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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: SE/III Course Name: Applied Mathematics-III

The students will be able to:

Course Code	Course Outcome Statements
ECC301.1	Use Laplace Transform with their properties.
ECC301.2	Apply the knowledge of inverse Laplace Transform to solve ordinary differential equation.
ECC301.3	Calculate both real and complex forms of the Fourier series for standard periodic waveforms and also to find Fourier Transform of functions.
ECC301.4	Apply the knowledge of vector differentiation and integration to solve Engineering problems.
ECC301.5	Use fundamental knowledge of complex variables to identify an analytic, harmonic functions and orthogonal trajectories.
ECC301.6	Understand the Bessel functions, generating functions and orthogonality properties.

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: SE/III Course Name: Electronic Devices and Circuits-I

The students will be able to:

Course Code	Course Outcome Statements
ECC302.1	Understand operation of semiconductor devices.
ECC302.2	Design DC analysis and DC models of semiconductor devices.
ECC302.3	Study AC analysis and AC models of semiconductor devices.
ECC302.4	Apply concepts for the design of Regulators and Amplifiers
ECC302.5	Verify the theoretical concepts through laboratory and simulation experiments.
ECC302.6	Implement mini projects based on concept of electronics circuit concepts

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: SE/III Course Name: Digital System Design

The students will be able to:

Course Code	Course Outcome Statements
ECC303.1	Develop a digital logic and apply it to solve real life problems.
ECC303.2	Analyze, design and implement combinational logic circuits.
ECC303.3	Classify different semiconductor memories.
ECC303.4	Analyze, design and implement sequential logic circuits.
ECC303.5	Analyze digital system design using PLD.
ECC303.6	Simulate and implement combinational and sequential circuits using VHDL systems.

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: SE/III Course Name: Circuit Theory and Networks

The students will be able to:

Course Code	Course Outcome Statements
ECC304.1	Analyze of various characteristics of AC and DC Circuits with depended sources.
ECC304.2	Study applications of different graph terminology and matrix representation of graph.
ECC304.3	Implement the various networks in time domain and frequency domain.
ECC304.4	Understand the analytical and graphical methods of transfer function.
ECC304.5	Design of network topology, network functions and two port networks.
ECC304.6	Synthesize passive network by various methods.

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: SE/III Course Name: Electronic Instrumentation and Control

The students will be able to:

Course Code	Course Outcome Statements
ECC305.1	Understand basics of various sensors and data acquisition systems applied in Wireless sensor network.
ECC305.2	Evaluate the concepts of control system such as mathematical modeling, time response and frequency response.
ECC305.3	Develop concepts of stability and its assessment criteria.
ECC305.4	Design functional blocks of data acquisition system.
ECC305.5	Demonstrate transfer functions & calculate time domain and frequency domain parameters for given system.
ECC305.6	Able to predict stability of given system using appropriate criteria.

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem:SE/III (CBCGS) Course Name: OOP using JAVA Laboratory

The students will be able to:

Course Code	Course Outcome Statements
ECL303.1	Understand fundamental features of an object oriented language: object classes and interfaces, exceptions and libraries of object collections
ECL303.2	Code a program using JAVA constructs.
ECL303.3	Develop program on real world scenarios using classes and their relationships.
ECL303.4	Develop a program that efficiently implements the algorithm for given tasks
ECL303.5	Implement the notion of exception handling and multithreading.
ECL303.6	Develop simple GUI application using Applets.

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Department of Electronics and Telecommunication Engineering

Class/Sem: SE/IV Course Name: Applied Mathematics-IV

The students will be able to:

Course Code	Course Outcome Statements
ECC401.1	Understand Euler's-Lagrange's Equation, Isoperimetric problems and Rayleigh-Ritz method.
ECC401.2	Apply the knowledge vector spaces to find the inner product spaces.
ECC401.3	Find Eigen values, Eigen vectors of a square matrix and use of these in Diagonalisation of matrix
ECC401.4	Apply concept of Random variables, Probability distributions for solving problems.
ECC401.5	Evaluate Karl-Pearson's coefficient of correlation and lines of Regression.
ECC401.6	Analyze complex integration using Cauchy's integral formulae and also obtain Taylor's and Laurent's series and understand concept of Residue and Application of Residue theorem.

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Department of Electronics and Telecommunication Engineering

Class/Sem: SE/IV Course Name: Electronic Devices and Circuits-II

The students will be able to:

Course Code	Course Outcome Statements
ECC402.1	Design and analyse the basic operations of MOSFET.
ECC402.2	Learn about the multistage amplifier using BJT and FET in various configuration to determine frequency response and concept of voltage gain.
ECC402.3	Illustrate different power amplifier circuits, their design and use in electronics and communication circuits.
ECC402.4	Understand concept of feedback amplifier and their characteristics.
ECC402.5	Design the different oscillator circuits for various frequencies
ECC402.6	Analyze the different RC and LC oscillator circuits to determine the frequency of oscillation.

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: SE/IV Course Name: Linear Integrated Circuits

The students will be able to:

Course Code	Course Outcome Statements
ECC403.1	Understand the fundamentals and areas of applications for the integrated circuits.
ECC403.2	Analyze important types of integrated circuits.
ECC403.3	Demonstrate the ability to design practical circuits that perform the desired operations.
ECC403.4	Differentiate between theoretical, practical & simulated results in integrated circuits
ECC403.5	Select the appropriate integrated circuit modules to build a given application.
ECC403.6	Perform analysis of circuits based on linear integrated circuits.

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: SE/IV Course Name: Signals & Systems

The students will be able to:

Course Code	Course Outcome Statements
ECC404.1	Understand about various types of signals and systems, classify them, analyse them, and perform various operations on them.
ECC404.2	Use the signal transformation to analyse signals and system in continuous and discrete time domain.
ECC404.3	Identify formulate and solve telecommunication problem using transformations of signal.
ECC404.4	Observe the effect of various properties and operations of signals and systems.
ECC404.5	Analyse system which is useful in understanding behaviour of Electronics circuits and communication systems.
ECC404.6	Evaluate the time and frequency response of continuous and discrete time.

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: SE/IV Course Name: Principles of Communication Engineering

The students will be able to:

Course Code	Course Outcome Statements
ECC405.1	Understand different modulation and demodulation techniques used in analog communication
ECC405.2	Identify and solve basic communication problems
ECC405.3	Analyze transmitter and receiver circuits
ECC405.4	Compare and contrast design issues, limitations of analog communication systems
ECC405.5	Analyze different parameters of analog communication techniques.
ECC405.6	Apply the knowledge of pulse modulation and demodulation.

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: SE/III Course Name: Applied Mathematics III

The students will be able to:

Course Code	Course Outcome Statements
ETS301.1	Use basic knowledge of Laplace Transform & inverse Laplace transform to solve ordinary differential equations.
ETS301.2	Calculate both real and complex forms of the Fourier series for standard periodic waveforms and convert from real form Fourier series to complex form and vice-versa
ETS301.3	Understand the Bessel functions, generating functions and orthogonality properties.
ETS301.4	Apply the knowledge of vector differentiation and integration to solve Engineering problems.
ETS301.5	Use fundamental knowledge of complex variables to identify an analytic harmonic functions and orthogonal trajectories.
ETS301.6	Understand conformal mapping and Bilinear Transformations

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: SE/III Course Name: Analog Electronics I

The students will be able to:

Course Code	Course Outcome Statements
ETC302.1	Understand construction & working of the semiconductor devices.
ETC302.2	Find out characteristics & breakdown mechanism of the semiconductor diodes.
ETC302.3	Perform DC design & analysis of transistor circuits
ETC302.4	Perform small signal analysis of BJT & FET Amplifiers.
ETC302.5	Synthesize & analyze the semiconductor devices.
ETC302.6	Perform graphical analysis to evaluate parameters of the semiconductor devices

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: SE/III Course Name: Digital Electronics

The students will be able to:

Course Code	Course Outcome Statements
ETC303.1	Understand the difference between Analog and Digital signals.
ETC303.2	Interpret logic gates and basic arithmetic circuits.
ETC303.3	Comprehend Combinational logic circuits and able to analyze, transform and minimize those circuits.
ETC303.4	Analyze and design sequential circuit applications.
ETC303.5	Design digital system and components; characterize the different type of memory.
ETC303.6	Utilize the skill of testing used in various fields of computing, communication.

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem:SE/III Course Name: Circuits and Transmission Lines

The students will be able to:

Course Code	Course Outcome Statements
ETC304.1	Analyse of various characteristic of DC circuit with dependent sources.
ETC304.2	Implement the circuits in time and frequency domain.
ETC304.3	Synthesize passive network by various methods.
ETC304.4	Understanding of network topology and network functions.
ETC304.5	Study applications of two port network
ETC304.6	Design and analysis of transmission lines with the help of smith chart.

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Department of Electronics and Telecommunication Engineering

Class/Sem: SE/III Course Name: Electronic Instruments and Measurements

The students will be able to:

Course Code	Course Outcome Statements
ETC305.1	Evaluate basic functions and principle of working of sensors and components used in Electronic Measurement.
ETC305.2	Understand principles of advanced electronic instruments and application in measurement of electronics parameters to develop concepts of stability and its assessment criteria.
ETC305.3	Analyze measurement of physical parameters using various transducers and working of sensors.
ETC305.4	Use AC and DC bridges for relevant parameter measurement.
ETC305.5	Gain knowledge of advanced electronic instruments and application in measurement of electronic parameters
ETC305.6	Compare passive and active transducers for measurement of physical phenomenon.

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem:SE/III Course Name: Object Oriented Programming Methodology

The students will be able to:

Course Code	Course Outcome Statements
ETS306.1	Understand the difference between POP and OOP and the concept of JVM and the fundamental concepts of Java
ETS306.2	Illustrate the concept of Packages, Classes and Objects
ETS306.3	Elaborate the concept of Strings, Arrays
ETS306.4	Implement the concept of Inheritance and Interfaces
ETS306.5	Implement notion of Exception handling and Multithreading
ETS306.6	Develop GUI based application using Applets and its graphical Functions

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: SE/IV Course Name: Applied Mathematics IV

The students will be able to:

Course Code	Course Outcome Statements
ETS401.1	Understand Euler's-Lagrange's Equation, Isoperimetric problems and Rayleigh-Ritz method.
ETS401.2	Apply the knowledge vector spaces to find the inner product spaces.
ETS401.3	Find Eigen values, Eigen vectors of a square matrix and use of these in Diagonalisation of matrix
ETS401.4	Study functions of square matrix, quadratic forms of a matrix and singular value decomposition.
ETS401.5	Find complex integration using Cauchy's integral formulae and also obtain Taylor's and Laurent's series.
ETS401.6	Understand concept of Residue and Application of Residue theorem.

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Department of Electronics and Telecommunication Engineering

Class/Sem: SE/IV Course Name: Analog Electronics II

The students will be able to:

Course Code	Course Outcome Statements
ETC402.1	Understand frequency response of an amplifier.
ETC402.2	Determine types of differential amplifier and their parameter.
ETC402.3	Analyze discrete and integrated biasing techniques
ETC402.4	Evaluate and design of power amplifier.
ETC402.5	Learn basics of Op-amp and solve problem of Op-amp
ETC402.6	Understand DC regulated power supply

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Department of Electronics and Telecommunication Engineering

Class/Sem: SE/IV Course Name: Microprocessors and Peripherals

The students will be able to:

Course Code	Course Outcome Statements
ETC403.1	Demonstrate architecture of 8085 and 8086 Microprocessors.
ETC403.2	Understand and impart instruction set of 8086 and to develop 8086 programming skills.
ETC403.3	Design memory system of required specifications
ETC403.4	Analyse the peripheral interfacing with microprocessor and its real time applications.
ETC403.5	Design application specific multi-processor system.
ETC403.6	Demonstrate architecture of 32bit microprocessors.

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Department of Electronics and Telecommunication Engineering

Class/Sem: SE/IV Course Name: Wave Theory and Propagation

The students will be able to:

Course Code	Course Outcome Statements
ETC404.1	Understand nature of electric or magnetic fields.
ETC404.2	Use different apparatus based on electromagnetic field.
ETC404.3	Evaluate the behaviour of electromagnetic waves.
ETC404.4	Learn the different methods for antenna designing.
ETC404.5	Analyze the parameters for propagation of the waves.
ETC404.6	Identify and solve problems in the field of wave propagation.

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: SE/IV Course Name: Signals and Systems

The students will be able to:

Course Code	Course Outcome Statements
ETC405.1	Understand significance of signals and systems in the time and frequency Domains.
ETC405.2	Interpret and analyse signal and report results.
ETC405.3	Evaluate the time and frequency response of continuous and discrete time.
ETC405.4	Understand system behaviour of Electronics circuits and communication Systems.
ETC405.5	Formulate foundation of signal and system as an application of signal processing in communication systems.
ETC405.6	Develop an ability to identify formulate and solve telecommunication problem using signal systems.

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: SE/IV Course Name: Control Systems

The students will be able to:

Course Code	Course Outcome Statements
ETC406.1	Understand the basic concepts of control system
ETC406.2	Derive the mathematical model of different type of the systems.
ETC406.3	Analyze systems in time and frequency domain.
ETC406.4	Apply the control theory to design the conventional controllers widely used in the industries.
ETC406.5	Study concept of time response and frequency response of the system
ETC406.6	Evaluate stability analysis of the system

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: SE/IV Course Name: Software Simulation Laboratory

The students will be able to:

Course Code	Course Outcome Statements
ETL403.1	Understand the basics of simulation tools.
ETL403.2	Analyze the problems using modern engineering tools, software and equipments.
ETL403.3	Design a system as per specifications.
ETL403.4	Visualize and work on simulation tools.
ETL403.5	Verify the theoretical concepts through laboratory and simulation experiments.
ETL403.6	Compare theoretical and simulated results.

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: TE/V Course Name: Microcontrollers and Applications

The students will be able to:

Course Code	Course Outcome Statements
ETC501.1	Understand concepts of microcontroller 8051 and interface with various peripherals.
ETC501.2	Interpret instruction set and develop programming skill for 8051 microcontroller.
ETC501.3	Design microcontroller based system for various applications.
ETC501.4	Comprehend concepts like Registers, operating modes, Timer/Counter, ALU, Memory of ARM 7 TDMI.
ETC501.5	Implicate instruction set and develop programming skill for ARM 7 TDMI
ETC501.6	Design ARM based system for various applications.

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: TE/V Course Name: Analog Communication

The students will be able to:

Course Code	Course Outcome Statements
ETC502.1	Understand different modulation and demodulation techniques in analog communication
ETC502.2	Analyze transmitter and receiver elements in analog communication system
ETC502.3	Compare advantages and limitations of analog communication system
ETC502.4	Detect and troubleshoot errors during transmission
ETC502.5	Verify and apply sampling techniques for pulse modulation
ETC502.6	Analyze various pulse modulation techniques and applications

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: TE/V Course Name: Random Signal Analysis

The students will be able to:

Course Code	Course Outcome Statements
ETC503.1	Apply theory of probability in identifying and solving relevant problems.
ETC503.2	Analyze random variables and vector through the use of cumulative distribution function (CDF), probability density function (PDF), probability mass function (PMF) as well as joint, marginal and conditional CDF, PDF and PMF.
ETC503.3	Perform probability and expectation computation using important discrete and continuous random variable types.
ETC503.4	Define random processes and determine the concept of stationary or wide sense stationary processes.
ETC503.5	Determine the response of a linear time invariant system in random process.
ETC503.6	Describe basic concepts related to Markov chains and queuing theory and relate it to real time applications.

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: TE/V Course Name: RF Modeling and Antennas

The students will be able to:

Course Code	Course Outcome Statements
ETC504.1	Evaluate the HF behavior of passive and active components used in present communication systems
ETC504.2	Design different types of passive filters used for radio frequency application
ETC504.3	Understand radiation phenomena and patterns of various antennas
ETC504.4	Analyze various characteristics of different types of antennas
ETC504.5	Demonstrate antennas in communication systems
ETC504.6	Discriminate the various antennas on the basis of their performance

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: TE/V Course Name: Integrated Circuits

The students will be able to:

Course Code	Course Outcome Statements
ETC505.1	Understand the fundamentals and areas of applications for the Integrated Circuits.
ETC505.2	Analyze important types of integrated circuits of day-to-day requirements.
ETC505.3	Design practical circuits that perform the desired operations.
ETC505.4	Categorize differences among theoretical, practical & simulated results in integrated circuits.
ETC505.5	Choose the appropriate integrated circuit modules to build a given application.
ETC505.6	Design methodologies using practical integrated circuits.

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: TE/V Course Name: Business Communication Ethics

The students will be able to:

Course Code	Course Outcome Statements
ETS506.1	Communicate effectively in both verbal and written form and demonstrate knowledge of professional and ethical responsibilities
ETS506.2	Participate and succeed in Campus placements and competitive examinations like GATE, CET.
ETS506.3	Possess entrepreneurial approach and ability for life-long learning.
ETS506.4	Have education necessary for understanding the impact of engineering solutions on Society and demonstrate awareness of contemporary issues
ETS506.5	Inculcate professional ethics and codes of professional practice and leadership
ETS506.6	Inculcate awareness of the excellence, leadership and lifelong learning needed for a successful professional career.

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: TE/V Course Name: Mini Project-I

The students will be able to:

Course Code	Course Outcome Statements
ETL504.1	Apply the knowledge and skills to implement predefined practical problems.
ETL504.2	Learn different computational techniques as well as some model of design.
ETL504.3	Design printed circuit board using various type of software.
ETL504.4	Define and design the problem and lead to its accomplishment with proper planning.
ETL504.5	Learn the behavioural science by working in a group.
ETL504.6	Test the system and troubleshoot the errors.

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: TE/VI Course Name: Digital Communication

The students will be able to:

Course Code	Course Outcome Statements
ETC601.1	Apply the basics of information theory and coding techniques.
ETC601.2	Determine the minimum number of bits per symbol required to represent the source and the maximum rate at which a reliable communication can take place over the channel.
ETC601.3	Describe and determine the performance of different waveform techniques for the generation of digital representation of signals.
ETC601.4	Determine methods to mitigate inter symbol interference in baseband transmission system.
ETC601.5	Describe and determine the performance of different error control coding schemes for the reliable transmission of digital representation of signals and information over the channel.
ETC601.6	Demonstrate Understand various spreading techniques and determine bit error performance of various digital communication systems.

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem:TE/VI Course Name: Discrete Time Signal Processing

The students will be able to:

Course Code	Course Outcome Statements
ETC602.1	Identify and understand the properties of signals and systems.
ETC602.2	Comprehend the transform domain and its significance and problems related to computational complexity.
ETC602.3	Design and implement digital filters.
ETC602.4	Analyze and deploy multirate signal processing.
ETC602.5	Understand finite word length effects of signals and then estimate interference.
ETC602.6	Design and Simulate DSP system using MATLAB/SCILAB.

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem:TE/VI Course Name: Computer Communication and Telecom Networks

The students will be able to:

Course Code	Course Outcome Statements
ETC603.1	Assemble the components of a PC and install one or more network operating systems
ETC603.2	Understand the concept of Network architecture, different protocols to communicate and service models
ETC603.3	Design a small or medium sized computer network including media types, end devices, and interconnecting devices that meets a customer's specific needs.
ETC603.4	Perform basic configurations on routers and Ethernet switches.
ETC603.5	Demonstrate knowledge of programming and analyze the simulation results for computer network
ETC603.6	Develop ability to implement the application layer protocols in different simulation tools

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: TE/VI Course Name: Television Engineering

The students will be able to:

Course Code	Course Outcome Statements
ETC604.1	Learn the picture transmission and reception in analog and digital TV system
ETC604.2	Describe the concept of compatibility, chromaticity and frequency interleaving process
ETC604.3	Conversant with new development in video engineering.
ETC604.4	Describe and differentiate working principles of latest digital TV and its application like HDTV, WDTV.
ETC604.5	Understand the use and working principles of latest display like LCD, LED, Plasma and large plat panel monitors. Troubleshoot the problems in advanced TV and Video engineering.
ETC604.6	Describe the concept of compatibility, chromaticity and freq. interleaving process

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: TE/VI Course Name: Operating Systems

The students will be able to:

Course Code	Course Outcome Statements
ETC605.1	Learn operating system as a resource manager, its evolutions and fundamentals.
ETC605.2	Understand concept of process , like linear and concurrent ,scheduling policies
ETC605.3	Familiar with memory, file and I/O management policies
ETC605.4	Compare between different algorithms used for management and scheduling of processes, Memory and input-output operation.
ETC605.5	Analyze with various process management concepts including scheduling synchronization and deadlocks.
ETC605.6	Use concepts of Memory management including virtual memory.

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: TE/VI Course Name: VLSI Design

The students will be able to:

Course Code	Course Outcome Statements
ETC606.1	Understand the fundamental characteristics and fabrication process of CMOS and NMOS
ETC606.2	Design of different digital circuits using CMOS and NMOS
ETC606.3	Determine the power, noise and leakage current in CMOS and learn the methods to reduce them
ETC606.4	Demonstrate the design and working of different types of memories using CMOS
ETC606.5	Draw the layout of logic circuits using different design styles
ETC606.6	Understand the concept of clocking, power reduction and distribution

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: TE/VI Course Name: Mini-Project -II

The students will be able to:

Course Code	Course Outcome Statements
ETL604.1	Apply the knowledge and skills to implement predefined practical problems.
ETL604.2	Analyze and formulate hardware projects with a comprehensive and systematic approach.
ETL604.3	Design printed circuit board using various type of software.
ETL604.4	Define and design the problem and lead to its accomplishment with proper planning.
ETL604.5	Contribute as an individual or in a team in development of technical projects.
ETL604.6	Develop effective communication skills for presentation of project related activities

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: BE/VII Course Name: Image and Video Processing

The students will be able to:

Course Code	Course Outcome Statements
ETC701.1	Learn fundamentals operations of image processing like image acquisition, enhancement, segmentation and restoration etc.
ETC701.2	Interpret and analyse 2D signals in frequency domain through image transforms like DFT,DCT, KL and DWT.
ETC701.3	Apply quantitative models of image processing for various engineering applications.
ETC701.4	Understand the fundamentals of video processing like video formation ,perception, representation, display etc.
ETC701.5	Implicate and analyze 2D motion estimation like pixel based multi resolution motion estimation.
ETC701.6	Develop innovative design for practical applications in various fields

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Department of Electronics and Telecommunication Engineering

Class/Sem: BE/VII Course Name: Mobile Communication

The students will be able to:

Course Code	Course Outcome Statements
ETC702.1	Learn the concept of cellular system.
ETC702.2	Analyze GSM, CDMA concepts and architecture, frame structure, system capacity and services provided.
ETC702.3	Compare mobile technologies like GSM &CDMA
ETC702.4	Differentiate between 2G, 2.5G, 3G with their characteristics and Limitations.
ETC702.5	Analyze different indoor and outdoor propagation models related to losses and different types of fading.
ETC702.6	Apply the knowledge of cellular system and understand emerging technologies for 4G standards.

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Department of Electronics and Telecommunication Engineering

Class/Sem: BE/VII Course Name: Optical Communication and Networks

The students will be able to:

Course Code	Course Outcome Statements
ETC703.1	Apply the fundamental principles of optics and light wave to design analog and digital optical fiber communication systems.
ETC703.2	Identify structures and working principle of optical fibers, light sources and detectors.
ETC703.3	Design optical fiber communication links using appropriate optical fibers, light sources, couplers, detectors, and multiplexers.
ETC703.4	Explore concepts of designing and operating principles of modern optical communication systems and networks.
ETC703.5	Apply the knowledge developed in-class to contemporary optical fiber communication research and industrial areas.
ETC703.6	Learn fundamental principles of network management and configuration.

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Department of Electronics and Telecommunication Engineering

Class/Sem:BE/VII Course Name: Microwave and Radar Engineering

The students will be able to:

Course Code	Course Outcome Statements
ETC704.1	Learn working of RADAR and its types.
ETC704.2	Understand generation and amplification of microwaves using passive devices.
ETC704.3	Analyze the microwave passive circuit components.
ETC704.4	Design the tuning and matching networks.
ETC704.5	Identify the uses of microwave tubes and semiconductors in real life.
ETC704.6	Apply the microwave devices and RADAR for industrial and scientific purposes

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: BE/VII Course Name: Data Compression and Encryption

The students will be able to:

Course Code	Course Outcome Statements
ETE701.1	Implement lossless and lossy compression techniques for different types of data.
ETE701.2	Understand text and audio coding techniques for compression.
ETE701.3	Design image and video compression techniques.
ETE701.4	Demonstrate symmetric and asymmetric key in cryptography schemes.
ETE701.5	Analyze network security and ethical hacking.
ETE701.6	Implement and apply data encryption techniques.

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Department of Electronics and Telecommunication Engineering

Class/Sem: BE/VII Course Name: Neutral Network and Fuzzy Logic

The students will be able to:

Course Code	Course Outcome Statements
ETE703.1	Basic Concepts and understanding of artificial neural networks.
ETE703.2	Knowledge about the Design of different neural networks, their architecture and training algorithm.
ETE703.3	Enhance the basic Concept of Fuzzy logic, Fuzzy Sets, fuzzy rules and fuzzy reasoning.
ETE703.4	Design the applicability of neural networks and fuzzy logic.
ETE703.5	Apply the principles of neural networks and fuzzy logic to design various applications.
ETE703.6	To solve real world problems based on artificial neural networks.

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Department of Electronics and Telecommunication Engineering

Class/Sem:BE/VII Course Name: Project Stage-I

The students will be able to:

Course Code	Course Outcome Statements
ETP701.1	Identify various research areas in the field of Electronics and Telecommunication.
ETP701.2	Conduct a survey of several available literatures in the preferred field of study
ETP701.3	Compare various existing methods for research challenge.
ETP701.4	Contribute as an individual or in team
ETP701.5	Represent a solution for the identified problem
ETP701.6	Formulate the methodology on preferred domain.

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Department of Electronics and Telecommunication Engineering

Class/Sem: BE/VIII Course Name: Wireless Networks

The students will be able to:

Course Code	Course Outcome Statements
ETC801.1	Describe wireless communication and wave theory
ETC801.2	Plan & design wireless network
ETC801.3	Analyse emerging technologies such as Bluetooth , Zigbee and Wimax
ETC801.4	Understand the wireless sensor network architecture, protocol stack and application
ETC801.5	Synthesize middleware protocol and network management issues of sensor networks
ETC801.6	Design various parameters of wireless network.

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Department of Electronics and Telecommunication Engineering

Class/Sem: BE/VIII Course Name: Satellite Communication and Networks

The students will be able to:

Course Code	Course Outcome Statements
ETC802.1	Understand the concept of Satellite Launching and its different frequency bands.
ETC802.2	Evaluate Satellite Link design.
ETC802.3	Design Space Segment.
ETC802.4	Analyze various mechanism of Satellite Networking
ETC802.5	Design Earth station and Space Craft Systems.
ETC802.6	Compare various types of Multiple Access Techniques in satellite communication

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Department of Electronics and Telecommunication Engineering

Class/Sem: BE/VIII Course Name: Internet and Voice Communication

The students will be able to:

Course Code	Course Outcome Statements
ETC803.1	Implement local area networks using both static and dynamic addressing techniques including sub netting.
ETC803.2	Install, configure, and troubleshoot server and client operating systems.
ETC803.3	Disassemble, troubleshoot/debug, upgrade, replace basic components, and reassemble servers and client systems.
ETC803.4	Understand the concept of encapsulation and its relationship to layering in the network models.
ETC803.5	Demonstrate TCP's traditional packet-based sliding window algorithm.
ETC803.6	Learn the operation of router including, DHCP, NAT/PAT, routing function, switching function.

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Department of Electronics and Telecommunication Engineering

Class/Sem: BE/VIII Course Name: Speech Processing

The students will be able to:

Course Code	Course Outcome Statements
ETE801.1	Demonstrate basic knowledge in speech production mechanism, phoneme classification.
ETE801.2	Illustrate Homomorphism speech processing and LPC analysis
ETE801.3	Learn applications of signal processing theory for estimation of speech parameters in time and frequency domain including pitch and formants
ETE801.4	Analyze application of speech processing in speech compression, speech recognition, and speech synthesis
ETE801.5	Enhance their written and oral technical communication skills related to speech processing subject
ETE801.6	Prepare themselves for higher study and lifelong learning

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: BE/VIII Course Name: Telecom Network Management

The students will be able to:

Course Code	Course Outcome Statements
ETE802.1	Demonstrate broad knowledge of fundamental principles and technical standards underlying
ETE802.2	Understand basic of telecommunication, networking and information technologies
ETE802.3	Architect and implement networked informative systems
ETE802.4	Anticipate the way technological change and emerging technologies in network management
ETE802.5	Implement the basic Network Management model
ETE802.6	Design, analysis operation and management of modern data communications networks.

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Department of Electronics and Telecommunication Engineering

Class/Sem:BE/VIII Course Name: Project Stage-II

The students will be able to:

Course Code	Course Outcome Statements
ETP801.1	Demonstrate knowledge and understanding of project and apply it in multidisciplinary environment.
ETP801.2	Implement the system using hardware and software simulation tools.
ETP801.3	Identify and troubleshoot the errors
ETP801.4	Work in team and communicate with peers.
ETP801.5	Produce the proper documentation of the work and present the same.
ETP801.6	Develop skills required to adapt rapid changes in the industry.

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Pillai HOC College of Engineering and Technology, Rasayani

Department of Electronics and Telecommunication Engineering

Class/Sem: TE / V

Course Name: Microprocessor & Peripherals Interfacing (ECC501)

The students will be able to:

Course Code	Course Outcome Statements
ECC501.1	Demonstrate architecture of 8085 and 8086 Microprocessors
ECC501.2	Understand and impart instruction set of 8086 and to develop 8086 Programming skills.
ECC501.3	Design memory system of required specifications
ECC501.4	Analyse the peripheral interfacing with microprocessor and its real time applications.
ECC501.5	Design application specific multi - processor system.
ECC501.6	Demonstrate architecture of 32 bit microprocessors

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Department of Electronics and Telecommunication Engineering

Class/Sem: TE / V

Course Name: Digital Communication **(ECC 502)**

After the successful completion of the course, the student will be able to:

Course Code	Course Outcome Statements
ECC 502.1	Understand the types of random variables and random processes.
ECC 502.2	Apply the concepts of information theory in source coding.
ECC 502.3	Evaluate different methods used for elimination of intersymbol interference
ECC 502.4	Compare different band pass modulation techniques.
ECC 502.5	Analyse the performance of various error control codes.
ECC 502.6	Demonstrate optimum reception of signal using filtering methods.

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Department of Electronics and Telecommunication Engineering

Class/Sem: TE / V

Course Name: Electromagnetic Engineering **(EECC 503)**

The students will be able to:

Course Code	Course Outcome Statements
EECC 503.1	Understand the concept of mathematics including Vectors, Phasors and Partial differential equations.
EECC 503.2	Understand basic concepts of Electromagnetic, including static and dynamic electromagnetic fields.
EECC 503.3	Understand and analyse behaviour of wave within and at the boundary of the medium.
EECC 503.4	Understand and analyse Electromagnetic radiation and propagation in space.
EECC 503.5	Learn propagation of electromagnetic wave within transmission lines.
EECC 503.6	Design transmission line.

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Department of Electronics and Telecommunication Engineering

Class/Sem: TE / V

Course Name: Discrete Time Signal Processing (ETC **504)**

The students will be able to:

Course Code	Course Outcome Statements
ETC504.1	Understand the concepts of discrete-time fourier transform and fast fourier transform.
ETC504.2	Apply the knowledge of design of IIR digital filters to meet arbitrary specifications.
ETC504.3	Apply the knowledge of design of FIR digital filters to meet arbitrary specifications.
ETC504.4	Analyze the effect of hardware limitations on performance of digital filters.
ETC504.5	Understand architecture of different DSP processors.
ETC504.6	Apply the knowledge of DSP processors for various applications.

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Department of Electronics and Telecommunication Engineering

Class/Sem: TE / V

Course Name: Data Compression & Encryption (ECCDLO **5014)**

The students will be able to:

Course Code	Course Outcome Statements
ECCDLO **5014**.1	Implement lossless and lossy compression techniques for different types of data.
ECCDLO **5014**.2	Understand text and audio coding techniques for compression
ECCDLO **5014**.3	Design image and video compression techniques.
ECCDLO **5014**.4	Demonstrate symmetric and asymmetric key in cryptography schemes
ECCDLO **5014**.5	Analyze network security and ethical hacking
ECCDLO **5014**.6	Implement and apply data encryption techniques