEMS	C406.1	understanding basic concepts of MEMS
		C406.2	Understand the working principles of micro sensors and actuators
		C406.3	Understand the application of scaling laws in the design of micro systems
		C406.4	Understand the typical materials used for fabrication of micro systems
		C406.5	Understand the principles of standard micro fabrication techniques
59	EC451 Seminar & Project Preliminary	C407.1	Demonstrate a sound technical knowledge of their selected topic.
		C407.2	Undertake problem identification, formulation and solution.
		C407.3	To study the key design aspects of the selected domain
		C407.4	Conduct Literature review
		C407.5	Communicate with engineers and the community at large in written an oral form.
		C407.6	Demonstrate the knowledge, skills and attitudes of a professional engineer.
60	EC431 Communication Systems Lab	C408.1	To study the mode characteristics of Reflex Klystron
		C408.2	To analyse and measure certain parameters of microwave passive devices
		C408.3	To understand the radiation pattern measurement of antenna
		C408.4	To study numerical aperture of a fibre and measure losses in optical fibre

	(Optical & Microwave)	C408.5	To understand the characteristics of LED by setting up fibre optic link
		C408.6	To understand the characteristics of LASER diode by setting up fibre optic link
61	EC402 Nano electronics	C409.1	To understand the behaviour of materials in nano dimensions
		C409.2	To get an idea about nano fabrication methods
		C409.3	To understand the method of characterization of nano structures
		C409.4	To study basic nano structures
		C409.5	To understand behaviour of electronics in nano structures
		C409.6	To study the operation of nano electronics devices
62	EC404 Advanced Communication Systems	C410.1	To impart the basic concepts of various communication system.
		C410.2	To understands the concepts in modulation of signals
		C410.3	To study the aspects relating to transmission of electronic waves
		C410.4	To study the concepts relating to satellite communication
		C410.5	To impart the basic concepts of wireless communication systems.
		C410.6	To understand the principles of Digital Broadcasting Mechanism
63	EC464 Low Power VLSI Design	C411.1	To identify the sources of power dissipation in digital IC systems.
		C411.2	To understand the impact of power on system performance and reliability.
		C411.3	To understand leakage sources and reduction techniques.
		C411.4	To learn advanced issues in VLSI systems, specific to the deep-submicron silicon Technologies.
		C411.5	To impart the mechanisms of power dissipation in CMOS integrated circuits.
		C411.6	Familiar about adiabatic switching.
64	CE488 Disaster management	C412A.1	Students will be able to explain disaster management theory (cycle, phases, risk, crisis, emergency, disasters, resilience)
		C412A.2	To compare hazards, disasters and associated natural phenomena and their interrelationships, causes and their effects - developing humanitarian Assistance before and after disaster
		C412A.3	To compare anthropogenic hazards, disasters and associated activities and their interrelationships of the subsystems - Green House Effect, Global warming, Causes and their effects and development of humanitarian assistance before and after disaster
		C412A.4	To apply knowledge about existing global frameworks and existing agreements and role of community in successful Disaster Risk Reduction
		C412A.5	To evaluate DM study including data search, analysis and presentation as a case study.

		C412A.6	To create Technological innovations in Disaster Risk Reduction: Advantages and problems
65	IE488 Total Quality Management	C412B.1	To recall and identify the relevance of management concepts
		C412B.2	To describe, discuss and relate management techniques adopted within an organization
		C412B.3	To apply management techniques for meeting current and future management challenges faced by the organization
		C412B.4	To compare the management theories and models critically and to inspect and question its validity in the real world
		C412B.5	To assess and modify different theories of management so as to relate it to current management challenges
		C412B.6	To apply principles of management in order to execute the role as a manager
66	EC492 Project	C413.1	Demonstrate a sound technical knowledge of their selected project topic.
		C413.2	Undertake problem identification, formulation and solution.
		C413.3	Design engineering solutions to complex problems utilising a systems approach.
		C413.4	Conduct an engineering project
		C413.5	Communicate with engineers and the community at large in written an oral form.
		C413.6	Demonstrate the knowledge, skills and attitudes of a professional engineer.