



**GANDHI INSTITUTE OF EXCELLENT TECHNOCRATS**  
**SANTI NIKETAN, GHANGAPATANA, BHUBANESWAR-752054**  
**DEPARTMENT OF ECE**

Course Title	Course Outcomes
<b>I Year/ I semester</b>	
Mathematics-I	CO101.1: Implement the engineering problems using the concept of Partial differentiation and series and to understand its application.
	CO101.2: Solve the initial value and boundary value problem of ODE related to SHM, Electrical circuit, Growth and Decay problem etc.
	CO101.3: Execute the technique of Fourier series for learning advanced Engineering Mathematics. To execute the technique of Fourier series for learning advanced Engineering Mathematics.
	CO101.4: Relate the tools of matrices and linear algebra including ineartrans formations, eigen values, diagonalization and orthogonalization in Engineering.
Chemistry	CO102.1: Identify suitable water treatments techniques for domestic and industrial purposes.
	CO102.2: Differentiate various types of corrosion, and gain knowledge on control measures associated with corrosion.
	CO102.3: Classify the different types of fuel , it's analysis and gain knowledge on fractional distillation of petroleum.
	CO102.4: Understand various types of polymers, their preparation along with application.
Basics of Mechanical Engineering	CO103.1: Describe the basic engineering concepts related to mechanical equipments
	CO103.2: Measuring & testing method of physical quantities
	CO103.3: Calculation of friction and revolution in mechanical parts
	CO103.4: Assessment of boiler components
Basic Electronics Engineering	CO104.1: To impart basic knowledge of electrical quantities and provide working knowledge for the analysis of DC and AC circuits.
	CO104.2: To understand the construction and working principle of DC and AC machine
	CO104.3: To facilitate understanding of basic electronics and operational amplifier circuits
	CO104.4: Explain the transport phenomena in semiconductors



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Communication English	CO105.1: Understand the importance of effective communication for personal and professional development.
	CO105.2: Use correct vocabulary and grammar for effective communication in English
	CO105.3: Apply ICT for professional communication
	CO105.4: Develop a positive attitude towards people, organization, and life.
Chemistry Laboratory	CO106.1: Understand the basic methods of chemical analysis and instrumentations involved.
	CO106.2: Standardize the chemicals.
	CO106.3: Estimate the hardness, ions in salts and compositions in ores.
	CO106.4: Synthesize the drugs and know about their applications.
Basics of Mechanical Engineering Laboratory	CO107.1: . Describe the basics and working principles of different types of machine components to meet varied functional and operational requirements
	CO107.2: Design machine components and machine tools concrete and their application on environment.
	CO107.3: .Demonstrate the working, constructional features, advantages and limitations of various non-traditional manufacturing processes
	CO107.4: .Indicate safety aspects of various machine components.
Basic Electronics Engineering Laboratory	CO108.1: To study basics of semiconductor & devices and their applications in different areas.
	CO108.2: To study different biasing techniques to operate transistor , FET , MOSFET and operational amplifier in different modes.
	CO108.3: Analyze output in different operating modes of different semiconductor devices
	CO108.4: Compare design issues, advantages, disadvantages and limitations of basic electronics.
English Language Laboratory	CO109.1: Memorise and explain a good range of vocabulary and usage
	CO109.2: Use grammar for effective speaking in GD and other formats of speaking
	CO109.3: Able and defend in conversational and public speaking competencies



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	CO109.4: Develop active listening and speaking skill in different real life situation
Engineering Workshop	CO110.1: To follow various safety precaution and use of various hand tools
	CO110.2: To demonstrate the process configuration and basic mechanism of different machines like Lathe
	CO110.3: Identify and apply suitable tools for machining process including facing
	CO110.4: To prepare a job with a given dimension with the help of machining, welding practice.
<b>I year / II semester</b>	
Mathematics-II	CO111.1: Solve Ordinary differential and partial differential equation by using Laplace transform and its application in Network theory, wave equation etc.
	CO111.2: Execute the technique of Fourier Integral and transform for learning in advanced Engineering Mathematics.
	CO111.3: Relate gradient, curl and divergence and its application in electromagnetic theory
	CO111.4: Evaluate multiple integrals by using Green's, Stokes' and divergence theorem to give physical interpretation of the curl and divergence of a vector field.
Physics	CO112.1: Solve engineering problems using the concept of oscillation and wave mechanics and recognize the scientific application of Laser.
	CO112.2: Analysis the structural properties of elemental solids.
	CO112.3: Determine gradient of scalar field, divergence and curl of vector fields and solve engineering problems on electromagnetism.
	CO112.4: Construct a quantum mechanical model to explain the behavior of a system at microscopic level.
Basics of civil Engineering	CO113.1: .Understand the typical and potential applications of construction materials in civil engineering
	CO113.2: Understand important concepts of concrete technology, which involves properties of concrete and different materials
	CO113.3: Analyse fundamentals of Irrigation Engineering
	CO113.4: .Demonstrate and identify different soils and its properties



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Basic Electrical Engineering	CO114.1: .Apply fundamental concepts of different types of Electrical machines
	CO114.2:" Remember various laws and Theorems associated with the concept of AC circuit.
	CO114.3: Provide working knowledge for the analysis of basic DC and AC circuits used in electrical and electronic devices
	CO114.4:Develop selection skill to identify the type of generators or motors required for particular application
Engineering Mechanics	CO115.1:To understand the basics of material properties, stress and strain
	CO115.2: Ability to design and conduct experiments, as well as to analyze and interpret data
	CO115.3: Ability to design a component to meet desired needs within realistic constraints of safety.
	CO115.4: Ability to design and conduct experiments, as well as to analyze and interpret data
Programming for Problem Solving Using C	CO116.1:Develop conditional and iterativestatements to write C programs
	CO116.2:Inscribe C programs that use Pointers toaccess arrays, strings and functions
	CO116.3: Inscribe C programs using pointers andto allocate memory using dynamic memorymanagement functions
	CO116.4: Exercise files concept to show input andoutput of files in C
Basics of Civil Engineering Laboratory	CO117.1:. Discuss the physical and engineering properties of Civil Engineering materials.
	CO117.2:. Explain the testing of fresh and hardened concrete and their application on environment
	CO117.3: . Design concrete mix proportion using DoE or ACI method
	CO117.4: .Apply testing methods to determine the properties of fresh and hardened concrete
Basic Electrical Engineering Laboratory	CO118.1: Explain the working of measuring instruments and solve the basic dc and ac circuits.
	CO118.2: Describe the operation of dc generators, motors, single phase induction motors and transformers.
	CO118.3: Clarify the working of basic electronic devices such as diode, transistor and rectifier.



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	CO118.4: Demonstrate operation of digital devices such as logic gates, counters, flip-flops analog to digital converts and digital to analog converters.
Physics Lab	CO119.1: Define acceleration due to gravity , different moduli of elasticity & surface tension
	CO119.2: Explain the phenomena like interference and diffraction in Newton's rings and for a plane diffraction grating.
	CO119.3: Estimate the value of acceleration due to gravity and moduli of elasticity of different materials
	CO119.4: .Propose different frequencies for resonance for the vibrations in a stretched string using tuning forks
Engineering Graphics & Design Laboratory	CO120.1: Prepare Orthographic projections of Lines.
	CO120.2: Construct Isometric Scale.
	CO120.3: Interpret Sections of various Solids including Cylinders
	CO120.4: Draw projections of lines
Programming for Problem Solving Using C Lab	CO121.1: Illustrate flowchart and algorithm to the given problem
	CO121.2: Understand basic Structure of the C-PROGRAMMING, declaration and usage of variables
	CO121.3: Write C programs using Pointers to access arrays, strings and functions.
	CO121.4: Write C programs using pointers and allocate memory using dynamic memory management functions.
<b>II year / III semester</b>	
Mathematics- III	CO201.1: Understand and analyze the mathematical models of the transistor for circuits.
	CO201.2: Design and analyze various amplifier circuits.
	CO201.3: Calculate the effect of low & high frequency response and gain-bandwidth relationship of amplifier circuits.
	CO201.4: Design and examine various oscillators.
Object Oriented Programming Using Java	CO202.1: : Interpret object orientation and Utilize programming strategies
	CO202.2: Contrast classes and objects and Analyze Inheritance
	CO202.3: . Design Packages, Manage Exceptions and Apply Threads



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	CO202.4: Produce GUI screens along with event handling
	CO202.5: Identify various classes and methods in java. lang, util, i/o and net packages
	CO202.6: Convert Three phase Star to Three phase Delta circuits and Vice-Versa.
Engineering Economics	CO203.1: Define all the fundamental and technical terms used in engineering economics : general concepts of micro and macro economic including theory of demand, law of demand, elasticity of demand etc.
	CO203.2: Understand the elasticity of demand and supply.
	CO203.3: Solve cost and revenue based problems using Break Even Analysis approach
	CO203.4: Solve cost and revenue based problems using Break Even Analysis approach
Analog Electronics Circuit	CO204.1: Understand the concept of biasing of BJT and FETs
	CO204.2: Understand the concept of Small signal analysis of BJT and FET amplifiers.
	CO204.3: Analyze frequency response of BJT and FET amplifiers
	CO204.4: Understand the concept of feedback in oscillator and amplifier circuit
	CO204.5: Understand the concept of OP-AMP and analyze its applications.
Signals and Systems	CO205.1: Define and represent continuous and discrete time signals and systems.
	CO205.2: Classify discrete time signals and systems.
	CO205.3: Develop input output relationship for linear shift invariant system and understand the convolution operator for continuous and discrete time system.
	CO205.4: Analyse and understand the signals in frequency domain using Fourier series and Fourier transforms
	CO205.5: Point out the limitations of Fourier transform and need for Z-transform and develop the ability to analyze the system in z- domain
	CO205.6: Evaluate DFT and FFT algorithms for analysis of signals .



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Environmental science	CO206.1: Define ecosystem process, list the environmental gradients matching with tolerance level of environmental factors and identify the basic environmental laws
	CO206.2: Describe water treatment process and explain air ,water pollution and control.
	CO206.3: Calculate dissolved oxygen level in different type of waters
	CO206.4: Design procedures for hazard control measures in various industries and formulated first aid treatments for special types of injury
	CO206.5: Determine the nutrition to control communicable disease and compare different sources of solid waste and hazardous wastes
Analog Electronics Circuit Laboratory	CO207.1: Define the VI characteristics of biasing circuits using project boards.
	CO207.2: Identify different analog circuits and their behaviours.
	CO207.3: Compare the practical results with the assumed data values.
	CO207.4: Design and test of different amplifier and oscillator circuits.
Signals and Systems Laboratory	CO208.1: Familiar the matrix operation of signal used for discrete and continuous signal
	CO208.2: Describe matlab coding for Laplace transform, Fourier Transform ,Z transform
	CO208.3: Relate the concept of continuous and discrete signal in MATLAB coding
	CO208.4: Relate the concept of continuous and discrete signal in MATLAB coding
	CO208.5: Analyze complex mathematical function of time domain and frequency domain using Mat lab..
	CO208.6: Describe different parameters like mean, variance with proper Histogram Approach
OOP Using JAVA Laboratory	CO209.1: Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs
	CO209.2: Read and make elementary modifications to Java programs that solve real-world problems.
	CO209.3: Validate input in a Java program
	CO209.4: Identify and fix defects and common security issues in code
Evaluation of Internship-1	CO210.1: State the functioning of organization and observe changes for self improvement



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	CO210.2: Explain how the internship placement site fits into a broader career field
	CO210.3: Apply appropriate workplace behaviors in a professional setting.
	CO210.4: Solve real life challenges in the workplace by analysing work environment and conditions, and selecting appropriate skill sets acquired from the course
	CO210.5: Evaluate the internship experience in terms of personal, educational and career needs
<b>II year / IV semester</b>	
Electromagnetic Theory	CO211.1: State Field Equations; Wave Types; the Parallel-Plate Waveguide; the Rectangular Waveguide.
	CO211.2: Explain Maxwell's Equations in Differential Form; Maxwell's Equations in Integral Form.s.
	CO211.3: Apply integral and point form of Maxwell's equations for solving the problems of electromagnetic field theory.
	CO211.4: Develop Circuit Model of a Uniform Two Conductor Transmission Line
Digital Systems Design	CO212.1: Understand the concepts of Verilog Language..
	CO212.2: Design the digital systems as an activity in a larger systems design context.
	CO212.3: Study the design and operation of semiconductor memories frequently used in application specific digital system
	CO212.4: .Inspect how effectively ICs are embedded in package and assembled inPCBs for diferent application
Organizational Behavior	CO213.1: Outline the development of the field of organizational behaviour and explain the micro and macro approaches.
	CO213.2: Demonstrate skills required for working in groups (team building).
	CO213.3: Analyze the various leadership styles and the role of leaders in a decision making process
	CO213.4: Compare organizational cultures and describe its dimensions and to examine various organizational designs
	CO213.5: Compose the implementation of organizational change





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	CO213.6: Explain different models used to explain individual behaviour related to motivation and rewards.
Network Theory	CO214.1: Define different types of the theorem, Different circuit elements and different types of filters
	CO214.2: Understand the basic theorems and elements of electrical network to analyze complex problem.
	CO214.3: Apply Laplace transform, Fourier series to get response of Electrical circuits and Electronics Circuits.
	CO214.4: Analyze the property of two ports network, coupled circuit and resonance.
Semiconductor Devices	CO215.1: State the Quantum theory of solids and semiconductors theory
	CO215.2: Explain the formation of PN Junction and its operation
	CO215.3: Demonstrate modes of Bipolar Transistor.
	CO215.4: Design MOS Capacitor and its characteristics
Data Structure	CO216.1: Ability to write programs that use data structure applications.
	CO216.2: Capability to design and implement an appropriate hashing function for an application
	CO216.3: Understand how arrays, records, linked structures, stacks, queues, trees, and graphs are represented in memory and used by algorithm
	CO216.4: Knowledge on different methods for traversing trees.
Constitution Of India	CO217.1: Understand the meaning and importance of Constitution
	CO217.2: Explain about making of Indian Constitution - contribution of Constituent assembly on it
	CO217.3: Describe the Salient (Outstanding) features of Indian Constitution.
	CO217.4: Describe the importance of Preamble of the Indian Constitution and its significance
Electronic Device Laboratory	CO218.1: Understand the current voltage characteristics of semiconductor devices.
	CO218.2: Design and analyze of electronic circuits.
	CO218.3: Evaluate frequency response to understand behavior of Electronics circuits



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	CO218.4: Analyze dc circuits and relate ac models of semiconductor devices with their physical Operation
Digital Systems Design Laboratory	CO219.1: Explain VLSI Design Flow, design automation tools and algorithms
	CO219.2: Understand the layout design techniques for analog circuits.
	CO219.3: Design analog and digital systems at circuit level using EDA tools
	CO219.4: Apply efficient techniques at circuit level for improving power and speed of the systems using EDA tool.
	CO209.5: . Design Digital circuits using VHDL and Implement these designs with FPGA development boards
Network Theory Laboratory	CO220.1: Define different types of theorems.
	CO220.2: Explain transient behaviour of electrical Circuit.
	CO220.3: Demonstrate the frequency response of different filter circuits.
	CO220.4: Determine different circuit parameters
	CO220.5: Design the Resonance of electrical Circuit to find the solution of different complex networks.
	CO220.6: Decide different types of two-port network
<b>III year / V semester</b>	
Analog and Digital Communication	CO301.1: Identify the basic elements of a communication system.
	CO301.2: .Analyse baseband signals in time domain and in frequency domain
	CO301.3: Compare and contrast various analog and digital modulation and demodulation techniques
	CO301.4: Evaluate the performance of modulation and demodulation techniques in various transmission environments
	CO301.5: . Explain the importance of synchronisation in communication systems.
Digital Signal Processing	CO302.1: Recall the concepts of discrete signal representation, its operation and discrete time systems.
	CO302.2: Convert the time domain signal analysis to frequency domain analysis using various transform.



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	CO302.3: Capable of understanding Digital Signal Processing Applications using z transform and DFT.
	CO302.4: Apply Fast Fourier Transform (FFT) Algorithms for faster realization of discrete signals and systems and analyze the response of filter.
Microprocessors & Microcontrollers	CO303.1: Describe the microprocessor's and Microcontroller's internal architecture and its operation
	CO303.2: Distinguish the various addressing modes and identify instructions of the microprocessor and microcontroller.
	CO303.3: Apply the standards and guidelines to select appropriate Microprocessor (8085 & 8086) and Microcontroller to meet specified performance requirements..
	CO303.4: Analyze assembly language programs; select appropriate assembler into machine utility of a microprocessor and microcontroller
Control Systems	CO304.1: Define different types of control system.
	CO304.2: Identify 1st and 2nd order system in time domain using different technique like root locus, RH criteria etc
	CO304.3: Apply 1st and 2nd order system in frequency domain using different technique like Bode Plot, Polar Plot, Nyquist Plot etc.
	CO304.4: Validate the controllability and observability and design suitable observers for the systems.
Digital VLSI Design	CO305.1: Know the basic concepts of Semiconductor devices(MOSFETs) & fabrication processes.
	CO305.2: Understand the layout design process and VLSI Design Flow.
	CO305.3: Apply the concept of CMOS in designing static and dynamics circuits.
	CO305.4: Analyze the switching action, power dissipation & delay estimation of VLSI Circuit
Analog and Digital Communication Laboratory	CO306.1: Recognize analog and digital control skills to evaluate & control engineering problems.
	CO306.2: Demonstrate the analog control experiments using analog computers and digital control experiments using PC & servo trainers.



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	C0306.3: Apply Laplace transform, transfer function, modelling RLC circuit and block diagram for simulation & control.
	C0306.4: Analyze various practical sessions in control engineering leading towards a research point.
	C0306.5: Design and determine control system parameters & transfer function by combining both the theoretical and applied analysis.
	C0306.6: Justify the knowledge in the field of control engineering using both analog and digital techniques.
Digital Signal Processing Laboratory	CO307.1: Represent the discrete signal in frequency domain using MATLAB.
	CO307.2: Understand the importance of random signal processing in DSP, and its application on statistical measures, prediction...
	CO307.3: Verify the various signals processing technique, data modelling using MATLAB.
	CO307.4: Analyze the concept of fast computation of signal processing in MATLAB.
Microprocessors & Microcontrollers Lab	C0308.1: Describe arithmetic operations using assembly language programming training boards
	C0308.2: Demonstrate ability to handle logical operations using assembly language programming
	C0308.3: Illustrate the use of string instructions using assembly language programming
	C0308.4: Analyze sorting operations and develop assembly language programming
Evaluation of Summer Internship	CO309.1: State the functioning of organization and observe changes for self improvement..
	CO309.1: Explain how the internship placement site fits into a broader career field
	CO309.3: Apply appropriate workplace behaviors in a professional setting
	CO309.4: Solve real life challenges in the workplace by analysing work environment and conditions, and selecting appropriate skill sets acquired from the course
<b>III year / VI semester</b>	
Microwave Engineering	CO310.1: Describe the types of waveguides, rectangular waveguides and field equations
	CO310.2: . Understand the coupling mechanisms in waveguides and analyze the waveguide multiport junctions



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	CO310.3: Explore the microwave linear tubes and analyze with microwave cross field tubes
	CO310.4: Demonstrate the microwave bench set up and conducting measurements of different parameters
Wireless Communication	CO311.1: Identify and discuss the fundamental operational and design problems of wireless communication systems.
	CO311.2: Apply basic techniques to design radio links and basic communication systems.
	CO311.3: Develop abilities to setup experiments and analyse system performance using wireless systems, hardware and software
	CO311.4: Apply basic mathematical and scientific principles to solve engineering design problems
Optimization in Engineering	CO312.1: Formulate the engineering problems as an optimization problem
	CO312.2: Apply necessary and sufficient conditions for a given optimization problem for optimality
	CO312.3: Select appropriate solution methods and strategies for solving an optimization problem and interpret and analyze the solution obtained by optimization algorithms
	CO312.4: Justify and apply the use of modern heuristic algorithms for solving optimization problems
Antenna Engineering	CO313.1: Discuss about the radiation mechanism in wire antennas and Analyze the concept of antenna
	CO313.2: Understanding the significance of Folded Dipole, Yagi Antenna, loop antennas uniform linear arrays and helical antennas
	CO313.3: To understand Horn Antenna and its radiation pattern.
	CO313.4: To understand Microstrip Antenna and the various applications of antennas.
Data Communication and Computer Networks	CO314.1: To understand network communication using the layered concept, Open System Interconnect (OSI) and the Internet Model.
	CO314.2: To understand various types of transmission media, network devices; and parameters of evaluation of performance for each media and device



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	CO314.3: To understand the concept of flow control, error control and LAN protocols; to explain the design of, and algorithms used in, the physical, data link layers
	CO314.4: To understand the functions performed by a Network Management System and to analyze connection establishment and congestion control with respect to TCP Protocol
Essence of Indian Knowledge Tradition-1	CO315.1: Understand the concept of Traditional knowledge and its importance.
	CO315.2: Know the need and importance of protecting traditional knowledge.
	CO315.3: Know the various enactments related to the protection of traditional knowledge
	CO315.4: Understand the concepts of Intellectual property to protect the traditional knowledg
Microwave Engineering Laboratory	CO316.1: Identify and demonstrate the working of various microwave components
	CO316.2: Demonstrate the characteristics of directional couplers
	CO316.3: Analyse the microwave measurement procedures.
	CO316.4: Analyse the characteristics of optical sources by conducting experiments and measuring various parameters
Wireless Communication Laboratory	CO111.1: Explain a good range of vocabulary and usage.
	CO111.2: Use grammar for effective speaking during communication and interviews.
	CO111.3: Defend in conversational and public speaking competencies.
	CO111.4: Develop active listening and speaking skill in different real life situation.
Seminar	CO318.1:List new research area from a range of academic disciplines.
	CO318.2: Explain an emerging field at the intersection of multi-disciplinary understandings of culture and education
	CO318.3:Estimate new perspectives in the emerging technology..
	CO318.4: Develop argumentative Skills and Critical Thinking
<b>IV year / VII semester</b>	
Entrepreneurship Development	CO401.1:Understand entrepreneurship concept as a whole



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	CO401.2: Lists the types of new venture establishment methods..
	CO401.3: Explains the general economic benefits of entrepreneurship.
	CO401.4: Understands the basic concepts about the entrepreneurship
Digital Image Processing	CO402.1: Review the fundamental concepts of a digital image processing system
	CO402.2: Analyze images in the frequency domain using various transforms
	CO402.3: Evaluate the techniques for image enhancement and image restoration
	CO402.4: Interpret Image compression standards
Adaptive Digital Signal Processing	CO403.1: Analyze Discrete-time Signals and Systems
	CO403.2: Design and Implement Digital Filters
	CO403.3: Understand State-of-the-Art DSP Hardware and Software
	CO403.4: Apply DSP Techniques to Practical Systems
Internet of Things	CO404.1: Identify the IoT networking components with respect to OSI layer.
	CO404.2: Demonstrate schematic for IoT solutions
	CO404.3: Analyze different IoT protocols and software.
	CO404.4: Design and develop IoT based sensor systems.
Green Technology	CO405.1: work in actual working environment.
	CO405.2: utilize technical resources.
	CO405.3: write technical documents and give oral presentations related to the work completed.
	CO405.4: Get acquainted with the organization structure, business operations and administrative functions.
Soft Computing	CO406.1: Define importance of applications of soft computing in real life problems
	CO406.2: Explain supervised and unsupervised learning algorithms to find optimized solutions for linear and non-linear problems.
	CO406.3: Demonstrate fuzzy systems using knowledge of fuzzy rule based system and fuzzy rule based reasoning.
	CO406.4: Develop soft computing techniques to solve real life problems



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Minor Project	CO407.1 Identify the components required for the project of the chosen area of defined technology for project development.
	CO407.2: Describe the technical aspects of the chosen project with a comprehensive and systematic approach
	CO407.3: Apply technical aspects for engineering projects
	CO407.4: Work as an individual or in a team to develop and analyse the technical projects.
Seminar 2	CO408.1: List new research area from a range of academic disciplines
	CO408.2: Estimate new perspectives in the emerging technology
	CO408.3: Develop argumentative Skills and Critical Thinking
	CO408.4: Argue the impact of engineering solutions on the society and contemporary issues
Essence of Indian Knowledge Tradition-2	CO409.1: Identify the concept of Traditional knowledge and its importance.
	CO409.2: Explain the need and importance of protecting traditional knowledge.
	CO409.3: Illustrate the various enactments related to the protection of traditional knowledge.
	CO409.4: Interpret the concepts of Intellectual property to protect the traditional knowledge
<b>IV year / VIII semester</b>	
Major Project/ Internship	CO410.1: Define engineering problem, devise a means of solving and exhibit the ability to execute the solution.
	CO410.2. Describe the impact of engineering solutions on the society
	CO410.3: Demonstrate knowledge of professional and ethical responsibilities
	CO410.4: Conclude effectively in both verbal and written form
	CO414.5: Develop confidence for self-education and ability for lifelong learning
	CO414.6: Appraise the result with logical conclusion.