THE COCHIN COLLEGE

Koovapadam, Kochi-2

Affiliated To Mahatma Gandhi University

Re-accredited by NAAC With B+ Grade

**Fourth Cycle
NAAC Accreditation 2024**

Criterion 1
Curricular Aspects

1.1 - Curricular Planning and Implementation

Metric No. 1.1.1

The Institution ensures effective curriculum planning and delivery through a well-planned and documented process including Academic calendar and conduct of continuous internal Assessment.

Programme Plan

Submitted to

National Assessment and Accreditation Council

DECLARATION

This is to certify that programme plan focuses on academic excellence, holistic development, innovative teaching, community engagement, and sustainable practices. We aim to provide a rigorous curriculum, diverse extracurricular activities, and modern teaching methods to foster a stimulating learning environment. Through continuous assessment and collaboration with the community, we strive to support every student's growth and success. We are committed to nurturing a vibrant and inclusive school community. Thank you for your support.

MRUDULA MENON V.

Mrudula Menon V.
Principal-in-Charge
The Cochin College

Phone: 0484 2224954, 2226449

THE COCHIN COLLEGE

KOCHI - 682 002

(Affiliated to Mahatma Gandhi University and Accredited by NAAC)

Website: www.thecochincollege.edu.in

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PROGRAMME PLAN

The Programme Plan outlines the structure and content of various academic programs offered by the college. This document is essential for developing detailed course outlines and syllabus, ensuring that program objectives and outcomes are met. Aligning course content with program goals and accreditation requirements ensures that students receive a quality education that prepares them for their future careers.

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Course Outcomes (CO)

Course	Course Outcome (CO)	Bloom's Taxonomy	Mapped PSO
Fine Tune Your English	CO1: To confidently use English in both written and spoken forms.	Understanding	PSO7
Fine Tune Your English	CO2: To use English for formal communication effectively.	Applying	PSO7
Pearls From the Deep	CO1: To sensitize students to the aesthetic, cultural, and social aspects of literature.	Understanding	PSO7
Pearls From the Deep	CO2: To develop in the learners an appreciation of the subtle nuances of literary expression.	Understanding	PSO7
Pearls From the Deep	CO3: To improve the learners' use of language as a means of subjective expression.	Applying	PSO7
Pearls From the Deep	CO4: Appreciate and enjoy works of literature.	Applying	PSO7
PROSE AND ONE ACT PLAYS	CO1: Identify different trends in the development of Hindi Literature and acquire knowledge about different forms of Prose.	Understanding	PSO7
PROSE AND ONE ACT PLAYS	CO2: Summarise the central theme and other relevant details of Hindi Prose.	Understanding	PSO7
PROSE AND ONE ACT PLAYS	CO3: Familiarize with the structural concepts of drama and one act play.	Applying	PSO7
PROSE AND ONE ACT PLAYS	CO4: Social and Cultural Consciousness.	Understanding	PSO7
PROSE AND ONE ACT PLAYS	CO5: Develop Critical Thinking and Communication Skills.	Applying	PSO7
KATHASAHITYAM	CO1: To fathom the role of short story and novel in the prose fiction.	Understanding	PSO7
KATHASAHITYAM	CO2: To chart subaltern, dalit and ecocritical nuances in contemporary literature.	Understanding	PSO7
KATHASAHITYAM	CO3: To acquaint the students about the possibilities of exploiting them.	Applying	PSO7
KATHASAHITYAM	CO4: To develop critical thinking and literary analysis.	Applying	PSO7
KATHASAHITYAM	CO5: To detect expressionism.	Applying	PSO7
French Language & Communicative Skills-I	CO1: Learn the basics of reading and comprehension.	Understanding	PSO7
French Language & Communicative Skills-I	CO2: Gain an understanding of basic vocabulary in the French language.	Understanding	PSO7

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Course	Course Outcome (CO)	Bloom's Taxonomy	Mapped PSO
French Language & Communicative Skills-I	CO3: Intercultural awareness.	Understanding	PSO7
French Language & Communicative Skills-I	CO4: Acquire essential grammar skills.	Applying	PSO7
French Language & Communicative Skills-I	CO5: Develop conversational and writing skills on various day-to-day scenarios.	Applying	PSO7
PARTIAL DIFFERENTIATION, MATRICES, TRIGONOMETRY AND NUMERICAL METHODS	CO1: Students get an idea of partial differential equations and can differentiate between ordinary differentiation and partial differentiation.	Understanding	PSO6
PARTIAL DIFFERENTIATION, MATRICES, TRIGONOMETRY AND NUMERICAL METHODS	CO2: Students get an idea of matrices and different types of matrices and application of matrices.	Understanding	PSO6
PARTIAL DIFFERENTIATION, MATRICES, TRIGONOMETRY AND NUMERICAL METHODS	CO3: Students get basics of trigonometry and related concepts.	Understanding	PSO6
PARTIAL DIFFERENTIATION, MATRICES, TRIGONOMETRY AND NUMERICAL METHODS	CO4: Students get different types of equations and some of the major techniques to solve the same.	Applying	PSO6
BASIC ELECTRONICS	CO1: Understand and apply various network theorems such as Kirchhoff's current law, Kirchhoff's voltage law, Thevenin's theorem, Norton's theorem, Superposition theorem, and Maximum Power Transfer theorem in analyzing and simplifying electrical circuits.	Understanding	PSO1
BASIC ELECTRONICS	CO2: Demonstrate knowledge of semiconductor physics, including the energy band structure of semiconductors, intrinsic and extrinsic semiconductors, N-type and P-type semiconductors, and the formation of PN junctions.	Understanding	PSO1
BASIC ELECTRONICS	CO3: Analyze and interpret VI characteristics of PN junction diodes, including the forward and reverse bias regions, and understand the specifications and equivalent circuits of PN junction diodes.	Applying	PSO1

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Course	Course Outcome (CO)	Bloom's Taxonomy	Mapped PSO
BASIC ELECTRONICS	CO4: Analyze and design rectifiers and filters, including half-wave rectifiers, full-wave rectifiers (center-tapped and bridge), and various types of filters (inductor, capacitor, LC, and CLC filters).	Applying	PSO1
BASIC ELECTRONICS	CO5: Understand the operation, characteristics, and applications of special purpose diodes, such as Zener diodes, Tunnel diodes, Varactor diodes, Schottky diodes, Photodiodes, and LEDs.	Understanding	PSO1
BASIC ELECTRONICS	CO6: Analyze and compare the different transistor configurations (Common Base, Common Emitter, and Common Collector) and their respective input and output characteristics.	Applying	PSO1
BASIC ELECTRONICS	CO7: Apply transistor biasing techniques, including Base Resistor bias method and Voltage Divider bias method, to establish stable operating points for transistors.	Applying	PSO1
BASIC ELECTRONICS	CO8: Understand and analyze wave-shaping circuits, including clipping circuits (positive and negative clippers), clamper circuits (positive and negative clampers), differentiating circuits, integrating circuits, and voltage multipliers.	Applying	PSO1
BASIC ELECTRONICS	CO9: Apply the concepts of electronic components and circuits to solve practical problems and design simple electronic circuits.	Applying	PSO1
BASIC ELECTRONICS	CO10: Develop critical thinking and problem-solving skills in the field of basic electronics, which can serve as a foundation for more advanced electronics courses.	Applying	PSO1
METHODOLOGY AND PERSPECTIVES OF PHYSICS	CO1: Study of development of physics in the last century.	Understanding	PSO4
METHODOLOGY AND PERSPECTIVES OF PHYSICS	CO2: Exploring new scientific concepts with reference to scientific contributions of eminent physicists.	Understanding	PSO4

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Course	Course Outcome (CO)	Bloom's Taxonomy	Mapped PSO
METHODOLOGY AND PERSPECTIVES OF PHYSICS	CO3: Study of decimal, hexadecimal and binary number system and their conversions.	Understanding	PSO4
METHODOLOGY AND PERSPECTIVES OF PHYSICS	CO4: Understanding binary arithmetics.	Understanding	PSO4
METHODOLOGY AND PERSPECTIVES OF PHYSICS	CO5: Introduction to vector analysis.	Understanding	PSO4
METHODOLOGY AND PERSPECTIVES OF PHYSICS	CO6: Learning of Cartesian coordinate system, plane polar and spherical polar coordinates, cylindrical coordinates.	Understanding	PSO4
METHODOLOGY AND PERSPECTIVES OF PHYSICS	CO7: Studying experimental methods and error analysis to develop necessary skills to design, conduct, and analyze experiments in scientific disciplines.	Applying	PSO4
MECHANICS AND PROPERTIES OF MATTER (Practical)	CO1: To learn how to set up experiments related to mechanics and properties of matter.	Applying	PSO4
MECHANICS AND PROPERTIES OF MATTER (Practical)	CO2: To acquire skills in collecting experimental data and analyzing it effectively.	Applying	PSO4
MECHANICS AND PROPERTIES OF MATTER (Practical)	CO3: To reinforce the understanding of fundamental physical principles and laws related to mechanics and properties of matter.	Understanding	PSO4
Issues that Matter	CO1: Identify major issues of contemporary significance.	Understanding	PSO7
Issues that Matter	CO2: Internalise the values imparted through the excerpts.	Understanding	PSO7
Savouring the Classics	CO1: Familiarise the Classics from various lands.	Understanding	PSO7
Savouring the Classics	CO2: Understand the features that go into the making of a Classic.	Understanding	PSO7
INTEGRAL CALCULUS AND DIFFERENTIAL EQUATIONS	CO1: Students get more familiar with integration and its application.	Understanding	PSO6
INTEGRAL CALCULUS AND DIFFERENTIAL EQUATIONS	CO2: Students get knowledge about double integral and triple integral.	Understanding	PSO6
INTEGRAL CALCULUS AND DIFFERENTIAL EQUATIONS	CO3: Students get an idea of first-order ordinary and partial differential equations.	Understanding	PSO6
INTEGRAL CALCULUS AND DIFFERENTIAL EQUATIONS	CO4: Students get an idea of how to solve first-order ordinary differential equations and partial differential equations.	Applying	PSO6

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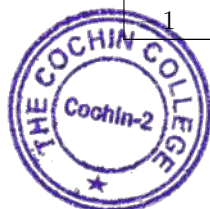| Course	Course Outcome (CO)	Bloom's Taxonomy	Mapped PSO
AMPLIFIERS, OSCILLATORS, AND POWER ELECTRONICS	CO1: Understand the concept of a single-stage transistor amplifier and its application as an amplifier circuit.	Understanding	PSO2
AMPLIFIERS, OSCILLATORS, AND POWER ELECTRONICS	CO2: Analyze the components of a single-stage CE (Common Emitter) amplifier with voltage divider biasing and calculate various currents in the circuit.	Analyzing	PSO2
AMPLIFIERS, OSCILLATORS, AND POWER ELECTRONICS	CO3: Analyze the DC and AC equivalent circuits of the single-stage CE amplifier with voltage divider biasing.	Analyzing	PSO2
AMPLIFIERS, OSCILLATORS, AND POWER ELECTRONICS	CO4: Perform DC load line analysis and AC load line analysis of the single-stage CE amplifier to determine voltage gain, AC emitter resistance, and other characteristics.	Analyzing	PSO2
AMPLIFIERS, OSCILLATORS, AND POWER ELECTRONICS	CO5: Understand the concept of voltage gain and its stability in CE amplifiers.	Understanding	PSO2
AMPLIFIERS, OSCILLATORS, AND POWER ELECTRONICS	CO6: Classify amplifiers and comprehend their equivalent circuits.	Understanding	PSO2
AMPLIFIERS, OSCILLATORS, AND POWER ELECTRONICS	CO7: Understand the concept of feedback and differentiate between positive and negative feedback.	Understanding	PSO2
AMPLIFIERS, OSCILLATORS, AND POWER ELECTRONICS	CO8: Analyze negative voltage feedback amplifiers and calculate their gain, input impedance, and output impedance.	Analyzing	PSO2
AMPLIFIERS, OSCILLATORS, AND POWER ELECTRONICS	CO9: Study the Emitter Follower configuration, perform DC analysis, and calculate its voltage gain, input impedance, and output impedance.	Analyzing	PSO2
AMPLIFIERS, OSCILLATORS, AND POWER ELECTRONICS	CO10: Explore the applications of the Emitter Follower amplifier.	Applying	PSO2
AMPLIFIERS, OSCILLATORS, AND POWER ELECTRONICS	CO11: Differentiate between BJT (Bipolar Junction Transistor) and FET (Field Effect Transistor) and understand the different types of FETs.	Understanding	PSO2

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AMPLIFIERS, OSCILLATORS, AND POWER ELECTRONICS	CO12: Analyze Junction Field Effect Transistors (JFETs), including N-channel and P-channel JFETs, and understand their characteristics and applications as amplifiers.	Analyzing	PSO2
AMPLIFIERS, OSCILLATORS, AND POWER ELECTRONICS	CO13: Perform biasing of JFETs using fixed biasing, self-biasing, and voltage divider biasing methods.	Analyzing	PSO2
AMPLIFIERS, OSCILLATORS, AND POWER ELECTRONICS	CO14: Compare oscillators and amplifiers and understand the classification of oscillators.	Understanding	PSO2
AMPLIFIERS, OSCILLATORS, AND POWER ELECTRONICS	CO15: Study the operation of sinusoidal oscillators and the factors determining the frequency and frequency stability of oscillatory circuits.	Understanding	PSO2
AMPLIFIERS, OSCILLATORS, AND POWER ELECTRONICS	CO16: Understand the Barkhausen criterion for oscillator operation.	Understanding	PSO2
AMPLIFIERS, OSCILLATORS, AND POWER ELECTRONICS	CO17: Study specific types of oscillators, including Colpitts oscillator, Hartley oscillator, Phase Shift oscillator, and Transistor Crystal oscillator.	Understanding	PSO2
AMPLIFIERS, OSCILLATORS, AND POWER ELECTRONICS	CO18: Understand the working principle of Silicon Controlled Rectifiers (SCRs), their characteristics, and equivalent circuits.	Understanding	PSO2
AMPLIFIERS, OSCILLATORS, AND POWER ELECTRONICS	CO19: Study the operation of Triacs, their characteristics, construction, and applications.	Understanding	PSO2
AMPLIFIERS, OSCILLATORS, AND POWER ELECTRONICS	CO20: Understand the operation and characteristics of DIACs and their applications.	Understanding	PSO2
AMPLIFIERS, OSCILLATORS, AND POWER ELECTRONICS	CO21: Study the construction, operation, and characteristics of Unijunction Transistors (UJTs) and their applications.	Understanding	PSO2
ELECTRONICS PRACTICALS – 1	CO1: CRO Familiarization.	Applying	PSO3
ELECTRONICS PRACTICALS – 1	CO2: PN Junction Diode Characteristics.	Analyzing	PSO3
ELECTRONICS PRACTICALS – 1	CO3: Zener Diode Characteristics.	Analyzing	PSO3
ELECTRONICS PRACTICALS – 1	CO4: LED Characteristics.	Analyzing	PSO3
ELECTRONICS PRACTICALS – 1	CO5: Rectifiers and Filters.	Applying	PSO3

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ELECTRONICS PRACTICALS – 1	CO6: Clippers and Clampers.	Applying	PSO3
ELECTRONICS PRACTICALS – 1	CO7: Voltage Multipliers.	Applying	PSO3
ELECTRONICS PRACTICALS – 1	CO8: Zener Diode Regulator.	Applying	PSO3
ELECTRONICS PRACTICALS – 1	CO9: RC Integrator and Differentiator.	Applying	PSO3
ELECTRONICS PRACTICALS – 1	CO10: Transistor Characteristics.	Analyzing	PSO3
ELECTRONICS PRACTICALS – 1	CO11: Single Stage CE Amplifier.	Analyzing	PSO3
ELECTRONICS PRACTICALS – 1	CO12: JFET Characteristics.	Analyzing	PSO3
ELECTRONICS PRACTICALS – 1	CO13: Emitter Follower.	Applying	PSO3
ELECTRONICS PRACTICALS – 1	CO14: Transistor as a Switch.	Applying	PSO3
ELECTRONICS PRACTICALS – 1	CO15: Oscillators.	Applying	PSO3
MECHANICS AND PROPERTIES OF MATTER	CO1: A deep understanding of concepts such as Newton's laws of motion, forces, energy, momentum, rotational motion, elasticity, and fluid mechanics.	Understanding	PSO4
MECHANICS AND PROPERTIES OF MATTER	CO2: Enhance the analytical and problem-solving abilities in the context of mechanics and properties of matter.	Applying	PSO4
MECHANICS AND PROPERTIES OF MATTER	CO3: Explore the application of mechanics and properties of matter principles to real-world problems and engineering applications.	Applying	PSO4
Literature and/as Identity	CO1: The subtle negotiations of Indigenous and Diasporic identities within Literature.	Understanding	PSO7
Literature and/as Identity	CO2: The fissures, the tensions and the interstices present in South Asian regional identities.	Understanding	PSO7
Literature and/as Identity	CO3: The emergence of Life Writing and alternate/alternative/marginal identities.	Understanding	PSO7
POETRY, GRAMMAR AND TRANSLATION	CO1: Understand the structure of Hindi Grammar.	Understanding	PSO7
POETRY, GRAMMAR AND TRANSLATION	CO2: Develop Translation Skills.	Applying	PSO7
POETRY, GRAMMAR AND TRANSLATION	CO3: Familiarize yourself with great poets and their views.	Understanding	PSO7

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POETRY, GRAMMAR AND TRANSLATION	CO4: Social and Cultural Consciousness.	Understanding	PSO7
POETRY, GRAMMAR AND TRANSLATION	CO5: Illustrate greater fluency in Hindi by applying theoretical knowledge of Hindi Grammar.	Applying	PSO7
DRISHYA KALA SAHITHYAM	CO1: To have a grasp of the social situation of Kerala folk arts.	Understanding	PSO7
DRISHYA KALA SAHITHYAM	CO2: To understand the influences of Indian classical art forms.	Understanding	PSO7
DRISHYA KALA SAHITHYAM	CO3: To discern their ritual influence.	Understanding	PSO7
DRISHYA KALA SAHITHYAM	CO4: To know about audience receptivity.	Understanding	PSO7
DRISHYA KALA SAHITHYAM	CO5: To understand the possibilities of Cinema.	Understanding	PSO7
DRISHYA KALA SAHITHYAM	CO6: To have an overview of the rich cultural heritage of Kerala.	Understanding	PSO7
DRISHYA KALA SAHITHYAM	CO7: To distinguish dramatic language and film language.	Understanding	PSO7
An Advanced Course in French-I	CO1: Comprehend grammar concepts like past tense, near future, interrogative adjectives etc.	Understanding	PSO7
An Advanced Course in French-I	CO2: Acquire vocabulary related to the description of a tourist destination.	Understanding	PSO7
An Advanced Course in French-I	CO3: Develop conversations on topics like weather, weekend plans etc.	Applying	PSO7
An Advanced Course in French-I	CO4: Learn to write a biography on various French authors like Colette, Albert Camus, Saint-Exupery etc.	Applying	PSO7
An Advanced Course in French-I	CO5: Intercultural awareness.	Understanding	PSO7
VECTOR CALCULUS, ANALYTIC GEOMETRY AND ABSTRACT ALGEBRA	CO1: Students get an idea of vectors and directional derivatives.	Understanding	PSO6
VECTOR CALCULUS, ANALYTIC GEOMETRY AND ABSTRACT ALGEBRA	CO2: Students get an idea of parabola, ellipse, and hyperbola.	Understanding	PSO6
VECTOR CALCULUS, ANALYTIC GEOMETRY AND ABSTRACT ALGEBRA	CO3: Students get an idea of Group and related concepts.	Understanding	PSO6
OPERATIONAL AMPLIFIERS, COMMUNICATION ELECTRONICS AND INTEGRATED CIRCUITS	CO1: Understand the basic concepts of operational amplifiers (Op-amps) and their block diagram and schematic diagram representations.	Understanding	PSO5

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OPERATIONAL AMPLIFIERS, COMMUNICATION ELECTRONICS AND INTEGRATED CIRCUITS	CO2: Comprehend the ideal operational amplifier features and its characteristics, such as input bias current, input offset current, input offset voltage, common mode rejection ratio, supply voltage rejection ratio, output voltage swing, slew rate, and gain bandwidth product.	Understanding	PSO5
OPERATIONAL AMPLIFIERS, COMMUNICATION ELECTRONICS AND INTEGRATED CIRCUITS	CO3: Analyze and design various operational amplifier configurations, including inverting amplifier, non-inverting amplifier, voltage follower, and differential amplifiers (one and two Op-amps).	Analyzing	PSO5
OPERATIONAL AMPLIFIERS, COMMUNICATION ELECTRONICS AND INTEGRATED CIRCUITS	CO4: Apply operational amplifiers to build adder circuits in different configurations, integrators, differentiators, and square wave generators.	Applying	PSO5
OPERATIONAL AMPLIFIERS, COMMUNICATION ELECTRONICS AND INTEGRATED CIRCUITS	CO5: Understand the application of operational amplifiers in real-world circuits and electronic systems.	Applying	PSO5
OPERATIONAL AMPLIFIERS, COMMUNICATION ELECTRONICS AND INTEGRATED CIRCUITS	CO6: Explain the concept of modulation and the need for modulation in communication systems.	Understanding	PSO5
OPERATIONAL AMPLIFIERS, COMMUNICATION ELECTRONICS AND INTEGRATED CIRCUITS	CO7: Understand the principle of amplitude modulation (AM) and analyze the frequency spectrum of an AM wave.	Understanding	PSO5
OPERATIONAL AMPLIFIERS, COMMUNICATION ELECTRONICS AND INTEGRATED CIRCUITS	CO8: Comprehend the essentials of demodulation and the working of AM diode detector and AM radio receivers.	Understanding	PSO5
OPERATIONAL AMPLIFIERS, COMMUNICATION ELECTRONICS AND INTEGRATED CIRCUITS	CO9: Study the basics of frequency modulation (FM) and the advantages of FM over AM.	Understanding	PSO5
OPERATIONAL AMPLIFIERS, COMMUNICATION ELECTRONICS AND INTEGRATED CIRCUITS	CO10: Introduce the concept of pulse modulation, including pulse amplitude modulation (PAM), pulse time modulation, and pulse code modulation (PCM).	Understanding	PSO5

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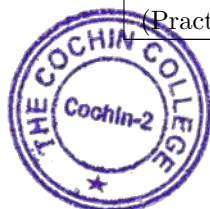Principal-in-Charge
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Course	Course Outcome (CO)	Bloom's Taxonomy	Mapped PSO
OPERATIONAL AMPLI-FIERS, COMMUNICATION ELECTRONICS AND INTE-GRATED CIRCUITS	CO11: Understand the fundamentals of television (TV) transmission and reception, including scanning, interlaced scanning, aspect ratio, and high-definition TV technologies.	Understanding	PSO5
OPERATIONAL AMPLI-FIERS, COMMUNICATION ELECTRONICS AND INTE-GRATED CIRCUITS	CO12: Compare different display technologies like Liquid Crystal Display (LCD) and Plasma Display.	Understanding	PSO5
OPERATIONAL AMPLI-FIERS, COMMUNICATION ELECTRONICS AND INTE-GRATED CIRCUITS	CO13: Understand the advantages and limitations of integrated circuits (ICs) and the classification of ICs based on their structure.	Understanding	PSO5
OPERATIONAL AMPLI-FIERS, COMMUNICATION ELECTRONICS AND INTE-GRATED CIRCUITS	CO14: Familiarize with the fabrication process of monolithic ICs, including crystal growth of the wafer, epitaxial growth, oxidation, photolithography, chemical etching, diffusion, ion implantation, and metallization.	Understanding	PSO5
OPERATIONAL AMPLI-FIERS, COMMUNICATION ELECTRONICS AND INTE-GRATED CIRCUITS	CO15: Study the basic ideas of planar processes used in monolithic IC technology.	Understanding	PSO5
OPERATIONAL AMPLI-FIERS, COMMUNICATION ELECTRONICS AND INTE-GRATED CIRCUITS	CO16: Gain insights into the fabrication process of a bipolar junction transistor, an essential component of many ICs.	Understanding	PSO5
OPTICS, LASER AND FIBER OPTICS AND OPTICS AND SEMICONDUCTOR PHYSICS (Practical)	CO1: Understanding the principles of optics.	Understanding	PSO6
OPTICS, LASER AND FIBER OPTICS AND OPTICS AND SEMICONDUCTOR PHYSICS (Practical)	CO2: Knowledge of optical instruments.	Understanding	PSO6
OPTICS, LASER AND FIBER OPTICS AND OPTICS AND SEMICONDUCTOR PHYSICS (Practical)	CO3: Understanding laser technology.	Understanding	PSO6
OPTICS, LASER AND FIBER OPTICS AND OPTICS AND SEMICONDUCTOR PHYSICS (Practical)	CO4: Familiarity with fiber optics.	Understanding	PSO6
OPTICS, LASER AND FIBER OPTICS AND OPTICS AND SEMICONDUCTOR PHYSICS (Practical)	CO5: Awareness of current trends and applications.	Understanding	PSO6

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OPTICS, LASER AND FIBER OPTICS AND OPTICS AND SEMICONDUCTOR PHYSICS (Practical)	CO6: Hands-on experience with optical instruments.	Applying	PSO6
OPTICS, LASER AND FIBER OPTICS AND OPTICS AND SEMICONDUCTOR PHYSICS (Practical)	CO7: Experimental verification of optical principles.	Applying	PSO6
Illuminations	CO1: To acquaint the learners with different forms of inspiring and motivating literature.	Understanding	PSO7
Illuminations	CO2: Maintain a positive attitude to life.	Understanding	PSO7
Illuminations	CO3: Evaluate and overcome setbacks based on the insights that the text provides.	Applying	PSO7
DRAMA AND LONG POEM	CO1: Familiarize with different features of Hindi Poetry.	Understanding	PSO7
DRAMA AND LONG POEM	CO2: Summarize the poems and illustrate the Socio-Political and Cultural concerns of the author.	Understanding	PSO7
DRAMA AND LONG POEM	CO3: Appreciate and analyze the dramatic elements in literature.	Analyzing	PSO7
DRAMA AND LONG POEM	CO4: Understand the distinct features of Hindi Drama with special reference to 'Konark'.	Understanding	PSO7
DRAMA AND LONG POEM	CO5: Develop Critical thinking.	Applying	PSO7
MALAYALA GAD-YARACHANAKAL	CO1: To recognize the potential of Malayalam prose.	Understanding	PSO7
MALAYALA GAD-YARACHANAKAL	CO2: To appreciate the historical background of prose.	Understanding	PSO7
MALAYALA GAD-YARACHANAKAL	CO3: To comprehend the growth of critical thinking.	Understanding	PSO7
MALAYALA GAD-YARACHANAKAL	CO4: To perceive critical models and diction.	Understanding	PSO7
MALAYALA GAD-YARACHANAKAL	CO5: To understand and appreciate biographies, memoirs, and life stories.	Understanding	PSO7
An Advanced Course in French-II	CO1: Acquire vocabulary based on topics like health, sports, family etc.	Understanding	PSO7
An Advanced Course in French-II	CO2: Gain an understanding of grammar concepts like reflexive verbs, negations, relative pronouns, direct & indirect speech etc.	Understanding	PSO7

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An Advanced Course in French-II	CO3: Design conversations based on scenarios like medical consultation, job interview, travel reservations etc.	Applying	PSO7
An Advanced Course in French-II	CO4: Learn to develop a curriculum vitae in French.	Applying	PSO7
An Advanced Course in French-II	CO5: Develop a better understanding of French culture and civilisation.	Understanding	PSO7
FOURIER SERIES, LAPLACE TRANSFORM AND COMPLEX ANALYSIS	CO1: Students get an idea of Fourier series and different types of Fourier series.	Understanding	PSO6
FOURIER SERIES, LAPLACE TRANSFORM AND COMPLEX ANALYSIS	CO2: Students get an idea of Laplace transform and its application to solve differential equations.	Understanding	PSO6
FOURIER SERIES, LAPLACE TRANSFORM AND COMPLEX ANALYSIS	CO3: Students get more knowledge about complex numbers.	Understanding	PSO6
FOURIER SERIES, LAPLACE TRANSFORM AND COMPLEX ANALYSIS	CO4: Students get knowledge of complex integration.	Understanding	PSO6
DIGITAL ELECTRONICS	CO1: Understand the various number systems used in digital electronics, including decimal, binary, octal, and hexadecimal.	Understanding	PSO6
DIGITAL ELECTRONICS	CO2: Perform binary arithmetic operations such as addition, subtraction, and conversion between number systems.	Applying	PSO6
DIGITAL ELECTRONICS	CO3: Comprehend the fundamental principles and operations of Boolean algebra, including logic operations (AND, OR, NOT), duality, De Morgan's theorem, and simplification of Boolean expressions using algebraic methods and Karnaugh maps.	Understanding	PSO6
DIGITAL ELECTRONICS	CO4: Implement logic gates (AND, OR, NOT, NAND, NOR, XOR, and XNOR) and recognize their truth tables and equivalent symbols.	Applying	PSO6
DIGITAL ELECTRONICS	CO5: Design and analyze combinational circuits, including half adders, full adders, half subtractors, full subtractors, decoders, and encoders.	Applying	PSO6

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Course	Course Outcome (CO)	Bloom's Taxonomy	Mapped PSO
DIGITAL ELECTRONICS	CO6: Understand various types of flip-flops (SR, D, JK, and T flip-flops) and analyze their behavior using excitation tables.	Understanding	PSO6
DIGITAL ELECTRONICS	CO7: Describe the concept of clocked flip-flops and the use of master-slave JK flip-flops to avoid race-around conditions in sequential circuits.	Understanding	PSO6
DIGITAL ELECTRONICS	CO8: Apply flip-flops and counters in practical applications such as digital clock circuits and event counters.	Applying	PSO6
DIGITAL ELECTRONICS	CO9: Design and analyze counters, including asynchronous (ripple) counters and synchronous counters (up, down, up/down) using various flip-flops.	Applying	PSO6
DIGITAL ELECTRONICS	CO10: Understand the working of shift registers and identify different types (SISO, SIPO, PISO, PIPO) and their applications.	Understanding	PSO6
DIGITAL ELECTRONICS	CO11: Explore digital-to-analog converters (DACs) and analog-to-digital converters (ADCs) and their specifications.	Understanding	PSO6
DIGITAL ELECTRONICS	CO12: Understand the basics of the Python programming language, including its advantages and the role of an interpreter.	Understanding	PSO6
DIGITAL ELECTRONICS	CO13: Familiarize yourself with Python syntax, including comments, string operations, variable types, type casting, and basic operators.	Applying	PSO6
DIGITAL ELECTRONICS	CO14: Implement program control flow using conditional statements and loops.	Applying	PSO6
DIGITAL ELECTRONICS	CO15: Utilize functions, packages, and modules in Python programming.	Applying	PSO6
DIGITAL ELECTRONICS	CO16: Explore basic data structures like lists and their operations in Python.	Applying	PSO6
ELECTRONICS PRACTICALS – 2	CO1: Zero Crossing Detector using Op-amp.	Applying	PSO5
ELECTRONICS PRACTICALS – 2	CO2: Inverting Amplifier using Op-amp.	Applying	PSO5

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ELECTRONICS PRACTICALS – 2	CO3: Non-Inverting Amplifier using Op-amp.	Applying	PSO5
ELECTRONICS PRACTICALS – 2	CO4: Comparator using Op-amp.	Applying	PSO5
ELECTRONICS PRACTICALS – 2	CO5: Buffer (Voltage Follower) using Op-amp.	Applying	PSO5
ELECTRONICS PRACTICALS – 2	CO6: Adder Circuit using Op-amp.	Applying	PSO5
ELECTRONICS PRACTICALS – 2	CO7: Difference Amplifier using Op-amp.	Applying	PSO5
ELECTRONICS PRACTICALS – 2	CO8: Integrator using Op-amp.	Applying	PSO5
ELECTRONICS PRACTICALS – 2	CO9: Differentiator using Op-amp.	Applying	PSO5
ELECTRONICS PRACTICALS – 2	CO10: Square Wave Generator Using Op-amp.	Applying	PSO5
ELECTRONICS PRACTICALS – 2	CO11: Verification of Truth Table using ICs.	Applying	PSO5
ELECTRONICS PRACTICALS – 2	CO12: Verification of Demorgan's Law.	Applying	PSO5
ELECTRONICS PRACTICALS – 2	CO13: Half Adder using ICs.	Applying	PSO5
ELECTRONICS PRACTICALS – 2	CO14: Full Adder using ICs.	Applying	PSO5
ELECTRONICS PRACTICALS – 2	CO15: Verification of Truth Table of JK Flip Flop.	Applying	PSO5
ELECTRONICS PRACTICALS – 2	CO16: Shift Register using IC.	Applying	PSO5
ELECTRONICS PRACTICALS – 2	CO17: Ripple Counter using IC.	Applying	PSO5
ELECTRONICS PRACTICALS – 2	CO18: Ring Counter using IC.	Applying	PSO5
ELECTRONICS PRACTICALS – 2	CO19: Decade Counter using IC.	Applying	PSO5
ELECTRONICS PRACTICALS – 2	CO20: Digital to Analog Converter.	Applying	PSO5
ELECTRONICS PRACTICALS – 2	CO21: Analog to Digital Converter.	Applying	PSO5
ELECTRONICS PRACTICALS – 2	CO22: Python Programming: Fibonacci series, prime numbers.	Applying	PSO5
SEMICONDUCTOR PHYSICS & OPTICS AND SEMICON-DUCTOR PHYSICS (Practical)	CO1: Understanding semiconductor materials.	Understanding	PSO6
SEMICONDUCTOR PHYSICS & OPTICS AND SEMICON-DUCTOR PHYSICS (Practical)	CO2: Knowledge of semiconductor devices.	Understanding	PSO6
SEMICONDUCTOR PHYSICS & OPTICS AND SEMICON-DUCTOR PHYSICS (Practical)	CO3: Understanding carrier transport.	Understanding	PSO6

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SEMICONDUCTOR PHYSICS & OPTICS AND SEMICON-DUCTOR PHYSICS (Practical)	CO4: Current trends and advancements.	Understanding	PSO6
SEMICONDUCTOR PHYSICS & OPTICS AND SEMICON-DUCTOR PHYSICS (Practical)	CO5: Analysis of semiconductor devices.	Analyzing	PSO6
SEMICONDUCTOR PHYSICS & OPTICS AND SEMICON-DUCTOR PHYSICS (Practical)	CO6: Data collection, analysis, and interpretation.	Analyzing	PSO6
Electricity and Electrodynamics	CO1: Understanding electrical circuits.	Understanding	PSO6
Electricity and Electrodynamics	CO2: Knowledge of electromagnetic fields and forces.	Understanding	PSO6
Electricity and Electrodynamics	CO3: Understanding Maxwell's equations.	Understanding	PSO6
Electricity and Electrodynamics	CO4: Problem-solving and mathematical analysis.	Applying	PSO6
Electricity and Electrodynamics	CO5: Experiments like measuring resistance of wire, convert galvanometer into voltmeter and ammeter, calibrate ammeter, low range and high range voltmeter using potentiometer.	Applying	PSO6
Electricity and Electrodynamics	CO6: Experiments to determine wavelength of laser using grating and slit width by single slit diffraction using laser.	Applying	PSO6
Classical and Quantum Mechanics	CO1: Understanding of Lagrangian and Hamiltonian formulations of classical mechanics.	Understanding	PSO6
Classical and Quantum Mechanics	CO2: Develop advanced problem-solving skills and enhance the mathematical reasoning abilities in the context of classical mechanics.	Applying	PSO6
Classical and Quantum Mechanics	CO3: Understanding the historical development and origin of quantum theory.	Understanding	PSO6
Classical and Quantum Mechanics	CO4: Knowledge of general formalism of quantum mechanics.	Understanding	PSO6
Classical and Quantum Mechanics	CO5: Understanding of Schrödinger equation and its applications.	Applying	PSO6
Classical and Quantum Mechanics	CO6: Practical experiments: realize logic gates using diodes, transistors, and universal gates, realize half adder using gates, verification of truth table of NAND, NOR, XOR, and XNOR gates using IC 7400.	Applying	PSO6

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Classical and Quantum Mechanics	CO7: Construct astable and monostable multivibrator using transistor and IC 555, construct SR and JK flip-flops using IC 7400 & 7410, verify truth table, construct and verify A/D converter using IC 741 and BCD to 7 segment decoder.	Applying	PSO6
Digital Electronics and Programming	CO1: Apply Boolean algebra rules and laws to analyze and simplify logic circuits.	Applying	PSO6
Digital Electronics and Programming	CO2: Design and analyze combinational logic circuits, including adders, subtractors, multiplexers, demultiplexers, encoders, and decoders.	Applying	PSO6
Digital Electronics and Programming	CO3: Understand sequential logic circuits, including flip-flops, registers, shift registers, and counters.	Understanding	PSO6
Digital Electronics and Programming	CO4: Develop programming skills in C++, including program structure, control structures, arrays, and basic functions.	Applying	PSO6
Digital Electronics and Programming	CO5: Implement and execute C++ programs, including programs using loops and arrays.	Applying	PSO6
Environmental Physics and Human Rights	CO1: Evaluate the impact of human activities on the environment using physics-based approaches.	Analyzing	PSO6
Environmental Physics and Human Rights	CO2: Analyze the environmental consequences of factors such as pollution, climate change, resource depletion, and energy consumption.	Analyzing	PSO6
Environmental Physics and Human Rights	CO3: Understand the role of physics in studying climate change and global warming.	Understanding	PSO6
Environmental Physics and Human Rights	CO4: Familiarize with various human rights frameworks, including international conventions, treaties, and declarations related to the environment and human rights.	Understanding	PSO6
Environmental Physics and Human Rights	CO5: Gain practical skills in handling and using various optical components, such as lasers, lenses, mirrors, gratings etc.	Applying	PSO6

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Environmental Physics and Human Rights	CO6: Gain practical skills in working with semiconductor devices, such as diodes, transistors, and integrated circuits.	Applying	PSO6
Our Universe	CO1: Understand the importance of scientific attitude from the history of ancient astronomy as a mere philosophy to astrophysics as a modern science.	Understanding	PSO6
Our Universe	CO2: Learn the origin of our cosmos and how it evolves with time.	Understanding	PSO6
Our Universe	CO3: Study important concepts, theories, observed phenomena and most importantly how they are measured in astronomy and astrophysics.	Understanding	PSO6
Our Universe	CO4: Develop an inquisitive mind and curiosity in general.	Understanding	PSO6
Thermal and Statistical Physics	CO1: Understand and familiarize with the fundamental concepts in thermodynamics.	Understanding	PSO6
Thermal and Statistical Physics	CO2: Learn the three thermodynamic laws and its significance.	Understanding	PSO6
Thermal and Statistical Physics	CO3: Understand the concept of entropy, Maxwell's thermodynamic relations and the third law in thermodynamics.	Understanding	PSO6
Thermal and Statistical Physics	CO4: Understand preliminary ideas and the three main distributions in statistical mechanics.	Understanding	PSO6
Thermal and Statistical Physics	CO5: Practical experiments like measuring resistance of wire, convert galvanometer into voltmeter and ammeter, calibrate ammeter, low range and high range voltmeter using potentiometer.	Applying	PSO6
Thermal and Statistical Physics	CO6: Practical experiments to determine wavelength of laser using grating and slit width by single slit diffraction using laser.	Applying	PSO6
Relativity and Spectroscopy	CO1: Fundamental concepts of special relativity.	Understanding	PSO6
Relativity and Spectroscopy	CO2: Basics of general theory of relativity.	Understanding	PSO6
Relativity and Spectroscopy	CO3: Various types of spectra.	Understanding	PSO6
Relativity and Spectroscopy	CO4: Determine the chemical composition and energy levels by analyzing spectra.	Analyzing	PSO6

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Relativity and Spectroscopy	CO5: Practical experiments: realize logic gates using diodes, transistors, and universal gates, realize half adder using gates, verification of truth table of NAND, NOR, XOR, and XNOR gates using IC 7400.	Applying	PSO6
Relativity and Spectroscopy	CO6: Construct astable and monostable multivibrator using transistor and IC 555, construct SR and JK flip-flops using IC 7400 & 7410, verify truth table, construct and verify A/D converter using IC 741 and BCD to 7 segment decoder.	Applying	PSO6
Nuclear, Particle and Astrophysics	CO1: Understanding of nuclear structure and properties.	Understanding	PSO6
Nuclear, Particle and Astrophysics	CO2: Knowledge of nuclear radiation detectors, counters and particle accelerators.	Understanding	PSO6
Nuclear, Particle and Astrophysics	CO3: Study of nuclear transformations.	Understanding	PSO6
Nuclear, Particle and Astrophysics	CO4: Knowledge of cosmic rays.	Understanding	PSO6
Nuclear, Particle and Astrophysics	CO5: Study the fundamental particles and their interactions.	Understanding	PSO6
Nuclear, Particle and Astrophysics	CO6: Knowledge of astrophysical phenomena, including the structure and evolution of stars, galaxies, and the universe as a whole.	Understanding	PSO6
Nuclear, Particle and Astrophysics	CO7: Practical experiments: using thermistor and Carey Foster's bridge to find temperature coefficient of resistance, write and execute computer programming in C++ to generate Fibonacci series and to convert a decimal number into binary number, to solve a quadratic equation, to sort numbers in ascending and descending order, to calculate g from experimental data of simple pendulum using C++, to convert temperature scale etc.	Applying	PSO6
Nuclear, Particle and Astrophysics	CO8: Practical experiments to find wavelengths of light, spectral characterization etc.	Applying	PSO6

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Solid State Physics	CO1: Understanding crystal structure.	Understanding	PSO6
Solid State Physics	CO2: Understanding the behavior of electrons in solids.	Understanding	PSO6
Solid State Physics	CO3: Understanding electrical and thermal properties of solids.	Understanding	PSO6
Solid State Physics	CO4: Awareness of current research and advancements.	Understanding	PSO6
Solid State Physics	CO5: Practical skills in handling and using various optical components, such as lasers, lenses, mirrors, gratings etc.	Applying	PSO6
Solid State Physics	CO6: Practical skills in working with semiconductor devices, such as diodes, transistors, and integrated circuits.	Applying	PSO6
Astronomy & Astrophysics	CO1: Understand how astronomy/astrophysics developed as a branch of modern science.	Understanding	PSO6
Astronomy & Astrophysics	CO2: Comprehend the vast size and scale of our universe and the basic units relevant in this subject (of distance, mass and time).	Understanding	PSO6
Astronomy & Astrophysics	CO3: Understand important concepts and theories in astronomy and astrophysics.	Understanding	PSO6
Astronomy & Astrophysics	CO4: Understand the general structure and properties of our planet Earth, Solar system, Milky Way galaxy and the universe as a whole.	Understanding	PSO6
Astronomy & Astrophysics	CO5: Understand the importance of modern technology for accurate astronomical observations.	Understanding	PSO6
Seminar/Assignment	CO1: Enhance understanding and knowledge of the subject matter covered in the courses.	Understanding	PSO6
Seminar/Assignment	CO2: Encourage the development of critical thinking skills.	Applying	PSO6
Seminar/Assignment	CO3: Develop problem-solving skills, including the ability to identify problems, generate alternative solutions, and select the most appropriate approach to solve them.	Applying	PSO6
Seminar/Assignment	CO4: Develop effective communication skills, both written and verbal.	Applying	PSO6

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Seminar/Assignment	CO5: Learn how to prioritize tasks, meet deadlines, and manage your workload effectively.	Applying	PSO6
Industrial Visit	CO1: Explore and understand the facilities, resources, and infrastructure available at the institute.	Understanding	PSO7
Industrial Visit	CO2: Interact with faculty members, researchers, and students to gain insights into their work and research projects.	Understanding	PSO7
Industrial Visit	CO3: Explore research opportunities, internships, or collaborative projects available at the institute.	Understanding	PSO7
Industrial Visit	CO4: Discover additional academic support services, such as libraries, laboratories, or career counseling.	Understanding	PSO7
Industrial Visit	CO5: Network and establish connections with professionals and peers who share similar interests or career aspirations available at the institute.	Understanding	PSO7
Project	CO1: Develop the ability to design rigorous research studies.	Applying	PSO7
Project	CO2: Critically evaluate existing research, identify gaps or limitations in the literature, and situate your research within the broader scholarly discourse.	Analyzing	PSO7
Project	CO3: Apply statistical or qualitative analysis techniques, interpret findings, and draw conclusions based on empirical evidence.	Applying	PSO7
Project	CO4: Apply critical thinking skills to analyze data, interpret results, and propose innovative solutions.	Applying	PSO7
Project	CO5: Develop research timelines, set realistic goals, allocate resources, and meet project milestones.	Applying	PSO7
Project	CO6: Develop research timelines, set realistic goals, allocate resources, and meet project milestones.	Applying	PSO7

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