SREE AYYAPPA COLLEGE FOR WOMEN

CHUNKANKADAI

PO, PSO & CO (2023 - 2024)

Programme Outcomes:

PO1: Disciplinary knowledge: Capable of demonstrating comprehensive knowledge and understanding of one or more disciplines that form a part of an undergraduate Programme of study

PO2: Critical thinking: Capability to apply analytic thought to a body of knowledge; analyse and evaluate evidence, arguments, claims, beliefs on the basis of empirical evidence; identify relevant assumptions or implications; formulate coherent arguments; critically evaluate practices, policies and theories by following scientific approach to knowledge development.

PO3: Problem solving: Capacity to extrapolate from what one has learned and applies their competencies to solve different kinds of non-familiar problems, rather than replicate curriculum content knowledge; and apply one's learning to real life situations.

PO4: Analytical reasoning: Ability to evaluate the reliability and relevance of evidence; identify logical flaws and holes in the arguments of others; analyze and synthesize data from a variety of sources; draw valid conclusions and support them with evidence and examples, and addressing opposing viewpoints.

PO5: Cooperation/Team work: Ability to work effectively and respectfully with diverse teams; facilitate cooperative or coordinated effort on the part of a group, and act together as a group or a team in the interests of a common cause and work efficiently as a member of a team

PO6: Scientific reasoning: Ability to analyze, interpret and draw conclusions from quantitative/qualitative data; and critically evaluate ideas, evidence and experiences from an open-minded and reasoned perspective.

PO7: Reflective thinking: Critical sensibility to lived experiences, with self awareness and reflexivity of both self and society.

PO8 Information/digital literacy: Capability to use ICT in a variety of learning situations, demonstrate ability to access, evaluate, and use a variety of relevant information sources; and use appropriate software for analysis of data.

Programme Specific Outcomes:

PSO1: Placement:

To prepare the students who will demonstrate respectful engagement with others' ideas, behaviors, and beliefs and apply diverse frames of reference to decisions and actions.

PSO 2: Entrepreneur:
To create effective entrepreneurs by enhancing their critical thinking, problem solving, decision making and leadership skill that will facilitate start-ups and high potential organizations

PSO3: Research and Development:
Design and implement HR systems and practices grounded in research that complies with employment laws, leading the organization towards growth and development.

PSO4: Contribution to Business World:
To produce employable, ethical and innovative professionals to sustain in the dynamic business world.

PSO 5: Contribution to the Society:
To contribute to the development of the society by collaborating with stakeholders for mutual benefit

ODD SEMESTER

COURSE: FIFTH SEMESTER - CORE

COURSE TITLE: BASIC ELECTRONICS

COURSE CODE: CMPH51

COURSE OUTCOMES:

At the end of the course the student will be able to:

COURSE OUTCOMES	CO1	Differentiate between constant voltage source and constant current source Explain Norton's theorem and Thevinin's theorem
	CO2	Design a voltage regulator using Zener diode Consruct a half wave bridge rectifier using diodes and capacitors
	CO3	Explain the forward bias and reverse bias action of a transistor. Differentiate different types of amplifiers.
	CO4	Explain the working of a Hartley and Colpitts Oscillator Analyse the circuit of a astable and monostable multivibrator.
	CO5	Design the circuit for low and high pass filter and explain the frequency response curve. Attain skills to construct various circuits using OPAMP.

COURSE: FIFTH SEMESTER - CORE

COURSE TITLE: ATOMIC AND NUCLEAR PHYSICS

COURSE CODE: CMPH52

COURSE OUTCOMES:

At the end of the course the student will be able to:

COURSE OUTCOMES	CO1	Understand the concepts of free electron theory, band theory and positive rays. Derive the expressions for electrical conductivity, thermal conductivity and to explain Hall effect and Hall coefficient.
	CO2	Explain the vector atom model, coupling schemes and Zeeman effect. Analyze the Stern and Gerlach experiment with derivation.
	CO3	Understand the production, properties, usage of X-rays and various X-ray diffraction methods. Explain the basics of primary and secondary cosmic rays, cosmic ray shower and Van Allen belts.
	CO4	The general properties of nucleus by using liquid drop model and shell model and to understand laws of radioactivity. Apply the concepts of nuclear fission and fusion to atom bomb and hydrogen bomb.
	CO5	Classify the elementary particles with examples and understand the concept of quark model.

COURSE: FIFTH SEMESTER - CORE

COURSE TITLE: SPECTROSCOPY

COURSE CODE: CMPH53

COURSE OUTCOMES:

At the end of the course the student will be able to:

	CO1	Explain different types of motion. Classify molecules according to rotational modes. Discriminate the effect of isotopic substitution
COURSE	CO2	

OUTCOMES		Discuss the IR regions. Justify the interaction of rotations & vibrations on molecules. Analyzed the IR techniques & explain its importance in research
	CO3	Distinguish Rayleigh & Raman scattering Categorize classical & quantum theory of Raman effect Validate the rule of mutual exclusion
	CO4	Formulate Lamber-Beer Law & Calculate transmission from absorbance Relate the use of UV spectrum in research
	CO5	Explain magnetic resonance & its principles. List the uses of MRI Interpret NMR spectra

COURSE: FIFTH SEMESTER – MAJOR ELECTIVE

COURSE TITLE: PROGRAMMING IN C++

COURSE CODE: CEPH51

COURSE OUTCOMES:

At the end of the course the student will be able to:

	CO1	Understand the basics of C++ programming. Understand the applications of C++ modules.
	CO2	Understand the basic techniques of numerical analysis. Understand and apply computational techniques to physical problems.
COURSE OUTCOMES	CO3	Understand the procedural and object-oriented paradigms with concepts like streams, classes, functions, and arrays. Understand dynamic memory management techniques using member functions, classes, constructors, etc.
	CO4	Understand the concept of function overloading and Operator overloading. Understand inheritance and its types of inheritance.
	CO5	Managing the C++ streams with operations and classes. Understand the fundamental C++ file operations for single and multiple files.

COURSE: FIFTH SEMESTER – GENERAL
COURSE TITLE: PERSONALITY DEVELOPMENT

COURSE CODE: CCSB5A

COURSE OUTCOMES:

At the end of the course the student will be able to:

COURSE OUTCOMES	**CO1**	Understand the concept of Personality, Self Awareness, SWOT & Goal Setting
	CO2	Understand the concept of Self Monitoring, Perception, Attitude & Assertiveness
	CO3	Understand the concept of Team Building, Leadership, Negotiation Skills & Conflict Management
	CO4	Understand the concept of Communication, Transactional Analysis, Emotional Intelligence & Stress Management
	CO5	Understand the concept of Table manners, group discussions, interviews & dress code

COURSE: FIFTH SEMESTER – MAJOR

COURSE TITLE: PRACTICAL - V GENERAL PRACTICAL

COURSE CODE: CMPHP5

COURSE OUTCOMES:

At the end of the course the student will be able to:

(6 Experiments compulsory)

1. Convert the given Galvanometer into Voltmeter and Ammeter

2. Determine the Cauchy's Constants using Spectrometer

3. Determine the Young's Modulus of a bar by forming Elliptical Fringes

4. Calibrate Voltmeter (High Range) using Potentiometer

5. Determine the Temperature Coefficient of Resistance using Potentiometer

6. Verify Thevanin's and Nortan's theorem

7. Determine the High resistance by leakage Ballistic Galvanometer

8. Determine the C, C1 & C2 values connected in series and parallel by constructing Desauty's Bridge

COURSE: FIFTH SEMESTER – MAJOR

COURSE TITLE: PRACTICAL – VI ELECTRONICS

COURSE CODE: CMPHP6

COURSE OUTCOMES:

At the end of the course the student will be able to:

(6 Experiments compulsory)

1. Determine the V-I Characteristics of Junction diode and Zener diode
2. Understand Transistor characteristics
3. Construct Colpitts Oscillator
4. Construct Single stage amplifier–with and without feedback
5. Construct Astable multivibrator using 555 timer
6. Construct OPAMP–Adder & Subtractor
7. Construct OPAMP–Differentiator & Integrator
8. Construct OPAMP– Low Pass & High Pass Filter

COURSE: THIRD SEMESTER - CORE

COURSE TITLE: ELECTRICITY & ELCTROMAGNETISM

COURSE CODE: CMPH31

COURSE OUTCOMES:

At the end of the course the student will be able to:

	CO1	Understand the basics and applications of Coulomb's law, Gauss' law and thermoelectric effects. Explain the Kohlrausch's bridge method for determining the specific conductivity of an electrolyte.

COURSE OUTCOMES	CO2	Understand Ohm's law, Kirchoff's laws, growth and decay of current and charge in different circuits. Analyze LCR series resonance and LCR parallel resonance circuits with derivation.
	CO3	Understand the about magnetic vectors, B-H curve And Lorentz force. Explain the construction, working and application of moving coil Ballistic galvanometer and De-Sauty's bridge.
	CO4	Understand the concepts of Faraday's laws, Owen's bridge and coefficient of coupling. Use of Earth inductor for finding horizontal Component and vertical component of the Earth's magnetic field.
	CO5	Derive the Maxwell's equations for material medium and for free space. Explain the concepts of Hertz experiment for Production and detection of EM waves and to understand Poynting vector and displacement current.

COURSE: THIRD SEMESTER - SKILL BASED ELECTIVE

COURSE TITLE: MAINTANANCE OF ELECTRICAL APPLIANCES

COURSE CODE: CSPH31

COURSE OUTCOMES:

At the end of the course the student will be able to:

COURSE OUTCOMES	CO1	Understand the operations and safe handling of commonly used domestic appliances. Understand the basic ideas about the components used in Electrical appliances.
	CO2	Understand a basic knowledge of electricity and magnetism. Understand and apply knowledge to design and trouble shoot the electrical circuits.
	CO3	Understand the basic ideas about transformers and their Types and working principles. Understand the concepts underlying the operation of AC And DC circuits.
	CO4	Describe the concept of household circuits and their Wiring systems in detail. Understand the earthing and colour coding of the wires.

	CO5	Managing the appliances with safety precautions using Switches and fuses. Understand the basic ideas behind inverters, motors, and generators.

COURSE: THIRD SEMESTER – CORE

COURSE TITLE: PRACTICAL-III

COURSE CODE: CMPHP3

COURSE OUTCOMES:

At the end of the course the student will be able to:

(6 experiments compulsory)

1. Determine the Figure of merit of Ballistic Galvanometer-

2. Compare the values of two Capacitances (C1/C2) using Ballistic Galvanometer-

3. Construct Series Resonance Circuit

4. Compare the Magnetic Moments– using Deflection Magnetometer(Tan A and Tan B position)

5. Construct Parallel Resonance Circuit

6. Calibrate Ammeter using Potentiometer

7. Calibrate Low range Voltmeter using Potentiometer

8. Determine Self inductance of the coil using Owen's Bridge.

COURSE: FIRST SEMESTER - FOUNDATION COURSE

COURSE TITLE: INTRODUCTORY PHYSICS

COURSE CODE: EFPH11

COURSE OUTCOMES:

At the end of the course the student will be able to:

	CO1	Apply concept of vectors to understand concepts of Physics and solve problems
	CO2	Appreciate different forces present in Nature while learning

COURSE OUTCOMES		about phenomena related to these different forces.
	CO3	Quantify energy in different process and relate momentum, velocity and energy
	CO4	Differentiate different types of motions they would encounter in various courses and understand their basis
	CO5	Relate various properties of matter with their behaviour and connect them with different physical parameters involved.

COURSE: FIRST SEMESTER - CORE

COURSE TITLE: PROPERTIES OF MATTER AND SOUND

COURSE CODE: EMPH11

COURSE OUTCOMES:

At the end of the course the student will be able to:

COURSE OUTCOMES	CO1	Relate elastic behavior in terms of three modulii of elasticity and working of torsion pendulum.
	CO2	Able to appreciate concept of bending of beams and analyze the expression, quantify and understand nature of materials.
	CO3	Explain the surface tension and viscosity of fluid and support the interesting phenomena associated with liquid surface, soap films provide an analogue solution to many engineering problems.
	CO4	Analyze simple harmonic motions mathematically and apply them. Understand the concept of resonance and use it to evaluate the frequency of vibration. Set up experiment to evaluate frequency of ac mains
	CO5	Understand the concept of acoustics, importance of constructing buildings with good acoustics. Able to apply their knowledge of ultrasonic in real life, especially in medical field and assimilate different methods of production of ultrasonic waves

COURSE: FIRST SEMESTER – NON MAJOR ELECTIVES (NME)

COURSE TITLE: PHYSICS FOR EVERYDAY LIFE

COURSE OUTCOMES: ESPH11

At the end of the course the student will be able to:

COURSE OUTCOMES	CO1	Relate mechanical objects and understand the concept in rockets, bicycles.

	CO2	Understand the concept of optical instruments such as lasers, holography and different types of glasses.
	CO3	Able to appreciate concept of home appliances such as bulb, fan, hair drier and microwave oven
	CO4	Explain solar energy and gives information about the application of solar energy.
	CO5	Able to identify Indian Physicist and understand their contributions to the world.

COURSE: FIRST SEMESTER - CORE

COURSE TITLE: CORE PRACTICALS

COURSE OUTCOMES: EMPHP1

COURSE OUTCOMES:

At the end of the course the student will be able to:

Properties of Matter

1. Determine the rigidity modulus without mass using Torsional pendulum.
2. Determine the rigidity modulus with masses using Torsional pendulum.
3. Determine the moment of inertia of an irregular body.
4. Verify the parallel axes theorem on moment of inertia.
5. Verify the perpendicular axes theorem on moment of inertia.
6. Determine the moment of inertia and g using Bifilar pendulum.
7. Determine the Young's modulus by stretching of wire with known masses.
8. Verify the Hook's law by stretching of wire method.
9. Determine the Young's modulus by uniform bending – load depression graph.
10. Determine the Young's modulus by non-uniform bending – scale & telescope.
11. Determine the Young's modulus by cantilever – load depression graph.
12. Determine the Young's modulus by cantilever – oscillation method
13. Determine the Young's modulus by Koenig's method – (or unknown load)
14. Determine the rigidity modulus by static torsion.
15. Determine the Y, n and K by Searle's double bar method.
16. Determine the surface tension & interfacial surface tension by drop weight method.
17. Determine the co-efficient of viscosity by Stokes' method – terminal velocity.
18. Determine the critical pressure for streamline flow.
19. Determine the Poisson's ratio of rubber tube.
20. Determine the viscosity by Poiseullie's flow method.
21. Determine the radius of capillary tube by mercury pellet method.

22. Determine the g using compound pendulum.

COURSE: FIRST SEMESTER – ALLIED PAPER

COURSE TITLE: ALLIED PHYSICS –I

COURSE CODE: EEPH11

COURSE OUTCOMES:

At the end of the course the student will be able to:

COURSE OUTCOMES	**CO1**	Explain types of motion and extend their knowledge in the study of various dynamic motions analyze and demonstrate mathematically. Relate theory with practical applications in medical field.
	CO2	Explain their knowledge of understanding about materials and their behaviors and apply it to various situations in laboratory and real life. Connect droplet theory with Corona transmission.
	CO3	Comprehend basic concept of thermodynamics concept of entropy and associated theorems able to interpret the process of flow temperature physics in the background of growth of this technology.
	CO4	Articulate the knowledge about electric current resistance, capacitance in terms of potential electric field and electric correlatetheconnectionbetweenelectricfieldandmagneticfieldan danalyzethemmathematicallyverifycircuitsandapplytheconcepts to construct circuits and study them.
	CO5	Interpret the real life solutions using AND, OR, NOT basic logic gates and intend their ideas to universal building blocks. InferoperationsusingBooleanalgebraandacquireelementaryidea sofICcircuits.Acquire information about various Govt. programs/ institutions in this field.

COURSE: FIRST SEMESTER – ALLIED PAPER

COURSE TITLE: ALLIED PRACTICALS – I

COURSE CODE: EEPHP1

COURSE OUTCOMES:

At the end of the course the student will be able to:

ANY Seven only
1. Determine the Young's modulus by non-uniform bending using pin and microscope

2. Determine the Young's modulus by non-uniform bending using optic lever,scale and telescope
3. Determine the Rigidity modulus by static torsion method.
4. Determine the Rigidity modulus by torsional oscillations without mass
2. Determine the Surface tension and interfacial Surface tension – drop weight method
3. Compare the viscosities of two liquids – burette method
4. Determine the Specific heat capacity of a liquid – half time correction
5. Verify the laws of transverse vibrations using sonometer
6. Calibrate the low range voltmeter using potentiometer
7. Determine the thermo emf using potentiometer
8. Verify the truth tables of basic logic gates using ICs
9. Verify the De Morgan's theorems using logic gate ICs.
10. Understand the Use of NAND as universal building block.

EVEN SEMESTER

COURSE: SIXTH SEMESTER - CORE

COURSE TITLE: QUANTUMMECHANICS

COURSE CODE: CMPH61

COURSE OUTCOMES:

At the end of the course the student will be able to:

COURSE OUTCOMES	CO1	Understand the quantum concepts of black body radiation, Planck's theory and photo electric effect. Analyze the Bohr's quantization concept of angular momentum to hydrogen atom.
	CO2	Acquire the knowledge of De-Broglie's hypothesis and concepts of phase and group velocities. Explain the concepts of diffraction and interference of electrons and wave packet
	CO3	Understand the Heisenberg's uncertainty principle and it's proof between energy and time. Experiments to explain the Heisenberg's uncertainty principle.
	CO4	Derive Schrodinger's time-dependent and time-independent wave equations. Understand the concepts of wave function, eigen function, eigen value, operators and postulates of quantum mechanics.
	CO5	Apply the concepts of quantum mechanics to particle in one-dimensional box and to particle in a rectangular three-dimensional box. Acquire knowledge of application of quantum mechanics to simple harmonic oscillator and transmission

		across a potential barrier.

COURSE: SIXTH SEMESTER - CORE

COURSE TITLE: DIGITAL ELECTRONICS

COURSE CODE: CMPH62

COURSE OUTCOMES:

At the end of the course the student will be able to:

COURSE OUTCOMES	CO1	Define binary number. Differentiate the various codes in Binary system
	CO2	Construct the circuit for the basic logic gates. Explain the half and full subtract or using logic gates.
	CO3	Draw the circuit for frequency divider. Analyze the circuit of a astable and monostable multivibrator
	CO4	Understand Karnaugh map. Explain the function of a multiplexer and De-multiplexer
	CO5	Identify types of counters, registers. Differentiate A/D and D/A converter

COURSE: SIXTH SEMESTER - CORE

COURSE TITLE: SOLID STATE PHYSICS

COURSE CODE: CMPH63

COURSE OUTCOMES:

At the end of the course the student will be able to:

COURSE OUTCOMES	CO1	Explain the seven classes of crystals and to illustrate about the Bravais lattice in three dimensions. Imagine and elaborate about Simple cubic, Face centered cubic, Body centered cubic and Hexagonal closed packed structures. To make use of Braggs's law and reciprocal lattice to SCC, BCC and FCC lattices.
	CO2	Illustrate Langevin's theory of Paramagnetism, Weiss Paramagnetism. To analyze the concept of Ferromagnetism and to summarize about domain theory of ferromagnetism and anti magnetism. Elaborate about the different types of electric polarizations and to classify and compare about the ionic,

			orientation and space charge polarization
	CO3		Classify and about types of bonds in crystals. To illustrate about Vanderwaal's and hydrogen bonding. Comparison of ionic and covalent solids. Elaborate about cohesive energy of ionic solids and the application towards Sodium chloride crystal and the evaluation of Madelung Constant for sodium chloride can be done.
	CO4		Interpret the general properties of Superconductors. Elaborate the effect of magnetic field and Meissner effect, current of effect. Illustrate about entrophy. To list out the application of super conductors.
	CO5		Describe about the nanoparticles and synthesis and its classification. Explain the techniques used in synthesis of nanomaterials and about chemical vapour deposition techniques. Classify and compare the properties of nanomaterials. Applications of nano materials can also be explained.

COURSE: SIXTH SEMESTER - MAJORELECTIVE

COURSE TITLE: ENERGY PHYSICS

COURSE CODE: CEPH61

COURSE OUTCOMES:

At the end of the course the student will be able to:

	CO1	Understand the importance of conventional and non-conventional energy resources. Understand the applications, merits, and demerits of conventional and non-conventional energy resources.
COURSE OUTCOMES	CO2	Understand the basic aspects of solar energy. Understand solar energy appliances with their merits and demerits.
	CO3	Understand the basic aspects of the photovoltaic principle. Learn about photovoltaic appliances and how they work. Understand the solar cell with its applications and its types.
	CO4	Understand the basic ideas of biomass energy and recognize their merits and demerits. Understand the methods and classifications of biomass energy.
	CO5	Understand the basic principles of wind energy conversion. Understand the fundamental concepts of oceans and chemical energy resources, as well as their benefits and drawbacks.

COURSE: SIXTH SEMESTER – MAJOR

COURSE TITLE: PRACTICAL-VII GENERALPRACTICAL
COURSE CODE: CMPHP7

COURSE OUTCOMES:

At the end of the course the student will be able to:

(6experimentscompulsory)

1. Determine Hartmann's interpolation formula using Spectrometer
2. Analyze i_1, i_2 and draw i_1- i_2 curve using Spectrometer
3. Determine critical angle of a prism and draw i– d curve using Spectrometer
4. Determine Self-inductance by Rayleigh's Bridge
5. Analyze Dispersive Power of Grating-oblique incidence using Spectrometer
6. Determine Impedance and power factor using LR Circuit
7. Compare mutual inductance M_1/M_2 using Ballistic Galvanometer
8. Determine Moment of Magnet by Tan C position

COURSE: SIXTH SEMESTER – MAJOR

COURSE TITLE: PRACTICAL-VIII ELECTRONICS
COURSE CODE: CMPHP8

COURSE OUTCOMES:

At the end of the course the student will be able to:

1. Construct Arithmetic and Logic Units (ALU)
    a.   Half Adder

    b.   Full Adder

2. Construct Monostable multivibrator using 555 Timer
3. Construct Combinational Logic–To convert a Boolean Expressions

    (any two) into Logic Gate Circuit and assemble it using logic gate IC's
4. Construct Universal building block-NAND gate

5. Construct Universal building block-NOR gate

6. Verify Boolean Algebra(any four)

7. Verify De-Morgan's law

8. Construct Hartley Oscillator

COURSE: FOURTH SEMESTER - CORE

COURSE TITLE: HEAT AND THERMODYNAMICS

COURSE CODE: CMPH41

COURSE OUTCOMES:

At the end of the course the student will be able to:

	CO1	Acquire the knowledge of Joule-Kelvin effect, liquefaction of hydrogen and helium gases and adiabatic demagnetization. The practical applications of the low temperature concepts to refrigerator, air-conditioning machine and super fluidity.
COURSE OUTCOMES	CO2	Derive the expressions for pressure, gas laws, Maxwell's law of distribution of molecular velocities, viscosity and thermal conductivity. Derive and determine the Vander-Wall's constants and critical constants.
	CO3	Explain the heat experiments like Forbe's method and Lee's disc method for finding thermal conductivity. Understand the concepts of blackbody radiation, Wien's law, Stefan's law and Newton's law of cooling.
	CO4	Acquire the knowledge of Zeroth law, I and II law of thermodynamics, gas equation and Carnot's theorem. Apply the laws of thermodynamics to Carnot's engine, Otto engine and Diesel engine to find efficiency.
	CO5	Derive the Clausius-Clapeyron equation and second latent heat equation and specific heat relation. Understand the concepts of III law of thermodynamics, entropy and to derive Maxwell's thermo dynamical relations.

COURSE: FOURTH SEMESTER - SKILL BASED ELECTIVE

COURSE TITLE: MAINTANANCE OF ELECTRONIC APPLIANCES

COURSE CODE: CSPH41

COURSE OUTCOMES:

At the end of the course the student will be able to:

COURSE OUTCOMES	**CO1**	Understand the basic ideas about the components we use in electronic appliances. Recognize resistors, capacitors, and connection systems.
	CO2	Understand the fundamentals of measuring instruments. Understand oscilloscopes and their various types.
	CO3	Understand the classification of active and passive transducers and their types. Understand about the transducer's applications, merits, and demerits.
	CO4	Understand the basic concepts of communication devices and their working principles. Understand the principles of operation of modern technology communication devices.
	CO5	Learn about photography by using cameras and their accessories. Learn about shutter speed, resolution, filters, and the use of various lenses in cameras.

COURSE: FOURTH SEMESTER - CORE

COURSE TITLE: PRACTICAL-IV
COURSE CODE: CMPHP4

COURSE OUTCOMES:

At the end of the course the student will be able to:

(6 experiments compulsory)

1. Determine the Specific resistance using Potentiometer

2. Determine the Thermo EMF using Potentiometer

3. Determine the Thermal conductivity of bad conductor Lee's Disc

4. Determine the Specific heat capacity of liquid

5. Determine the Temperature Coefficient of Resistance using Carey Foster's Bridge

6. Determine the Thermo EMF using Ballistic Galvanometer

7. Determine the Absolute capacity of a condenser using Ballistic Galvanometer

8. Verify the Newton's law of cooling

COURSE: SECOND SEMESTER – CORE

COURSE TITLE: HEAT, THERMODYNAMICS AND STATISTICAL PHYSICS

COURSE CODE: EMPH21

COURSE OUTCOMES:

At the end of the course the student will be able to:

COURSE OUTCOMES	CO1	Acquires knowledge on how to distinguish between temperature and heat. Introduce him/her to the field of thermometry and explain practical measurements of high temperature as well as low temperature physics. Student identifies the relationship between heat capacity, specific heat capacity. The study of Low temperature Physics sets the basis for the students to understand cryogenics, superconductivity, super-fluidity and Condensed Matter Physics
	CO2	Derive the efficiency of Carnot's engine. Discuss the implications of the laws of Thermodynamics in diesel and petrol engines
	CO3	Able to analyze performance of thermodynamic systems viz. efficiency by problems. Gets an insight into thermodynamic properties like enthalpy, entropy
	CO4	Study the process of thermal conductivity and apply it to good and bad conductors. Quantify different parameters related to heat, relate them with various physical parameters and analyze them
	CO5	Interpret classical statistics concepts such as phase space, ensemble, Maxwell-Boltzmann distribution law. Develop the statistical interpretation of Bose-Einstein and Fermi-Dirac. Apply to quantum particles such as photon and electron

COURSE: SECOND SEMESTER – CORE

COURSE TITLE: CORE PRACTICALS

COURSE CODE: EMPHP2

COURSE OUTCOMES:

At the end of the course the student will be able to:

HEAT, OSCILLATIONS, WAVES & SOUND(Any Eight of the below list)
1. Determine the specific heat by cooling – graphical method.

1. Determine the thermal conductivity of good conductor by Searle's method.
2. Determine the thermal conductivity of bad conductor by Lee's disc method.
3. Determine the thermal conductivity of bad conductor by Charlaton's method.
4. Determine the specific heat capacity of solid.
5. Determine the specific heat of liquid by Joule's electrical heating method (applying
6. radiation correction by Barton's correction/graphical method),
7. Determine the Latent heat of a vaporization of a liquid.
8. Determine the Stefan's constant for Black body radiation.
9. Verify the Stefan's-Boltzmans law.
10. Determine the thermal conductivity of rubber tube.
11. Understand the Helmholtz resonator.
12. Determine the velocity of sound through a wire using Sonometer.
13. Determine the velocity of sound using Kunds tube.
14. Determine the frequency of an electrically maintained tuning fork
15. Verify the laws of transverse vibration using sonometer.
16. Verify the laws of transverse vibration using Melde's apparatus.
17. Compare the mass per unit length of two strings using Melde's apparatus.
18. Determine the frequency of AC by using sonometer.

COURSE: SECOND SEMESTER – NON MAJOR ELECTIVES (NME)

COURSE TITLE: ASTROPHYSICS

COURSE CODE: ESPH21

COURSE OUTCOMES:

At the end of the course the student will be able to:

COURSE OUTCOMES	**CO1**	Understand the difference between various types of telescopes and optical detectors.
	CO2	Obtain knowledge about meteoroids, comets and asteroids.
	CO3	Relate types of Eclipses and understand concepts
	CO4	Explain solar energy and gives information about the application of solar energy.
	CO5	Able to identify Indian Physicist and understand their contributions to the world.

COURSE: SECOND SEMESTER – NON MAJOR ELECTIVES (NME)

COURSE TITLE: HOME ELECTRICAL INSTALLATION

COURSE CODE: ESPH23

COURSE OUTCOMES:

At the end of the course the student will be able to:

COURSE OUTCOMES	CO1	Relate mechanical objects such as rockets, bicycles.
	CO2	Understand the concept of optical instruments such as lasers, holography and different types of glasses.
	CO3	Able to appreciate concept of home appliances such as bulb, fan, hair drier and microwave oven
	CO4	Explain solar energy and gives information about the application of solar energy.
	CO5	Able to identify Indian Physicist and understand their contributions to the world.

COURSE: SECOND SEMESTER – ALLIED PAPER

COURSE TITLE: ALLIED PHYSICS –II

COURSE CODE: EEPH21

COURSE OUTCOMES:

At the end of the course the student will be able to:

COURSE OUTCOMES	CO1	Explain the concepts of interference diffraction using principles of superposition of waves and rephrase the concept of polarization based on wave patterns
	CO2	Outline the basic foundation of different atom models and various experiments establishing quantum concepts. Relate the importance of interpreting improving theoretical models based on observation. Appreciate interdisciplinary nature of science and in solar energy related applications.
	CO3	Summarize the properties of nuclei, nuclear forces structure of atomic nucleus and nuclear models. Solve problems on delay rate half-life and mean-life. Interpret nuclear processes like fission and fusion. Understand the importance of nuclear energy, safety measures carried and get our Govt. agencies like DAE guiding the country in the nuclear field.
	CO4	To describe the basic concepts of relativity like equivalence principle, inertial frames and Lorentz transformation. Extend their knowledge on concepts of relativity and vice versa. Relate this with current research in this field and get an overview of research projects of National and International importance, like LIGO, ICTS, and opportunities available.
	CO5	Summarize the working of semiconductor devices like junction diode, Zener diode, transistors and practical devices

| | | we daily use like USB chargers and EV charging stations. |

COURSE: SECOND SEMESTER – ALLIED PAPER

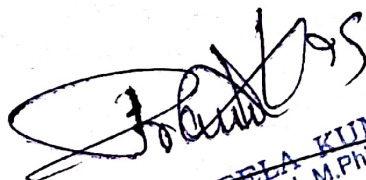**COURSE TITLE: ALLIED PRACTICALS – II**

COURSE CODE: EEPHP2

COURSE OUTCOMES:

At the end of the course the student will be able to:

Any Eight
1. Determine the Radius of curvature of lens by forming Newton's rings
2. Determine the Thickness of a wire using air wedge
3. Determine the Wavelength of mercury lines using spectrometer and grating
4. Determine the Refractive index of material of the lens by minimum deviation
5. Determine the Refractive index of liquid using liquid prism
6. Determine the AC frequency using sonometer
7. Determine the Specific resistance of a wire using PO box
8. Determine the Thermal conductivity of poor conductor using Lee's disc
9. Determine the figure of merit table galvanometer
10. Determine the Earth's magnetic field using field along the axis of a coil
11. Characterise Zener diode
12. Construct the Zerner/IC regulated power supply
13. Construct the AND, OR, NOT gates using diodes and transistor
14. Understand the NOR gate as a universal building block

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