

**SRI RAMAKRISHNA MISSION VIDYALAYA COLLEGE OF ARTS AND SCIENCE  
COIMBATORE - 641 020**

**B.Sc. PHYSICS**

**PROGRAMME EDUCATIONAL OBJECTIVES (PEO)**

The program educational objectives are set in line with Institutional and Departmental mission statements. The program educational objectives of Department of Physics are to produce candidates of good basics knowledge in Physics concepts and who later take the role of researchers with following qualities:

- PEO1:** Consolidates the knowledge acquired at +2 level and improves the ability to solve the problems in physics
- PEO2:** Students will have an enhanced proficiency in understanding the physical concepts, principles and theories of Physics and applying it in day-to-day life.
- PEO3:** Develop the ability to apply the knowledge acquired in the classroom and laboratories to specific problems in theoretical and experimental Physics.
- PEO4:** Analytical thinking and applying skills to develop initiatives and innovative ideas for R&D, industry and social requirements.
- PEO5:** Develops the learners' personality to suite current industry environment and entrepreneurial skills

**PROGRAMME OUTCOMES**

- PO1:** Provide platforms to learn Physics, Chemistry and Mathematics theories, concepts and practical skills with appropriate knowledge.
- PO2:** Assimilate the knowledge on understanding the nature and ability to link the facts to observe and discover scientific laws.
- PO3:** Create new skills and tools to obtain possible solutions in comprehension of the physical science problems incorporating mathematical modeling and theories.
- PO4:** Enhancement of critical thinking, problem solving skills, digitally efficient and making effective working professionals to suit for science, technical and research field.
- PO5:** Making best suitable personalities to serve for nation and society with ethical awareness and reasoning ability.

## **PROGRAMME SPECIFIC OUTCOMES (PSOs)**

The graduates able to

- PSO1:** improve the understanding capabilities in fundamental laws, concepts, principles and theories in the different academic field of Physics and its associated fields. Can understand the basics of computer and data science. Accomplish theoretical and laboratory skills
- PSO2:** utilize the procedural knowledge acquired in different areas of study in Physics outlined above in research and development, teaching, government and public services.
- PSO3:** assimilate interest and to the improve competencies of individuals in specialized area relating to the subfields and current developments in Physics.
- PSO4:** apply theoretical and laboratory skills to new/unfamiliar contexts to identify problems and issues relating to Physics. Skill enhancement in analysis and formulation of new theories and concepts.
- PSO5:** develop communication abilities to present their findings and results in technical and popular science forums organized in various universities and other private organizations.

**Course Title** Core 1: Properties of Matter and Sound **Course Code** 20UPH1C01

### COURSE OUTCOMES (CO)

By the end of the course, the students will be able to

CO1	assimilate the concepts of gravitation and elasticity of materials.	K1
CO2	measure the values of surface tension and viscosity of liquids at different temperatures.	K3
CO3	understanding of uses and applications of sound energy its measuring techniques, derive the equation of motion for free, damped and forced oscillations.	K2
CO4	apply the knowledge of reverberation -time, absorption co-efficient calculations in the construction of good auditorium, acoustics of buildings.	K3
CO5	imparting techniques for generation of ultrasonic waves and handling of CRO	K4

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze;

	PSO1	PSO2	PSO3	PSO4	PSO5		PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	M		S	S	M	L	M
CO2	S	M	M	S	M		M	S	S	S	M
CO3	S	M	S	S	M		S	S	M	S	M
CO4	S	S	M	S	M		S	S	S	S	S
CO5	M	S	M	S	L		S	M	M	S	S

S - Strong; M - Medium; L - Low

**Course Title** Core 2: Kinematics, Waves and Oscillations **Course Code** 20UPH1C02

### COURSE OUTCOMES (CO)

By the end of the course, the students will be able to

CO1	Know about the principles of acceleration, velocity, laws of motion, mass, energy, angular velocity to measure some of the physical parameters	K1
CO2	solve the real time problems exist in various scientific and technical areas.	K4
CO3	understand the Newtonian laws, conservation of physical quantities and to face the multiple choice-based examinations.	K2
CO4	comprehend the conservation of momentum and wave motions	K4
CO5	Make measurement on various parameters involved in variety of wave motion	K3

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze;

### MAPPING

	PSO1	PSO2	PSO3	PSO4	PSO5		PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	M	M		S	S	S	M	M
CO2	M	S	S	S	M		S	S	M	S	L
CO3	S	S	M	M	M		S	S	M	S	M
CO4	S	S	M	M	L		S	S	M	M	S
CO5	M	S	M	M	M		S	S	S	M	M

S - Strong; M - Medium; L - Low

**Course Title : Allied 1: Mathematics I Course Code : 20UPH1AL1**

**Course Outcomes (CO)**

CO1	Knowing the relation between the coefficients and the roots of an algebraic equation.	K1 & K2
CO2	Understanding the characteristic equation for finding eigenvalues and eigenvectors.	K2
CO3	Knowing the expansion of trigonometric functions and hyperbolic functions.	K2
CO4	Applying finite difference methods for interpolation.	K3 & K4

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze

	PO1	PO2	PO3	PO4	PO5		PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	S	M	M		S	S	L	M	M
CO2	M	S	S	S	M		S	M	M	L	M
CO3	S	S	S	S	M		S	S	M	S	M
CO4	S	M	S	M	M		S	S	M	M	M

S – Strong; M – Medium; L - Low

**Course Title** Core 3: Electricity and Magnetism**Course Code** 20UPH2C03**COURSE OUTCOMES (CO)**

By the end of the course, the students will be able to

CO1	Construct linear circuits and phenomenon of series and parallel resonance circuits.	K3
CO2	Predicts the motion of charged particles in electric and magnetic fields.	K2
CO3	Explain the basics of capacitors, capacitance of capacitors and role of resistance in electrical circuits.	K1
CO4	Understand various laws and principles related magnetism and magnetic induction	K2
CO5	Classify the magnetic materials and analyze their behaviors using associated theories	K4

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze;

	PSO1	PSO2	PSO3	PSO4	PSO5		PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	M	M		S	S	M	S	M
CO2	S	M	M	M	L		S	S	M	S	M
CO3	S	S	M	S	M		S	S	M	S	L
CO4	S	M	M	S	M		S	S	M	M	L
CO5	S	S	M	M	M		S	S	M	M	M

S - Strong; M - Medium; L – Low

**Course Title** Core 4: Dynamics of Fluids and Rigid bodies**Course Code** 20UPH2C04**COURSE OUTCOMES (CO)**

By the end of the course, the students will be able to

CO1	acquire knowledge about theory of gases, interpretations of temperature, degree of freedom and specific heat capacities	K1
CO2	Obtain the degrees of freedom and specific heat capacity values of gaseous molecules	K4
CO3	understand the concept of fluid, Pascal's law, viscosity, flow and Bernoulli's theorem	K2
CO4	Comprehend the essentials of rigid body dynamics and the physical parameters involved	K2
CO5	explain the motion of the vehicles on differently elevated roads and to solve the problems occur in motion,	K3

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze;

	PSO1	PSO2	PSO3	PSO4	PSO5		PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	M	L		M	M	S	S	L
CO2	S	M	M	S	L		S	M	S	M	L
CO3	S	S	M	M	M		S	S	M	M	L
CO4	S	S	M	M	M		S	S	M	M	L
CO5	M	S	S	M	L		S	S	M	S	M

S - Strong; M - Medium; L - Low

**Course Title : Allied : Mathematics – II****Course Code : 20UPH2AL2****Course Outcomes (CO)**

CO1	Remembering the formulas in differentiation and integration.	K1
CO2	Illustrating the Fourier co-efficient for periodic functions.	K1&K2
CO3	Knowing different integrals of partial differential equations.	K2
CO4	Analyzing the differential operator for finding gradient, divergence and curl	K3&K4

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze

	PO1	PO2	PO3	PO4	PO5		PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	L	S	S	S		S	S	S	L	M
CO2	S	M	S	S	M		M	S	M	M	M
CO3	S	M	S	S	M		S	S	S	L	M
CO4	S	M	S	S	M		S	S	M	M	M

S – Strong; M – Medium; L - Low



Course Title : **GENERAL EXPERIMENTS- I**  
20UPH2CP1

Course Code :

### COURSE OUTCOMES (CO)

At the end of the course, the students will be able to

CO1	understand error analysis using vernier caliper and Screw Gauge.	K2,K4
CO2	measure mechanical, and optical parameters of materials	K3
CO3	Determine electrical and magnetic property and values of materials.	K3
CO4	calibrate electrical measuring instruments.	K4
CO5	handle instruments independently and measure precisely.	K3

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze;

	PSO1	PSO2	PSO3	PSO4	PSO5		PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	S	S		S	M	S	S	S
CO2	M	M	S	S	S		S	M	S	S	S
CO3	M	M	S	S	S		S	M	S	S	S
CO4	S	M	M	S	S		M	M	S	S	S
CO5	S	S	M	S	S		M	M	S	M	S

S - Strong; M - Medium; L - Low

**Course Title** Core Practical – 2: Electronics Experiments

**Course Code**  
20UPH2CP2

### COURSE OUTCOMES (CO)

At the end of the course, the students will be able to

CO1	verify the characteristics of diode, transistor, rectifier circuits and IC regulated power supply by constructing circuits	K3
CO2	construct the circuits and verify the truth tables of all logic gates in order to understand the basics of computer.	K2, K3
CO3	handle instruments independently and measure precisely.	K3
CO4	construct amplifiers and oscillators using transistor	K3
CO5	Do performans analysis of construted oscillator, amplifier and logic gates	K4

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze;

	PSO1	PSO2	PSO3	PSO4	PSO5		PO1	PO2	PO3	PO4	PO5
CO1	M	S	S	S	M		M	S	S	S	S
CO2	S	M	M	S	M		M	S	S	S	M
CO3	M	S	M	S	S		S	M	S	S	M
CO4	M	M	S	S	M		M	S	S	M	S
CO5	M	S	M	S	M		M	S	S	S	M

S - Strong; M - Medium; L – Low

**Course Title** Core 5: Analog and Digital Circuits**Course Code** 20UPH3C05**COURSE OUTCOMES (CO)**

By the end of the course, the students will be able to

CO1	Acquaint about basic principles of semiconductor materials and devices.	K1
CO2	explore the various parameters of Transistor amplifiers, OP-AMP and Oscillators	K2
CO3	Elucidate the concepts of rectifiers and able to design own power supplies.	K3
CO4	Differentiate analog and digital systems and to work with various number systems involved in computer technology	K4
CO5	design and develop digital circuits, essential for calculation and processing,	K4

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze;

**MAPPING**

	PSO1	PSO2	PSO3	PSO4	PSO5		PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	L	M		S	S	S	M	L
CO2	S	M	M	S	M		S	S	M	S	L
CO3	S	S	M	M	M		S	S	S	S	M
CO4	S	M	S	S	M		S	S	S	M	S
CO5	M	S	S	S	L		S	S	M	S	S

S - Strong; M - Medium; L - Low

**Course Title : Allied: Chemistry - I****Course Code : 20UPH3AL3****COURSE OUTCOMES**

After learning the course, the students will be able to

CO1	Have basic knowledge on various fields of Chemistry.	K1, K2, K3 & K4
CO2	Enhance their interdisciplinary knowledge.	K1, K2, K3 & K4

**K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze**

	PO1	PO2	PO3	PO4	PO5		PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	S	M	M		S	S	S	S	M
CO2	S	S	S	S	S		S	S	S	S	M

S - Strong; M - Medium; L - Low

Programme: B.Sc., Physics

Course code: **20UPH3NM1**Course Title: **NME: Solid state chemistry****Course Outcomes:**

The students will be able to

- ❖ Understand the properties of crystalline and amorphous solids.
- ❖ Execute the Bragg's law in the determination of crystal structure using X-Ray diffraction technique.
- ❖ Assimilate the concepts of stoichiometric and non-stoichiometric defects in crystals.
- ❖ Acquire the knowledge about the magnetic and electrical properties of crystals.

**Course Title** Core 6: Heat, Thermodynamics and Statistical Mechanics **Course Code** 20UPH4C06**COURSE OUTCOMES (CO)**

By the end of the course, the students will be able to

CO1	elucidate the behavior of gas laws and the principle of kinetic theory	K1
CO2	assimilate the significance of thermal conduction and radiation	K2
CO3	compare the various methods of production of low temperature	K3
CO4	apply the principles and laws to determine the entropy of a system	K3
CO5	calculate the efficiency of heat enginesdistinguish classical statistics and quantum statistics	K4

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze;

	PSO1	PSO2	PSO3	PSO4	PSO5		PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	M	L		S	S	M	M	M
CO2	M	S	S	M	L		S	S	S	M	M
CO3	M	S	M	S	M		M	S	S	S	M
CO4	S	M	S	S	L		S	S	M	S	S
CO5	M	M	S	S	L		M	M	S	S	M

S - Strong; M - Medium; L - Low

**Course Title : Allied: Chemistry - II****Course Code : 20UPH4AL4****COURSE OUTCOMES**

After learning the course, the students will be able to

CO1	Develop awareness in the applications of Chemistry in the field of Physics.	K1, K2, K3 & K4
CO2	Increase the inter-disciplinary competency.	K1, K2, K3 & K4

**K1 - Remember; K2 - Understand; K3 - Apply; K4 – Analyze**

	PO1	PO2	PO3	PO4	PO5		PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	S	M	M		S	S	S	S	M
CO2	S	S	S	S	S		S	S	S	S	S

S – Strong; M – Medium; L – Low

**Course Title** Core Practical – 3: General Experiments- II**Course Code**  
20UPH4CP3**COURSE OUTCOMES (CO)**

At the end of the course, the students will be able to

CO1	determine the elastic moduli of different material and wires used in various fields like civil, metallurgy etc.	K3
CO2	find the wavelength of given source of light and spectrum produced by optical devices.	K3
CO3	determine optical and thermal parameters using spectrometer, polarimeter and calorimeters	K3
CO4	evaluate mechanical electrical and magnetic values of materials	K4
CO5	handle the thermal, optical, electrical and calorimetry instruments effectively	K2

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze;

	PSO1	PSO2	PSO3	PSO4	PSO5		PO1	PO2	PO3	PO4	PO5
CO1	M	M	S	S	S		S	M	S	S	S
CO2	M	S	S	S	M		M	M	S	S	S
CO3	S	M	S	S	S		S	M	S	S	S
CO4	M	M	S	S	S		M	S	S	S	S
CO5	S	M	M	S	S		S	M	S	S	S

S - Strong; M - Medium; L - Low

**Course Title** Core Practical – 4: Analog and Digital Experiments

**Course Code**  
20UPH4CP4

### COURSE OUTCOMES (CO)

At the end of the course, the students will be able to

CO1	understand working of OP-AMPs and its applications.	K2
CO2	construct analog circuits using OP-AMP.	K3
CO3	Utilize 555 timer for various applications	K3
CO4	construct digital circuits using ICs.	K3
CO5	Verify and analyse the logic circuits	K4

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze;

	PSO1	PSO2	PSO3	PSO4	PSO5		PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	S		S	M	S	S	S
CO2	M	S	S	S	M		M	M	S	S	S
CO3	S	S	M	S	S		S	M	S	S	S
CO4	M	M	S	S	S		M	S	S	S	S
CO5	S	M	M	S	S		S	M	S	S	S

S - Strong; M - Medium; L - Low

**Programme** : B.Sc. Physics

**Course Title** : Allied Practical: Chemistry

**Course Code** : 20UPH4AP1

### COURSE OUTCOMES

After learning the course, the students will be able to

CO1	in the skills in volumetric analysis.	K1, K2, K3 & K4
CO2	know the significance of physical and applied chemistry experiments.	K1, K2, K3 & K4

**K1 - Remember; K2 - Understand; K3 - Apply; K4 – Analyze**

	PO1	PO2	PO3	PO4	PO5		PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	S	S	S		S	S	S	S	S
CO2	S	S	S	S	S		S	S	S	S	S

S – Strong; M – Medium; L – Low

**Course Title** Core 7: Mathematical Physics and Classical Mechanics

**Course Code** 20UPH5C07

### COURSE OUTCOMES (CO)

By the end of the course, the students will be able to

CO1	Know about the scalar and vector fields, identities and theorems	K1
CO2	formulate variety of physical systems by means of various coordinate systems with the benefit of vector concepts.	K2
CO3	Solve electrical circuit problems using concept of Laplacetransformation	K4
CO4	assimilate complex variables and special functions	K2
CO5	setup Lagrange's equation of motion for mechanical, electrical and harmonic systems	K3

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze;

	PSO1	PSO2	PSO3	PSO4	PSO5		PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	L	L		S	S	S	S	L
CO2	S	S	S	M	M		S	S	M	S	M
CO3	S	S	S	S	M		S	S	S	M	M
CO4	M	S	S	M	M		M	S	S	S	M
CO5	M	S	S	S	S		M	S	S	S	M

S - Strong; M - Medium; L – Low

**Course Title** Core 8: Optics**Course Code** 20UPH5C08**COURSE OUTCOMES (CO)**

By the end of the course, the students will be able to

CO1	enrich the level of understanding on determination of different parameters like focal length, magnification, refractive index of different medium, wavelength, thickness, velocity of light, specific rotation etc.,	K1
CO2	Assimilate theories and production of interference, uses of interferometers and to determine refractive indices of optical materials using variety of refractometers methods.	K2
CO3	Know about the concept of diffraction, utility of diffractometers and its uses in spectral Analysis.	K2
CO4	Analyze Polarization through optical activity of the medium and work with crystal technologies.	K4
CO5	Apply these ideas on fabricating different optical spare parts for various applications such as setting up of microscope, telescope and camera lenses.	K3

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze;

	PSO1	PSO2	PSO3	PSO4	PSO5		PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	M	M		S	S	M	M	M
CO2	S	S	S	S	M		S	S	M	S	M
CO3	S	S	M	S	M		S	S	S	S	M
CO4	M	S	M	S	M		S	M	S	S	S
CO5	S	M	M	S	S		S	S	M	S	M

S - Strong; M - Medium; L - Low



**Course Title** Core 9: Atomic Physics and Spectroscopy**Course Code**

20UPH5C09

**COURSE OUTCOMES (CO)**

By the end of the course, the students will be able to

CO1	Gain knowledge about structure of atoms, various atomic models and production of atomic spectra.	K1
CO2	Clarify the importance of various atomic models and electronic configuration of elements.	K2
CO3	analyze the behavior of an atom under the influence of electric and magnetic field with appropriate experimental setups	K4
CO4	distinguish classical and quantum theory of Raman effect	K2
CO5	Apply different spectroscopic techniques to study the spectrograph obtained from spectroscopic devices.,	K3

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze;

	PSO1	PSO2	PSO3	PSO4	PSO5		PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	M	L		S	S	M	M	M
CO2	M	S	S	S	M		S	S	M	M	M
CO3	M	S	S	M	M		S	S	S	S	M
CO4	M	S	S	M	M		M	S	M	S	M
CO5	M	S	S	S	M		S	S	M	S	S

S - Strong; M - Medium; L - Low

**Course Title** Core 10: Microprocessor and its Physics Applications

**Course Code** 20UPH5C10

### COURSE OUTCOMES (CO)

By the end of the course, the students will be able to

CO1	understand the architecture of Microprocessor, Microcomputers and their developments.	K1
CO2	handle the instruction format and instruction set in assembly level programming used in second generation microprocessor	K2
CO3	write application-oriented assembly level programming for microcontrollers and microprocessors-based systems like stepper motor controls and traffic control systems etc.,	K3
CO4	Develop skills to interface variety of programmable controllers with 8085 processor in research and technology	K3
CO5	acclimate the techniques involved in interfacing memory and interrupt controllers and their utility in the field of computer technology	K4

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze;

	PSO1	PSO2	PSO3	PSO4	PSO5		PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	M	M		S	S	S	M	M
CO2	S	S	S	M	M		M	S	S	M	M
CO3	M	S	M	S	S		S	M	S	S	S
CO4	M	S	M	S	M		S	M	S	S	L
CO5	M	M	S	S	M		S	M	S	S	S

S - Strong; M - Medium; L - Low

**Course Title** Core 11: Relativity, Wave Mechanics and Space Physics **Course Code** 20UPH6C11

### COURSE OUTCOMES (CO)

By the end of the course, the students will be able to

CO1	Know about postulates and theories of relativity, basics of quantum mechanical concepts such as operators and eigen functions. Elucidate details of space physics.	K1
CO2	Elaborate experimental evidences of dual nature of matter waves	K2
CO3	Handle operators, functions involved in quantum equations associated to sub atomic problems	K2
CO4	Setting up of quantum equations for sub atomic systems and to analyze their behaviors.	K4
CO5	portray the principle associated to stellar evolution, concept of space physics and launching mechanism of satellites and rockets	K3

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze;

	PSO1	PSO2	PSO3	PSO4	PSO5		PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	M	M		S	S	M	M	L
CO2	M	S	M	S	M		M	S	S	M	M
CO3	S	M	S	M	M		M	S	S	S	M
CO4	M	S	S	S	M		M	S	S	M	S
CO5	S	M	S	M	L		S	S	M	M	M

S - Strong; M - Medium; L - Low

**Course Title** Core 12: Solid State Physics**Course Code** 20UPH6C12**COURSE OUTCOMES (CO)**

By the end of the course, the students will be able to

CO1	procure knowledge on elements of crystallography, structural determination, conductivity laws and theories of solids, properties of dielectric, and superconductors and newmaterials	K1
CO2	elucidate the concepts of free electron theory and band theory of solids	K2
CO3	use dielectric and smart materials in various fields	K3
CO4	analyze the behavior of superconductors in magnetic levitation	K4
CO5	Understand the behaviours of new materials like ceramics, shape memory alloys, biomaterials and metal matrix composites.	K2

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze;

	PSO1	PSO2	PSO3	PSO4	PSO5		PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	M	M		S	S	S	M	M
CO2	M	S	S	M	M		S	M	S	S	M
CO3	M	M	S	S	M		M	S	S	M	M
CO4	M	S	S	M	M		M	S	M	S	M
CO5	S	S	M	S	L		S	S	M	M	M

S - Strong; M - Medium; L - Low

**Course Title** Core 13: Nuclear Physics**Course Code** 20UPH6C13**COURSE OUTCOMES (CO)**

By the end of the course, the students will be able to

CO1	Elucidate radioactivity laws, nuclear radiation detectors, nuclear models, properties of nucleus, nuclear hypothesis, types of nuclear reactions and basic theories of elementary particles.	K1
CO2	solve problems related to half-life and mean life period, age of the earth through the radio activity	K3
CO3	distinguish nuclear models and nuclear reactions	K4
CO4	Understand the behavior of cosmic rays and elementary particles	K2
CO5	perform overall analyses of nuclear power plants from a man, machine and organizational (human factors) point of view	K4

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze;

	PSO1	PSO2	PSO3	PSO4	PSO5		PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	M	L		S	S	M	M	M
CO2	M	S	S	M	M		M	S	M	S	M
CO3	M	S	M	S	M		M	S	S	S	S
CO4	S	M	S	M	M		M	S	S	S	M
CO5	M	M	S	S	S		M	S	M	S	S

S - Strong; M - Medium; L - Low

**Course Title** Core 14: Programming in C and its Physics Applications

**Course Code** 20UPH6C14

### COURSE OUTCOMES (CO)

By the end of the course, the students will be able to

CO1	assimilate the basic structure of C programming, data types, variables and basic functions	K1
CO2	understand the different control, branching structure and write programmes using them	K2
CO3	Handle structure variables and unions in programme writing	K3
CO4	declare pointers and handling files in programme writing	K3
CO5	apply the programming skill in physical science, simulation and technology	K4

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze;

	PSO1	PSO2	PSO3	PSO4	PSO5		PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	M	M		S	M	S	M	S
CO2	S	S	S	S	M		M	S	S	S	M
CO3	M	M	S	S	M		M	M	S	S	S
CO4	M	M	S	S	M		M	M	S	S	S
CO5	M	S	M	S	S		M	M	S	S	S

S - Strong; M - Medium; L - Low

**Course Title** Elective 1: Alternate Energy Resources **Course Code** 20UPH6EA1

### COURSE OUTCOMES (CO)

By the end of the course, the students will be able to

CO1	identify types of solar radiation and measuring instruments	K1
CO2	understand the working of biogas plants and wind mills	K2
CO3	Design and implement solar PV voltaic systems, solar pumbing and different solar thermal devices	K3
CO4	analyses and develop energy balance equations	K4
CO5	categorize different energy storage systems and indirect sources of solar energy	K1, K4

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze;

	PSO1	PSO2	PSO3	PSO4	PSO5		PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	M	M		S	S	M	M	M
CO2	S	S	M	M	M		M	M	S	S	S
CO3	M	M	S	S	S		M	S	S	S	S
CO4	M	M	S	S	S		M	S	S	S	S
CO5	S	S	M	S	M		S	S	M	S	M

S - Strong; M - Medium; L - Low

**Course Title** Core Practical – 5**Course Code**  
20UPH6CP6**COURSE OUTCOMES (CO)**

At the end of the course, the students will be able to

CO1	Determine some optical constants and values of solar spectra using spectrometer	K3
CO2	Measure precise values of electrical device through Ballistic galvanometer	K3
CO3	Construct and study the performance of oscillatory circuits	K3, K4
CO4	Measure mechanical values through optical means	K3
CO5	analyze physical parameters using laser equipment	K3, K4

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze;

	PSO1	PSO2	PSO3	PSO4	PSO5		PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	S	S		S	M	S	S	S
CO2	S	S	S	S	M		M	M	S	S	S
CO3	S	S	M	S	S		S	M	S	S	S
CO4	M	M	S	S	S		M	S	S	S	S
CO5	S	M	M	S	S		S	M	S	S	S

S - Strong; M - Medium; L - Low



**Course Title** Core Practical – 6: Microprocessor and C  
- Programming in Physics

**Course Code**  
20UPH6CP7

### COURSE OUTCOMES (CO)

At the end of the course, the students will be able to

CO1	Understand working and handling of various sections in microprocessor unit ; basic programming techniques involved in assembly level and C programming	K2
CO2	Write and execute ALP for specific problems through the microprocessor kit	K3
CO3	Develop application oriented programs and to run in microprocessor	K3
CO4	write the programmes in C language and can execute using computers	K3
CO5	develop the C Programs for formulae used in physics and can analyze the results related to various parameters involved.	K3,K4


K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze;

### MAPPING

	PSO1	PSO2	PSO3	PSO4	PSO5		PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	M		S	M	S	S	S
CO2	M	S	S	S	M		M	M	S	S	S
CO3	M	S	S	S	S		M	S	S	S	S
CO4	S	S	M	S	S		M	S	S	S	S
CO5	S	S	M	S	S		M	M	S	S	S

S - Strong; M - Medium; L - Low



  
PRINCIPAL  
SRI RAMAKRISHNA MISSION VIDYALAYA  
COLLEGE OF ARTS AND SCIENCE  
COIMBATORE-641020.