Holy Cross College (Autonomous), Nagercoil

Kanyakumari District, Tamil Nadu.

Accredited with A$^+$ by NAAC - IV cycle – CGPA 3.35

Affiliated to

Manonmaniam Sundaranar University, Tirunelveli

Semester I - IV

POs, PSOs & COs

DEPARTMENT OF PHYSICS

2023-2026

(With effect from the academic year 2024-2025)

Programme Educational Objectives (PEOs)

PEOs	Upon completion of B.A/B.Sc. degree programme, the graduates will be able to	Mission addressed
PEO 1	apply appropriate theory and scientific knowledge to participate in activities that support humanity and economic development nationally and globally, developing as leaders in their fields of expertise.	**M1& M2**
PEO 2	inculcate practical knowledge for developing professional empowerment and entrepreneurship and societal services.	**M2, M3, M4 & M5**
PEO 3	pursue lifelong learning and continuous improvement of the knowledge and skills with the highest professional and ethical standards.	**M3, M4, M5 & M6**

Programme Outcomes (POs)

POs	Upon completion of B.Sc. Degree Programme, the graduates will be able to:	Mapping with PEOs
PO1	obtain comprehensive knowledge and skills to pursue higher studies in the relevant field of science.	**PEO1**
PO2	create innovative ideas to enhance entrepreneurial skills for economic independence.	**PEO2**
PO3	reflect upon green initiatives and take responsible steps to build a sustainable environment.	**PEO2**
PO4	enhance leadership qualities, team spirit and communication skills to face challenging competitive examinations for a better developmental career.	**PEO1 & PEO3**
PO5	communicate effectively and collaborate successfully with peers to become competent professionals.	**PEO2 & PEO3**
PO6	absorb ethical, moral and social values in personal and social life leading to highly cultured and civilized personality	**PEO2 & PEO3**
PO7	participate in learning activities throughout life, through self-paced and self-directed learning to improve knowledge and skills.	**PEO1 & PEO3**

Programme Specific Outcome (PSOs)

PSOs	Upon completion of B.Sc. Physics Degree Programme, the graduates of Physics will be able to:	Mapping with POs
PSO - 1	understand the core theories and principles of physics which include mechanics, thermodynamics, electronics, material science etc.	**PO1**
PSO - 2	develop extensive comprehension of fundamental and diverse applications of Physics.	**PO2 & PO3**
PSO - 3	apply knowledge of principles, concepts in Physics and analyze their local, national and global impact. Apply the critical reasoning and computing skills to analyze and solve problems in physics.	**PO4 & PO5**
PSO - 4	analyze the observed experimental data and relate the results with theoretical expectations. Communicate appropriately and effectively, in a scientific context using present technology.	**PO6**
PSO - 5	develop entrepreneurial skills, empowered according to the professional requirement and become self-dependent. Understand the professional, ethical, legal, security, social issues and responsibilities.	**PO5 & PO7**

Mapping of PO'S and PSO'S

POs	PSO1	PSO 2	PSO3	PSO4	PSO5
PO 1	S	S	S	S	S
PO 2	M	S	S	S	S
PO 3	M	M	M	S	S
PO4	M	M	S	S	S
PO5	M	M	S	S	S
PO6	M	M	S	S	S
PO7	S	S	S	S	S

Course Outcomes

SEMESTER – I

CORE COURSE -I: PROPERTIES OF MATTER AND ACOUSTICS

Course Code : PU231CC1

On the successful completion of the course, student will be able to:		
1	relate elastic behaviour in terms of three modulii of elasticity and working of torsion pendulum.	**K1 & K2**
2	appreciate concept of bending of beams and analyze the expression, quantify and understand nature of materials.	**K2 & K3**
3	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.	**K2 & K3**
4	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.	**K1 & K3**
5	understand the concept of acoustics, importance of constructing buildings with good acoustics. Also, to apply their knowledge of ultrasonics in real life, especially in medical field and assimilate different methods of production of ultrasonic waves.	**K2 & K3**

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

SEMESTER – I

CORE LAB COURSE – I: GENERAL PHYSICS LAB I

Course Code : **PU231CP1**

On the successful completion of the course, students will able to:		
1.	understand the strength of material using Young's modulus.	**K2**
2.	acquire knowledge of thermal behaviour of the materials.	**K1**
3.	analyze the physical principle involved in the various instruments	**K4**
4.	understand the scientific method and an ability to apply the scientific method in practice.	**K2**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate;

K6– Create

SEMESTER – I

ELECTIVE COURSE –I: ALLIED PHYSICS FOR MATHEMATICS – I

Course Code : PU231EC1

On the successful completion of the course, student will be able to:		
1	acquire knowledge on elementary ideas of waves, properties of matter, electricity and magnetism, electronics	**K1 & K2**
2	analyze the concepts of ultrasonics, surface tension and study their applications in the medical field.	**K3**
3	interpret the real-life solution using concepts of electricity, magnetism, and electronics in Digital India.	**K2**
4	apply their depth knowledge of Physics in day today life.	**K3**
5	develop their knowledge to carry out the practical by applying these concepts of Physics	**K3**

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

SEMESTER – I

ELECTIVE LAB COURSE I: ALLIED PHYSICS PRACTICAL FOR MATHEMATICS – I

Course Code : PU231EP1

On the successful completion of the course, student will be able to**:**		
1	understand the basic principles of Physics through experiments.	**K2**
2	measure and determine the various physical parameters.	**K3**
3	develop an idea about the handling of various instruments.	**K2**
4	get an idea about basic Scientific knowledge and implications of its broad working principle	**K2 & K3**
5	analyze, interpreting and evaluate data.	**K3 & K4**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate;

K6– Create

SEMESTER – I

NON MAJOR ELECTIVE NME I: PHYSICS FOR EVERYDAY LIFE

Course Code : PU231NM1

On the successful completion of the course, student will be able to**:**		
1	understand the knowledge of basic scientific principles and fundamental concepts in motion of bodies.	**K2**
2	understand the basic laws of physics in domestic appliances	**K2**
3	recall the physics notions applied in various optical instruments	**K1**
4	comprehend the utilization of solar energy in everyday life activities	**K2**
5	know about the various physicists contribution towards science and technology	**K2**

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

SEMESTER I

FOUNDATION COURSE: INTRODUCTORY PHYSICS

Course Code : PU231FC1

On the successful completion of the course, student will be able to:		
1	apply concept of vectors to understand concepts of Physics and solve problems	**K2 & K3**
2	interpret different forces present in Nature while learning about phenomena related to these different forces.	**K1 & K2**
3	describe energy in different process and relate momentum, velocity and energy	**K1 & K2**
4	differentiate different types of motions they would encounter in various courses and understand their basis	**K1 & K2**
5	relate various properties of matter with their behavior and connect them with different physical parameters involved.	**K2 & K3**

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

SEMESTER I

SPECIFIC VALUE-ADDED COURSE: PHOTOSHOP

Course Code : PU231V01

On the successful completion of the course, student will be able to:		
CO 1	use photoshop confidently and effectively.	**K3**
CO 2	gain the skills and abilities to use photoshop that make them employable	**K6**
CO 3	create and edit images	**K6**
CO4	use a range of tools and filters in *photoshop*	**K3**

K1- Remember; **K2-** Understand**; K3 –** Apply; **K4-** Analyze**; K5-** Evaluate

SEMESTER- I

SPECIFIC VALUE-ADDED COURSE: BASICS OF ENERGY SOURCES

Course Code: PU231V02

Upon completion of this course, students will be able to:		
1	identify various forms of renewable and non-renewable energy sources.	**K1**
2.	understand the fundamentals of wind energy conversion.	**K2**
3.	apply the principle of a wind mill in producing energy.	**K3**
4.	correlate solar-based appliances for enhanced functionality.	**K4**
5.	defend the energy storage capacities of batteries.	**K5**

K1- Remember; **K2-** Understand**; K3 –** Apply; **K4-** Analyze**; K5-** Evaluate

SEMESTER- I

SPECIFIC VALUE-ADDED COURSE: PHYSICS OF HOME APPLIANCES

Course Code: PU231V03

Upon completion of this course, students will be able to:		
1	illustrate the basic laws of physics in domestic appliances	**K1**
2	interpret the basic functionality of water purifier.	**K2**
2	articulate the fundamental physics concepts and their applications in everyday life.	**K3**
3	relate physics principles used in everyday life home appliances.	**K4**
4	appraise safety and security procedures.	**K5**

K1- Remember; **K2-** Understand**; K3 –** Apply; **K4-** Analyze**; K5-** Evaluate

SEMESTER – II

CORE COURSE -II: HEAT, THERMODYNAMICS AND STATISTICAL PHYSICS

Course Code : PU232CC1

On the successful completion of the course, student will be able to:		
1.	acquires knowledge on how to distinguish between temperature and heat, and explain practical measurements of high temperature as well as low temperature physics.	**K1 & K2**
2.	derive the efficiency of Carnot's engine and discuss the implications of the laws of Thermodynamics in diesel and petrol engines	**K1 & K3**
3.	analyze performance of thermodynamic systems viz efficiency by problems and gets an insight into thermodynamic properties like enthalpy, entropy	**K2 & K3**
4.	study the process of thermal conductivity and apply it to good and bad conductors.	**K2 & K3**
5.	interpret classical statistics concepts such as phase space, ensemble, Maxwell-Boltzmann distribution law, Bose-Einstein and Fermi-Dirac .	**K2 & K3**

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

SEMESTER II

CORE LAB COURSE - II: GENERAL PHYSICS LAB II

Course Code : PU232CP1

On the successful completion of the course, students will able to:		
1.	understand the strength of materials using physical experiments.	**K2**
2.	acquire knowledge of thermal behaviour of the materials.	**K1**
3.	analyze the physical principle involved in the various instruments such as sonometer and Melde's String.	**K4**
4.	understand the scientific method and an ability to apply the scientific method in practice.	**K2**

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

SEMESTER - II

ELECTIVE COURSE –II: ALLIED PHYSICS FOR MATHEMATICS – II

Course Code : PU232EC1

On the successful completion of the course, student will be able to**:**		
CO1	explain the concepts of interference, diffraction and rephrase the concept of polarization	**K1 & K2**
CO2	outline the basic foundation of different atom models and relate the importance of theoretical models	**K1 & K2**
CO3	understand the properties of nuclei, nuclear forces, structure of atomic nucleus and nuclear models and interpret nuclear processes like fission and fusion.	**K2& K3**
CO4	describe the basic concepts of relativity like equivalence principle, inertial frames and Lorentz transformation.	**K3 & K4**
CO5	summarize the working of semiconductor devices like diodes, transistors, USB chargers and EV charging stations.	**K4& K5**

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate;

ELECTIVE LAB COURSE - II : ALLIED PHYSICS PRACTICAL FOR MATHEMATICS II

Course Code : PU232EP1

On the successful completion of the course, students will able to:		
1.	understand the nature of monochromatic light and its diffraction and interference phenomenon.	**K2**
2.	able to design simple logic circuits	**K3**
3.	analyze the physical principle involved in the various instruments	**K4**
4.	understand the scientific method and an ability to apply the scientific method in practice.	**K2**

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

SEMESTER – II

NON MAJOR ELECTIVE: NME II: PHYSICS OF MUSIC

Course Code : PU232NM1

On the successful completion of the course, student will be able to**:**		
1.	understand the principles and basic scientific concepts in sound waves	**K2**
2.	understand the various phenomena of simple vibrating systems.	**K1**
3.	comprehend the various musical notes and its production	**K2**
4.	apply the knowledge of recording music in day to day life activities.	**K3**
5.	know the scientific concepts of music	**K2**

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

SEMESTER – II

SKILL ENHANCEMENT COURSE SEC-I - DIGITAL PHOTOGRAPHY

Course Code : PU232SE1

On the successful completion of the course, student will be able to**:**		
1	describe the principle of image formation in Photography	**K2**
2	apply the parameters for controlling the images	**K3**
3	identify different types of camera	**K4**
4	explain the image formation in Digital Photography	**K2**
5	illustrate the digital image – postproduction procedures	**K3**

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

SEMESTER I & II

Life Skill Training I: Catechism
Course Code: UG232LC1

CO	**Upon completion of this course the students will be able to**
CO-1	understand the aim and significance of value education
CO-2	develop individual skills and act confidently in the society
CO-3	learn how to live lovingly through family values
CO-4	enhance spiritual values through strong faith in God

CO-5	learn good behaviours through social values

SEMESTER I & II

Life Skill Training I: Moral

Course Code: UG232LM1

COs	Upon completion of this course the students will be able to
CO-1	understand the aim and significance of value education
CO-2	develop individual skills and act confidently in the society
CO-3	learn how to live lovingly through family values
CO-4	enhance spiritual values through strong faith in God
CO-5	learn good behaviours through social values

SEMESTER III

CORE COURSE III: GENERAL MECHANICS AND CLASSICAL MECHANICS

Course Code: PU233CC1

On the successful completion of the course, students will be able to:		
1.	recognize Newton's Law of motion, general theory of relativity, Kepler's laws and the basic principles behind planetary motion.	**K1**
2.	infer the knowledge on the conservation laws.	**K2**
3.	relate conservation law and calculate energy of various systems, understand and differentiate conservative and non–conservative forces.	**K3**
4.	devise concepts of rigid body dynamics and solve problems.	**K4**
5.	defend Lagrangian system of mechanics and D' Alembert's principle.	**K5**

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyse; **K5** – Evaluate

SEMESTER III

CORE LAB COURSE III: GENERAL PHYSICS LAB III

Course Code: PU233CP1

On the successful completion of the course, students will be able to:		
1.	remember and understand the scientific method to construct simple circuits.	**K1&K2**
2.	apply basic skills and attitudes enabling application in the physics field.	**K3**
3.	analyse the physical principle involved in the various instruments such as potentiometer, galvanometer, electrical bridge etc.	**K4**

4.	evaluate a record of experiments in a clear and structured written format augmented with relevant figures and graphs wherever needed.	**K5**
5.	develop prototypes by utilizing physics concepts in practical situations.	**K6**

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyse; **K5** – Evaluate; **K6** – Create

SEMESTER III

ELECTIVE COURSE III: ALLIED PHYSICS FOR CHEMISTRY – I

Course Code: PU233EC1

On the successful completion of the course, students will be able to:		
1.	identify the basic concepts in waves, characteristics of matter, electricity and magnetism, as well as electronics.	**K1**
2.	interpret the principles of ultrasonics and surface tension, and explore their practical applications within the medical domain.	**K2**
3.	articulate real-world solutions leveraging the principles of electricity, magnetism, and electronics within the framework of Digital India.	**K3**
4.	categorise physics principles in everyday situations.	**K4**
5.	prioritize Boolean algebraic concepts in practical scenarios.	**K5**

K1 – Remember; **K2** – Understand; **K3** – Apply; **K4** – Analyse; **K5** – Evaluate

SEMESTER – III

ELECTIVE LAB COURSE I: ALLIED PHYSICS PRACTICAL FOR CHEMISTRY – I

Course Code: PU233EP1

On the successful completion of the course, student will be able to:		
1.	remember the basic principles of Physics through experiments.	**K1**
2.	interpret the handling of various instruments.	**K2**
3.	relate the various physical parameters for measuring properties of the given material.	**K3**
4.	devise the implications of working principle of logic gates.	**K4**
5.	estimate the Q-factors and design simple electronic circuits.	**K5&K6**

K1 - Remember; **K2** - Understand; **K3** – Apply; **K4** - Analyse; **K5** - Evaluate; **K6** – Create

SEMESTER III

SKILL ENHANCEMENT COURSE SEC -II: ASTROPHYSICS

Course Code: PU233SE1

On the successful completion of the course, students will be able to:		
1.	recall the total and annular solar and lunar eclipses.	**K1**
2.	summarize the different layers of the Sun and its phenomenon.	**K2**
3.	articulate the basic concepts of Solar systems on planetary motion.	**K3**
4.	relate the distinct properties of planets revolving around the sun.	**K4**
5.	grade the principle of planetary motion towards science and technology.	**K5**

K1 - Remember; **K2** - Understand; **K3** – Apply; **K4** - Analyse; **K5** – Evaluate

SEMESTER - III / IV
SKILL ENHANCEMENT COURSE SEC - IV
DIGITAL FLUENCY
Course Code: UG23CSE2

On the successful completion of the course, students will be able to:		
1.	work with text, themes and styles	**K1**
2.	produce a mail merge	**K2**
3.	secure information in an Excel workbook	**K2**
4.	perform documentation and presentation skills	**K2, K3**
5.	add special effects to slide transitions	**K3**

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

SEMESTER- III

SPECIFIC VALUE-ADDED COURSE: FUNDAMENTALS OF MS- EXCEL

Course Code: PU233V01

Upon completion of this course, students will be able to:		
1.	illustrate Microsoft Excel and its features.	**K1**
2.	understand the formula functions – sum - average, if, count, max, min, proper, upper, lower, using autosum.	**K2**
3.	apply Excel features for designing and integrating calculations.	**K3**
4.	analyse spreadsheet enhanced functionality.	**K4**
5.	evaluate table data analysis.	**K5**

K1- Remember- **K2-** Understand- **K3 –** Apply- **K4-** Analyze- **K5-** Evaluate

SEMESTER- III

SPECIFIC VALUE-ADDED COURSE: APPLICATIONS OF LASER

Course Code: PU233V02

Upon completion of this course, students will be able to:		
1.	identify Laser types, principles, and applications in modern technology	**K1**
2.	understand the working mechanism of lasers.	**K2**
3.	use the principle of lasers in designing and integrating Lasers into appliance systems.	**K3**
4.	contrast different types of lasers, laser instrumentation and their applications.	**K4**
5.	evaluate laser systems, their characteristics and diversified applications including industry, medicine and astronomy.	**K5**

K1 - Remember; **K2 -** Understand; **K3** – Apply; **K4 -** Analyse; **K5** – Evaluate

SEMESTER- III

SPECIFIC VALUE-ADDED COURSE: MEDICAL IMAGING

Course Code: PU233V03

Upon completion of this course, students will be able to:		
1.	identify Laser types, principles, and applications in modern technology	**K1**
2.	understand the working mechanism of lasers.	**K2**
3.	use the principle of lasers in designing and integrating Lasers into appliance systems.	**K3**
4.	contrast different types of lasers, laser instrumentation and their applications.	**K4**
5.	evaluate laser systems, their characteristics and diversified applications including industry, medicine and astronomy.	**K5**

K1 - Remember; **K2 -** Understand; **K3** – Apply; **K4 -** Analyse; **K5** – Evaluate

SEMESTER III/V

SELF LEARNING COURSE SLC I: PUBLIC SERVICE EXAMINATION: PHYSICS-I

Course Code: PU233SL1 /PU235SL1

On the successful completion of the course, students will be able to:		
1.	remember and understand the fundamental principles and core concepts in mechanics, electrostatics, optics and magnetostatics.	**K1& K2**
2.	apply the mathematical and analytical techniques to solve problems related to mechanics principles- optics- electro and magnetostatics.	**K3**

3.	apply principles of geometrical optics to analyze the behavior of light rays in various optical systems- such as lenses- mirrors- and optical fibers.	**K3**
4.	relate abstract concepts in physics and apply them to real- world phenomena- including understanding the principles behind various physical phenomena and their applications	**K4**
5.	evaluate circuit problems involving series and parallel connections	**K5**

K1- Remember; **K2**- Understand; **K3** – Apply; **K4**- Analyse; **K5**- Evaluate; **K6**– Create

SEMESTER IV
CORE COURSE IV: OPTICS AND SPECTROSCOPY
Course Code: PU234CC1

On the successful completion of the course, students will be able to:		
1	outline basic knowledge of methods of rectifying different defects in lenses, articulate technological applications of eyepieces.	**K1**
2	understand the wave nature of light through working of interferometer.	**K2**
3	apply the knowledge of nature of light through diffraction techniques and apply mathematical principles to analyse the optical instruments.	**K3**
4	categorise basic formulation of polarization and appraise its usage in industries.	**K4**
5	evaluate the principles of optics to various fields of IR, Raman and UV spectroscopy and understand their instrumentation and application in industries	**K5**

K1 - Remember; **K2** - Understand; **K3** – Apply; **K4** - Analyse; **K5** – Evaluate

SEMESTER IV
CORE LAB COURSE IV: GENERAL PHYSICS LAB IV
Course Code: PU234CP1

On the successful completion of the course, students will be able to:		
1.	identify the dual nature of light, understanding it as both a wave and a particle.	**K1**
2.	understand and explore nonlinear optics, laser spectroscopy, interferometry, and laser-based measurements.	**K2**
3.	use the optical principles involved in the different medium including the principles behind mirrors and lenses.	**K3**
4.	devise light paths through lenses, grating and mirrors.	**K4**
5.	prioritize the applications problems related to laser physics and develop a prototype.	**K5 & K6**

K1 - Remember; **K2** - Understand; **K3** – Apply; **K4** - Analyse; **K5** - Evaluate; **K6** – Create

SEMESTER IV

ELECTIVE COURSE IV: ALLIED PHYSICS FOR CHEMISTRY – II

Course Code: PU234EC1

On the successful completion of the course, students will be able to:		
1.	explain the notions of interference, diffraction and polarization using principles of superposition of waves.	**K1**
2.	understand the basic foundation of different atom models and periodic classification of elements	**K2**
3.	apply the basic concepts of relativity like inertial frames and get an overview of research projects of National and International importance.	**K3**
4.	relate the properties of nuclei, nuclear forces, structure of atomic nucleus and nuclear models.	**K4**
5.	defend the working of semiconductor devices like junction diode, Zener diode and practical devices.	**K5**

K1 - Remember; **K2** - Understand; **K3** – Apply; **K4** - Analyse; **K5** - Evaluate

SEMESTER – IV

ELECTIVE LAB COURSE - II: ALLIED PHYSICS PRACTICAL FOR CHEMISTRY II

Course Code: PU234EP1

On the successful completion of the course, students will be able to:		
1.	identify the nature of monochromatic light and its diffraction and interference phenomenon.	**K1**
2.	understand the concept of frequency measurements.	**K2**
3.	use the physical principle involved in the various instruments to perform experiments.	**K3**
4.	devise scientific method and examine it in practice.	**K4**
5.	defend logic theorems and design simple logic circuits.	**K5 & K6**

K1 - Remember; **K2** – Understand; **K3** - Apply; **K4** – Analyse; **K5**- Evaluate; **K6**-Create

SEMESTER – III / IV

SKILL ENHANCEMENT COURSE SEC-III: FITNESS FOR WELLBEING

Course Code: UG23CSE1

On the successful completion of the course, student will be able to:		
1	know physical, mental, and social aspects of health	**K1**
2	understand holistic health and the role of physical fitness.	**K2**
3	apply mindfulness and yoga for stress management and mental clarity.	**K3**

4	implement proper personal hygiene practices for cleanliness and disease prevention.	**K3**
5	evaluate and implement right nutritional choices.	**K5**

K1-Remember; **K2**-Understand; **K3**-Apply; **K5**-Evaluate

SEMESTER IV
ENVIRONMENTAL STUDIES
Course Code: UG234EV1

On the successful completion of the course, students will be able to:		
1.	know the different kinds of resources, pollution and ecosystems	**K1**
2.	understand the biodiversity and its constituents	**K2**
3.	use the methods to control pollution and, to conserve the resources and ecosystem	**K3**
4.	analyse the factors behind pollution, global warming and health effects for sustainable development	**K4**
5.	evaluate various water, disaster and waste management systems	**K5**

K1 - Remember; **K2** - Understand; **K3** – Apply; **K4** - Analyse; **K5** - Evaluate

SEMESTER IV/ VI
SELF LEARNING COURSE II: PUBLIC SERVICE EXAMINATION: PHYSICS- II
Course Code: PU234SL1/PU236SL1

On the successful completion of the course, students will be able to:		
1.	remember the principles of electromagnetic theory, including Maxwell's equations and their applications.	**K1**
2.	understand the key principles of quantum mechanics, including quantization, superposition, and wave-particle duality.	**K2**
3.	apply thermodynamic principles for solving problems related to energy, heat transfer, and the behavior of thermodynamic systems.	**K3**
4.	analyse atomic structure, quantum mechanical models, and atomic spectra.	**K4**
5.	evaluate the characteristics and operation of semiconductor devices, including voltage-current relationships, small-signal behavior, and determine the frequency response	**K5**

K1 - Remember; **K2** - Understand; **K3** – Apply; **K4** - Analyse; **K5** - Evaluate

SEMESTER III & IV
LIFE SKILL TRAINING II: MORAL
Course Code: UG234LM1

Upon completion of this course the students will be able to		
1	know the significance of life	K1
2	understand the importance of self-care	K2
3	realise the duty of youngsters in the society and live up to it	K3
4	analyse how to achieve success in profession	K4
5	develop mystical values by inculcating good thoughts	K5

K1 - Remember; **K2** - Understand; **K3** – Apply; **K4** - Analyse; **K5** – Evaluate

SEMESTER III & IV
LIFE SKILL TRAINING II: CATECHISM
Course Code: UG234LC1

Upon completion of this course the students will be able to		
1	know and understand the aim and importance of value education	**K1,K2**
2	get rid of inferiority complex and act confidently in the society	**K3**
3	live lovingly by facing loneliness and make decisions on their own	**K3**
4	develop human dignity and able to stand bravely in adversity	**K6**
5	learn unity in diversity and grow in a life of grace	**K6**

K1 - Remember **K2**-Understand; **K3**-Apply; **K6**- Create