

1.1 List of courses offered across all programs during last five years

Program code	Program Name	Course code	Course Name	Course Outcome
003	B.Tech(ECE)	BS-PH101	Physics-I (Gr-A)	Course Outcomes
				1. Basic concepts of mechanics
				2. Bragg's Law and introduction to the principles of lasers, types of lasers and applications.
				3. Various terms related to properties of materials such as, permeability, polarization, etc.
				4. Some of the basic laws related to quantum mechanics as well as magnetic and dielectric properties of materials.
				5. Simple quantum mechanics calculations.
003	B.Tech(ECE)	BS-CH101	Chemistry-1	Course Outcomes
				1. Rationalise periodic properties such as ionization potential, electronegativity, oxidation states and electronegativity.
				2. Analyse microscopic chemistry in terms of atomic and molecular orbitals and intermolecular forces.
				3. Rationalise bulk properties and processes using thermodynamic considerations.
				4. Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular energy levels in various spectroscopic techniques.
				5. Evaluate structure, colour and magnetic properties of coordination complexes.
				6. List major chemical reactions that are used in the synthesis of molecules and explain isomerism considering the stereochemical aspect.
003	B.Tech(ECE)	BS-M102	Mathematics -IB	Course Outcomes:

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Program code	Program Name	Course code	Course Name	Course Outcome
				Apply the concept and techniques of differential and integral calculus to determine curvature and evaluation of different types of improper integrals.
				Understand the domain of applications of mean value theorems to engineering problems.
				Learn the tools of power series and Fourier series to analyze engineering problems and apply the concept of convergence of infinite series in many approximation techniques in engineering disciplines.
				Apply the knowledge for addressing the real life problems which comprises of several variables or attributes and identify extremum points of different surfaces of higher dimensions.
				Understand different types of matrices, their eigen values, eigen vectors, rank and also their orthogonal transformations which are essential for understanding physical and engineering problems.
003	B.Tech(ECE)	ES-EE101	Basic Electrical Engineering	Course Outcomes
				To understand and analyze basic electric and magnetic circuits
				To study the working principles of electrical machines and power converters.
				To introduce the components of low voltage electrical installations
003	B.Tech(ECE)	ES-ME191	Engineering Graphics & Design(Gr-A)	Course Outcomes
				Introduction to engineering design and its place in society

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Program code	Program Name	Course code	Course Name	Course Outcome
				Exposure to the visual aspects of engineering design
				Exposure to engineering graphics standards
				Exposure to solid modelling
003	B.Tech(ECE)	ES-ME192	Workshop/Manufacturing Practices(Gr-B)	Laboratory Outcomes
				Upon completion of this laboratory course, students will be able to fabricate components with their own hands.
				They will also get practical knowledge of the dimensional accuracies and dimensional tolerances possible with different manufacturing processes.
				By assembling different components, they will be able to produce small devices of their interest.
003	B.Tech(ECE)	BS-M201	Mathematics-II	Course Outcomes:
				Learn the ideas of probability and random variables, various discrete and continuous probability distributions with their properties and their applications in physical and engineering environment.
				Understand the basic ideas of statistics with different characterisation of a univariate and bivariate data set.
				Apply statistical tools for analysing data samples and drawing inference on a given data set.
003	B.Tech(ECE)	BS-PH201	Physics - 1(Gr-B)	Course Outcomes
				1. Basic concepts of mechanics
				2. Bragg's Law and introduction to the principles of lasers, types of lasers and applications.

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Program code	Program Name	Course code	Course Name	Course Outcome
				3. Various terms related to properties of materials such as, permeability, polarization, etc.
				4. Some of the basic laws related to quantum mechanics as well as magnetic and dielectric properties of materials.
				5. Simple quantum mechanics calculations.
003	B.Tech(ECE)	BS-M202	Mathematics-II	Course Outcomes:
				Learn the methods for evaluating multiple integrals and their applications to different physical problems.
				Understand different techniques to solve first and second order ordinary differential equations with its formulation to address the modelling of systems and problems of engineering sciences.
				Learn different tools of differentiation and integration of functions of a complex variable that are used with various other techniques for solving engineering problems.
				Apply different types of transformations between two 2- dimensional planes for analysis of physical or engineering problems.
003	B.Tech(ECE)	ES-CS201	Programming for problem solving	Course Outcomes
				To formulate simple algorithms for arithmetic and logical problems.
				To translate the algorithms to programs (in C language).
				To test and execute the programs and correct syntax and logical errors.
				To implement conditional branching, iteration and recursion.

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Program code	Program Name	Course code	Course Name	Course Outcome
				To decompose a problem into functions and synthesize a complete program using divide and conquer approach.
				To use arrays, pointers and structures to formulate algorithms and programs.
				To apply programming to solve matrix addition and multiplication problems and searching and sorting problems.
				To apply programming to solve simple numerical method problems, namely root finding of function, differentiation of function and simple integration.
003	B.Tech(ECE)	BS-CH201	Chemistry-1(Gr-A)	Course Outcomes
				1. Rationalise periodic properties such as ionization potential, electronegativity, oxidation states and electronegativity.
				2. Analyse microscopic chemistry in terms of atomic and molecular orbitals and intermolecular forces.
				3. Rationalise bulk properties and processes using thermodynamic considerations.
				4. Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular energy levels in various spectroscopic techniques.
				5. Evaluate structure, colour and magnetic properties of coordination complexes.
				6. List major chemical reactions that are used in the synthesis of molecules and explain isomerism considering the stereochemical aspect.
003	B.Tech(ECE)	ES-CS291	Programming for problem solving	Laboratory Outcomes

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Program code	Program Name	Course code	Course Name	Course Outcome
				To formulate the algorithms for simple problem
				To translate given algorithms to a working and correct program
				To be able to correct syntax errors as reported by the compilers
				To be able to identify and correct logical errors encountered at run time
				To be able to write iterative as well as recursive programs
				To be able to represent data in arrays, strings and structures and manipulate them through a program
				To be able to declare pointers of different types and use them in defining self-referential structures.
				To be able to create, read and write to and from simple text files.
003	B.Tech(ECE)	HM-HU 201	English	Course Outcomes
				The student will acquire basic proficiency in English including reading and listening comprehension, writing and speaking skills.
003	B.Tech(ECE)	HM-HU 291	Language Laboratory	Course Outcomes
				The student will acquire basic proficiency in English including reading and listening comprehension, writing and speaking skills.
003	B.Tech(ECE)	BS-CH291	Chemistry-1 (Gr-A) Lab	Determine the strength of an acid using conductometric method.
				Determine the strength of an acid using pH-metric methods.

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Program code	Program Name	Course code	Course Name	Course Outcome
				Evaluate partition coefficient of a substance between two immiscible liquids and evaluate the amount of acetic acid absorbed by charcoal.
				Measure some physical property like surface tension and viscosity of different solutions at room temperature
				Estimate the amount of an ion present in a given solution using argentometric methods and amount of dissolved oxygen (in mg/l) present in a given water sample using volumetric method.
				Determine the cell constant and conductance of different solutions
003	B.Tech(ECE)	ES-ME291	Engineering Graphics & Design(Gr-A)	Course Outcomes
				Introduction to engineering design and its place in society
				Exposure to the visual aspects of engineering design
				Exposure to engineering graphics standards
				Exposure to solid modelling
003	B.Tech(ECE)	ES-ME292	Workshop/Manufacturing Practices(Gr-B)	Laboratory Outcomes
				Upon completion of this laboratory course, students will be able to fabricate components with their own hands.
				They will also get practical knowledge of the dimensional accuracies and dimensional tolerances possible with different manufacturing processes.
				By assembling different components, they will be able to produce small devices of their interest.

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Program code	Program Name	Course code	Course Name	Course Outcome
003	B.Tech(ECE)	EC301	Electronic Devices	Course Outcomes
				Differentiate the conduction techniques in semi-conductor materials.
				Analyze characteristics of Semi-conductor diodes and solve problems.
				Analyze characteristics of Bi-polar Transistors and solve problems.
				Analyze characteristics of MOS Transistors and solve problems.
				Differentiate between different Opto-electronic devices.
003	B.Tech(ECE)	EC302	Digital System Design	Course outcomes:
				Design and analyze combinational logic circuits
				Design & analyze modular combinational circuits with MUX/DEMUX, Decoder, Encoder
				Design & analyze synchronous sequential logic circuits
003	B.Tech(ECE)	EC303	Signals and Systems	Course outcomes:
				Analyze different types of signals
				Represent continuous and discrete systems in time and frequency domain using different transforms
				Investigate whether the system is stable
				Sampling and reconstruction of a signal
003	B.Tech(ECE)	EC304	Network Theory	Course Outcomes:
				Understand basics electrical circuits with nodal and mesh analysis.
				Appreciate electrical network theorems.
				Apply Laplace Transform for steady state and transient analysis.
				Determine different network functions.

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Program code	Program Name	Course code	Course Name	Course Outcome
				Appreciate the frequency domain techniques.
003	B.Tech(ECE)	ES-CS301	DataStructure&Algorithm(ES)	Course outcomes
				For a given algorithm student will able to analyze the algorithms to determine the time and computation complexity and justify the correctness.
				For a given Search problem (Linear Search and Binary Search) student will able to implement it.
				For a given problem of Stacks, Queues and linked list student will able to implement it and analyze the same to determine the time and computation complexity.
				Student will able to write an algorithm Selection Sort, Bubble Sort, Insertion Sort,Quick Sort, Merge Sort, Heap Sort and compare their performance in term of Space and Time complexity.
				Student will able to implement Graph search and traversal algorithms and determine the time and computation complexity.
003	B.Tech(ECE)	BS-M301	Probability & Statistics(BS)	Course Outcomes
				The objective of this course is to familiarize the students with statistical techniques. It aims to equip the students with standard concepts and tools at an intermediate to advanced level that will serve them well towards tackling various problems in the discipline.
				The ideas of probability and random variables and various discrete and continuous probability distributions and their properties.

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Program code	Program Name	Course code	Course Name	Course Outcome
				The statistical methods of studying data samples.
003	B.Tech(ECE)	MC381	Environmental Science	Course Outcome
				An ability to verify the working of different diodes, transistors, CRO probes and measuring instruments. Identifying the procedure of doing the experiment.
				Ability to understand the characteristics of BJT and FET and how to Determine different parameters for designing purpose..
				Ability to understand properties of photoelectric devices
				Ability to measure and record the experimental data, analyze the results, and prepare a formal laboratory report.
003	B.Tech(ECE)	EC392	Digital System Design Lab	Course Outcome
				1. Acquire knowledge related to the concept, tools and techniques for the design of Digital Electronic Circuits.
				2. Able to design and analyse both combinational and sequential circuits using a variety of logic gates and flip-flops.
				3. Able to simulate and implement small-scale digital circuits by using VHDL/Verilog and PSPICE software.
003	B.Tech(ECE)	EC 401	Analog Communication	Learning outcome:

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Program code	Program Name	Course code	Course Name	Course Outcome
				Module - 1: The learner must be able to appreciate the need for modulation and calculate the antenna size for different carrier frequencies. From the functional representation of the modulated carrier wave, the learner must be able to identify the type of modulation, calculate the side-band frequencies, identify the modulating and carrier frequencies, decide the type of generation method to be adopted. Solve problems.
				Module - 2: After understanding the basic concepts the learner must be able to compare between the different demodulation methods, design an envelope detector, calculate the IF and image frequencies for the superheterdyne receivers given the carrier and modulating frequencies, calculate the oscillator frequency.
				Module - 3: From the functional representation of the modulated carrier wave, the learner must be able to identify the type of modulation, calculate the side-band frequencies, identify the modulating and carrier frequencies, decide the type of generation method to be adopted. Solve problems.

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Program code	Program Name	Course code	Course Name	Course Outcome
				Module - 4: Appreciate the importance of Multiplexing, find out their application areas. The learner must be able to calculate the Noise temperature & SNR for different systems, also compare between the performance of the different modulation methods by comparing their SNR. Also Understand the statistical analysis of Communication System.
003	B.Tech(ECE)	EC 402	Analog Electronics Circuit	Course Outcomes:
				Understand the characteristics of diodes and transistors
				Design and analyze various rectifier and amplifier circuits
				Design sinusoidal and non-sinusoidal oscillators
				Understand the functioning of OP-AMP and design OP-AMP based circuits
003	B.Tech(ECE)	EC403	Microprocessors & Microcontrollers	Course Outcomes:
				Do assembly language programming
				Do interfacing design of peripherals like, I/O, A/D, D/A, timer etc.
				Develop systems using different microcontrollers
				Understand RSIC processors and design ARM microcontroller based systems
003	B.Tech(ECE)	ES-CS401	Design and Analysis of Algorithms(BS)	Course Outcomes
				For a given algorithms analyze worst-case running times of algorithms based on asymptotic analysis and justify the correctness of algorithms .

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Program code	Program Name	Course code	Course Name	Course Outcome
				Describe the greedy paradigm and explain when an algorithmic design situation calls for it. For a given problem develop the greedy algorithms.
				Describe the divide-and-conquer paradigm and explain when an algorithmic design situation calls for it. Synthesize divide-and-conquer algorithms. Derive and solve recurrence relation.
				Describe the dynamic-programming paradigm and explain when an algorithmic design situation calls for it. For a given problems of dynamic-programming and develop the dynamic programming algorithms, and analyze it to determine its computational complexity.
				For a given model engineering problem model it using graph and write the corresponding algorithm to solve the problems.
				Explain the ways to analyze randomized algorithms (expected running time, probability of error).
				Explain what an approximation algorithm is. Compute the approximation factor of an approximation algorithm (PTAS and FPTAS).
003	B.Tech(ECE)	BS-B401	Biology for Engineers	Course Outcomes
				Describe how biological observations of 18th Century that lead to major discoveries.
				Convey that classification per se is not what biology is all about but highlight the underlying criteria, such as morphological, biochemical and ecological

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Program code	Program Name	Course code	Course Name	Course Outcome
				Highlight the concepts of recessiveness and dominance during the passage of genetic material from parent to offspring
				Convey that all forms of life have the same building blocks and yet the manifestations are as diverse as one can imagine
				Classify enzymes and distinguish between different mechanisms of enzyme action.
				Identify DNA as a genetic material in the molecular basis of information transfer.
				Analyse biological processes at the reductionistic level
				Apply thermodynamic principles to biological systems.
				Identify and classify microorganisms.
003	B.Tech(ECE)	EC 492	Analog Electronics Circuit Lab	Course Outcome:
				CO1: Design and test rectifiers, clipping circuits, clamping circuits and voltage regulators.
				CO2: Compute the parameters from the characteristics of JFET and MOSFET devices.
				CO3: Design, test and evaluate BJT amplifiers in CE configuration.
				CO4: Design and test JFET/MOSFET amplifiers.
				CO5: Design and test a power amplifier.
				CO6: Design and test various types of oscillators.
003	B.Tech(ECE)	EC 493	Microprocessors & Microcontrollers Lab	Course Outcome:
				1.Design and implement programs on 8085 microprocessor and 8051 microcontroller based systems.

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Program code	Program Name	Course code	Course Name	Course Outcome
				2.Design interfacing circuits with 8255 PPI.
				3.Understand the concepts related to I/O and memory interfacing
003	B.Tech(ECE)	EC501	Electromagnetic Waves	Course Outcomes:
				Understand characteristics and wave propagation on high frequency transmission lines
				Carryout impedance transformation on TL
				Use sections of transmission line sections for realizing circuit elements
				Characterize uniform plane wave
				Calculate reflection and transmission of waves at media interface
				Analyze wave propagation on metallic waveguides in modal form
				Understand principle of radiation and radiation characteristics of an antenna
003	B.Tech(ECE)	EC502	Computer Architecture	Course Outcomes
				learn how computers work
				know basic principles of computer's working
				analyze the performance of computers
				know how computers are designed and built
				Understand issues affecting modern processors (caches, pipelines etc.).
003	B.Tech(ECE)	EC503	Digital Communication & Stochastic Process	Course Outcomes
				understand the concept of Stochastic Process in Communication System
				represent various signals in different mathematical forms
				analyze baseband transmission mode of digital data

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Program code	Program Name	Course code	Course Name	Course Outcome
				analyze different carrier modulation techniques considering noise aspects
003	B.Tech(ECE)	EC504	Digital Signal Processing	Course Outcomes:
				Represent signals mathematically in continuous and discrete time and frequency domain
				Get the response of an LSI system to different signals
				Design of different types of digital filters for various applications
003	B.Tech(ECE)	PE-EC505A	Nano Electronics	Course Outcomes:
				Understand various aspects of nano-technology and the processes involved in making nano components and material.
				Leverage advantages of the nano-materials and appropriate use in solving practical problems.
				Understand various aspects of nano-technology and the processes involved in making nano components and material.
				Leverage advantages of the nano-materials and appropriate use in solving practical problems
003	B.Tech(ECE)	PE-EC505C	Power Electronics	Course Outcomes:
				Build and test circuits using power devices such as SCR
				Analyze and design controlled rectifier, DC to DC converters, DC to AC inverters,
				Learn how to analyze these inverters and some basic applications.
				Design SMPS.
003	B.Tech(ECE)	PE-EC505D	Scientific Computing	Course Outcomes:

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Program code	Program Name	Course code	Course Name	Course Outcome
				Understand the significance of computing methods, their strengths and application areas.
				Perform the computations on various data using appropriate computation tools.
003	B.Tech(ECE)	OE-EC506B	Cyber Law & Intellectual Property Rights	Course Outcome:
				understand the role of intellectual property rights
				identify the main types of intellectual property rights
				understand the steps for successful registration and protection of intellectual property rights at national, regional and international levels
				search patent and trademark databases
				understand the legal aspects for intellectual property protection
003	B.Tech(ECE)	OE-EC506C	Human Resource Management	Course Outcome
				know the professional and personal qualities of a HR manager.
				learn different methods of selecting human resources through recruitment, training and performance appraisal system.
				know how to develop a favourable working environment in an organisation through participation in management and maintain a good industrial relation for benefit of the society.
				know about consequence of industrial dispute and employee indiscipline of an organization.
003	B.Tech(ECE)	EC601	Control System & Instrumentation	Course Outcomes (CO):

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Program code	Program Name	Course code	Course Name	Course Outcome
				Characterize a system and find its steady state behavior.
				Investigate stability of a system using different tests.
				Design various controllers.
				Solve linear, non linear and optimal control problems.
				Study with CRO, Wave analyzer, Spectrum analyzer knowing their functional details.
003	B.Tech(ECE)	EC602	Computer Network	Course Outcomes
				1. Recognize the technological trends of Computer Networking.
				2. Discuss the key technological components of the Network.
				3. Evaluate the challenges in building networks and solutions to those
				4. To be familiar with different Network layer structure and their protocol implementation .
003	B.Tech(ECE)	EC681	Mini Project/Electronic Design Workshop	Course Outcomes:
				Conceive a problem statement either from rigorous literature survey or from the requirements raised from need analysis.
				Design, implement and test the prototype/algorithm in order to solve the conceived problem.
				Write comprehensive report on mini project work.
003	B.Tech(ECE)	PE-EC603A	Program Elective-II	Course Outcomes:
				Appreciate the underlying working principles of MEMS and NEMS devices.
				Design and model MEM devices.
003	B.Tech(ECE)	PE-EC603B	Bio-Medical Electronics	Course Outcomes:

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Program code	Program Name	Course code	Course Name	Course Outcome
				Understand the application of the electronic systems in biological and medical applications.
				Understand the practical limitations on the electronic components while handling biosubstances.
				Understand and analyze the biological processes like other electronic processes.
003	B.Tech(ECE)	PE-EC603C	CMOS VLSI Design	Course Outcomes:
				Become familiarized with VLSI design styles and understand their roles in different applications
				Understand electrical characteristics of MOSFET and elucidate the effects of short channel characteristics on device performance.
				Familiarization with C-MOS static and Dynamic logic circuits and their applications
				Acquire the knowledge about various CMOS fabrication process and its modeling.
				Become familiarized with Backend VLSI design and floorplanning.
003	B.Tech(ECE)	PE-EC603D	Information theory and coding	Course Outcomes:
				1. Understand the concept of information and entropy
				2. Understand Shannon's theorem for coding
				3. Calculation of Channel Capacity
				4. Apply coding techniques
003	B.Tech(ECE)	OE-EC604A	Electronic Measurement & Measuring Instruments	Course Outcomes:
				Describe the fundamental concepts and principles of instrumentation

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Program code	Program Name	Course code	Course Name	Course Outcome
				Explain the operation of various instruments required in measurements
				Apply the measurement techniques for different types of tests
				To select specific instruments for specific measurement function.
				Understand principle of operation and working of different electronic instruments
				Students will understand functioning, specification and application of signal analyzing instruments
003	B.Tech(ECE)	OE-EC604B	Operating System	Course Outcome:
				understand the difference between different types of modern operating systems, virtual machines and their structure of implementation and applications.
				understand the difference between process & thread, issues of scheduling of user-level processes/threads and their issues & use of locks, semaphores, monitors for synchronizing multiprogramming with multithreaded systems and implement them in multithreaded programs.
				understand the concepts of deadlock in operating systems and how they can be managed/avoided and implement them in multiprogramming system.
				understand the design and management concepts along with issues and challenges of main memory,virtual memory and file system.

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Program code	Program Name	Course code	Course Name	Course Outcome
				understand the types of I/O management, disk scheduling, protection and security problems faced by operating systems and how to minimize these problems.
003	B.Tech(ECE)	OE-EC604C	Object Oriented Programming	Course Outcome:
				differentiate between structures oriented programming and object oriented programming.
				use object oriented programming language like C++ and associated libraries to develop object oriented programs.
				understand and apply various object oriented features like inheritance, data abstraction, encapsulation and polymorphism to solve various computing problems using C++ language.
				apply concepts of operator-overloading, constructors and destructors.
				apply exception handling and use built-in classes from STL.
003	B.Tech(ECE)	PE-EC701A	Program Elective-3 -Microwave Theory and Technique	Course Outcomes:
				Understand various microwave system components their properties.
				Appreciate that during analysis/ synthesis of microwave systems, the different mathematical treatment is required compared to general circuit analysis.
				Design microwave systems for different practical application.
003	B.Tech(ECE)	PE-EC701B	Program Elective-4 Satellite Communication	Course Outcomes:

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Program code	Program Name	Course code	Course Name	Course Outcome
				Visualize the architecture of satellite systems as a means of high speed, high range communication system.
				State various aspects related to satellite systems such as orbital equations, sub-systems in a satellite, link budget, modulation and multiple access schemes.
				Solve numerical problems related to orbital motion and design of link budget for the given parameters and conditions.
003	B.Tech(ECE)	PE-EC701C	Mobile Communication and Networks	Course Outcomes:
				Understand the working principles of the mobile communication systems.
				Understand the relation between the user features and underlying technology.
				Analyze mobile communication systems for improved performance
003	B.Tech(ECE)	PE-EC702A	Adaptive Signal Processing	Course Outcomes:
				Understand the non-linear control and the need and significance of changing the control parameters w.r.t. real-time situation.
				Mathematically represent the 'adaptability requirement'.
				Understand the mathematical treatment for the modeling and design of the signal processing systems.
003	B.Tech(ECE)	PE-EC702B	Digital Image and Video Processing	Course Outcomes:
				Mathematically represent the various types of images and analyze them.
				Process these images for the enhancement of certain properties or for optimized use of the resources.

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Program code	Program Name	Course code	Course Name	Course Outcome
				Develop algorithms for image compression and coding
003	B.Tech(ECE)	PE-EC703A	Neural Network and Fuzzy Logic Control	Course Outcome
				analyze and classify neural networks and its implementation algorithms.
				apply suitable algorithms on different cases.
				apply fuzzy logic and neural networks.
				analyze the applications of Neural Network and Fuzzy logic in image processing.
003	B.Tech(ECE)	PE-EC703B	Wireless Sensor Networks	Course Outcomes:
				Design wireless sensor networks for a given application
				Understand emerging research areas in the field of sensor networks
				Understand MAC protocols used for different communication standards used in WSN
				Explore new protocols for WSN
003	B.Tech(ECE)	PE-EC703C	Wavelet Transforms	Course Outcome:
				Classify various wavelet transform and explain importance of it.
				Describe Continuous Wavelet Transform (CWT) and Discrete Wavelet Transform (DWT).
				Explain the properties and application of wavelet transform.
				Develop and realize computationally efficient wavelet based algorithms for signal and image processing.
				Explain brief features and strength of transform beyond wavelet.
003	B.Tech(ECE)	OE-EC704A	Web Technology	Course Outcome:

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				design good web pages using different tags, tables, forms, frames and style sheets supported by HTML.
				implement, compile, test and run Java programs, comprising more than one class, to address a particular software problem.
				demonstrate the ability to employ various types of selection statements and iteration statements in a Java program.
				be able to leverage the object-oriented features of Java language using abstract class and interface.
				be able to handle errors in the program using exception handling techniques of Java.
				design applets as per the requirements with event handling facility.
003	B.Tech(ECE)	OE-EC704B	Optimization Technique	Course Outcome:
				formulate fitness functions and cost functions for engineering optimization problems and specify the constraints as required.
				implement different single variable optimization algorithms including the gradient based methods.
				analyze and implement different multi variable optimization algorithms and a multi objective optimization techniques based on Parento-Fronts.
				implement Bio-inspired optimization algorithms for solving complex engineering problems.
003	B.Tech(ECE)	OE-EC704C	Entrepreneurship	Course outcome :

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				know the contribution of an entrepreneur and role of SSI units in growth and development of socioeconomic condition of our country.
				learn market survey, sales promotions and management of working capital through costing and book keeping.
				know different decision making technique and benefit of personal management system as well as motivational methods of an enterprise.
				learn how to prepare a project report and knowledge about different tax system of an enterprise.
003	B.Tech(ECE)	PE-EC801A	Antennas and Propagation	Course Outcomes:
				Understand the properties and various types of antennas.
				Analyze the properties of different types of antennas and their design.
				Operate antenna design software tools and come up with the design of the antenna of required specifications.
003	B.Tech(ECE)	PE-EC801B	Fiber Optic Communication	Course Outcomes:
				Understand the principles fiber-optic communication, the components and the bandwidth advantages.
				Understand the properties of the optical fibers and optical components.
				Understand operation of lasers, LEDs, and detectors
				Analyze system performance of optical communication systems

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Program code	Program Name	Course code	Course Name	Course Outcome
				Design optical networks and understand non-linear effects in optical fibers
003	B.Tech(ECE)	PE-EC801C	Error Correcting Codes	Course Outcomes:
				Understand the error sources
				Understand error control coding applied in digital communication
003	B.Tech(ECE)	PE-EC802A	Mixed Signal Design	Course Outcomes:
				Understand the practical situations where mixed signal analysis is required.
				Analyze and handle the inter-conversions between signals.
				Design systems involving mixed signals
003	B.Tech(ECE)	PE-EC802B	Industrial Automation and Control	Course Outcome :
				select suitable sensor to measure industrial parameters and the different types of actuators and its working. They will be able to design proper signal conditioning circuit to the transducer.
				determine the effect of proportional gain, integral time, derivative gain constant on the system performance and will be able to tune the controller using tuning methods, implement PID using electronic , digital, pneumatic and hydraulic methods.
				design the ladder logic to implement any process with given problem statement.
				analyze DCS hardware and its merits/demerits in an industrial automation
				analyze SCADA hardware and software and its merits/demerits in industrial automation.
				design the complex control scheme to a particular process.

1.1 List of courses offered across all programs during last five years

Program code	Program Name	Course code	Course Name	Course Outcome
003	B.Tech(ECE)	OE-EC803A	Internet of Things(IoT)	Course Outcome :
				understand the application areas of IOT.
				realize the revolution of Internet in Mobile Devices, Cloud & Sensor Networks.
				understand building blocks of Internet of Things and characteristics.
003	B.Tech(ECE)	OE-EC804A	Artificial Intelligence	Course Outcome:
				understand the modern view of AI as the study of agents that receive percepts from the environment and perform actions.
				demonstrate awareness of the major challenges facing AI and the complex of typical problems within the field.
				exhibit strong familiarity with a number of important AI techniques, including in particular search, knowledge representation, planning and constraint management.
				asses critically the techniques presented and to apply them to real world problems.
003	B.Tech(ECE)	OE-EC804B	Microwave Integrated Circuits	Course Outcome:
				analyze the fabrication techniques of MIC and MMIC , use of active devices with MIC and MMIC, differentiate between MIC and MMIC.
				analyze and design strip lines and micro strip lines, and model the discontinuities in those lines.
				analyze and design slot lines, fin lines, coplanar lines and coplanar wave-guides
				design parallel coupled lines for couplers and power divider circuits.

1.1 List of courses offered across all programs during last five years

Program code	Program Name	Course code	Course Name	Course Outcome
				differentiate between various measurement techniques associated with planar transmission lines.
003	B.Tech(ECE)	OE-EC804C	Organizational Behavior	Course Outcome :
				know about organisational structure, organisational behaviour and personality development.
				learn about motivational techniques and skill required to work in a group and the process of group decision making.
				know various leadership styles and the role of leader in achievement of organisational objective.
				learn about the reasons organizational change and its development.