

KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
COIMBATORE -641029



DEPARTMENT OF PHYSICS (UG)

Course Outcome

(2025-2026)

UPH

Sub. Code: 25UPH101

Programme Code: 03		B.Sc. Physics			
Title of the Paper		Core Paper 1 - Properties of Matter and Sound			
Batch	Semester	Hours/Week	Total Hours	Credits	Entrepreneurship
2025-2026	I	6	90	4	

Course Objectives

To enable the learners to

1. Understand the basic concepts of gravitation.
2. Get exposure to the properties of liquids & solids.
3. Understand the metallurgical advancement and properties of sound.

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1 - K5	CO1	Understand the action of gravitational fields and potentials on different objects
	CO2	Gain knowledge on elastic behavior of beams, rods and wires through the bending and torsional behaviors of the objects
	CO3	Gain knowledge on properties of liquids by surface tension and viscosity
	CO4	Production and application of ultrasonics and acoustics in different types of Buildings
	CO5	Understand the metallurgical advancement and acoustic resonance based on Indian Knowledge System

Programme Code: 03		B.Sc. Physics			
Title of the Paper		Core Paper 2 - Heat and Thermodynamics			
Batch 2025-2026	Semester II	Hours/Week 6	Total Hours 90	Credits 4	Entrepreneurship

Course Objectives

To enable the learners to understand

1. The concept of heat and temperature and specific heat
2. Mechanism of petrol and diesel engine
3. Quantum theory of radiation and three types of thermodynamical statistics.

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1 To K5	CO1	Understand the concept of Zero and First law of thermodynamics
	CO2	Gain knowledge on second law of thermodynamics and engines
	CO3	Understand gas laws and its behavior, Einstein's and Debye's theory of specific heat
	CO4	Understand radiative heat transfer and radiation laws
	CO5	Analyze the concepts of microstate, macrostate of a model system, classical and quantum statistics.

Programme Code: 03		B.Sc. Physics			
Title of the Paper		Core Paper 3 - Mechanics			
Batch 2025-2026	Semester 3	Hours/Week 4	Total Hours 60	Credits 4	Employability

Course Objectives

To enable the learners to

1. Understand the principles of rigid body dynamics
2. Acquire the fundamental ideas of projectile motions
3. Attain the idea about statics, hydrostatics and hydrodynamics

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1 - K5	CO1	Understanding the behavior of various bodies due to kinematic and dynamic forces acting on the body
	CO2	Apply the knowledge of mathematics, fundamental sciences to obtain solution of complex mechanical problems
	CO3	Study of statics which promotes analysis and interpretation of numerical problems
	CO4	Gain knowledge on hydrostatics
	CO5	Understand the theory of relativity

Programme Code: 03		B.Sc. Physics			
Title of the Paper		Core Paper 4 - Electricity and Magnetism			
Batch 2025-2026	Semester 3	Hours/Week 4	Total Hours 60	Credits 4	Employability

Course Objectives

To enable the learners to

1. Acquire basic knowledge of electrostatics and thermoelectricity
2. Study about magnetic properties of materials
3. Learn motion of charges and alternating current and its circuits

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1 - K5	CO1	Acquire knowledge about electrostatics
	CO2	Understand the magnetic properties of materials and magnetic effect of electric current
	CO3	Gain knowledge on thermoelectricity
	CO4	Apply knowledge on fabrication of different types of capacitors, transformer, choke coil and thermoelectric power generators.
	CO5	Analyze the trouble shooting of ac circuits (LCR series and LCR parallel mode) and also analyze the thermoelectric diagrams

Programme code: 03		B.Sc. Physics			
Title of the Paper		Core Paper 5 - Mathematical Physics			
Batch 2025-2026	Semester 5	Hours/Week 4	Total Hours 60	Credits 4	Skill Development

Course Objectives

To enable the learners to

1. Apply Fourier series, transformation and vector analysis to physical problems
2. Know about the basic concepts of complex variables
3. Apply vectors to physical systems.

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1 - K5	CO1	Understand differential operators in vectors
	CO2	Apply vectors for physical examples
	CO3	Understand physical examples of Fourier series
	CO4	Apply Fourier's transformation
	CO5	Analyze complex variables

UPH

Sub Code: 25UPH506

Programme code: 03		B.Sc. Physics			
Title of the Paper		Core Paper 6 - Optics			
Batch	Semester	Hours/Week	Total Hours	Credits	Employability
2025-2026	5	4	60	4	

Course Objectives

To enable the learners to

1. Acquire knowledge in ray optics
2. Understand mechanism of energy transfer in the form of waves
3. Understand the basic principles of optical instruments

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1 - K5	CO1	Understand the aberrations with an emphasis on image forming systems
	CO2	Understand wave optics and interference
	CO3	Be acquainted with Fresnel and Fraunhofer diffraction
	CO4	Gain knowledge on polarization
	CO5	Understand principle, construction and working of optical instruments

Programme code: 03		B.Sc. Physics			
Title of the Paper		Core Paper 7 - Principles of Electronic Devices and Circuits			
Batch 2025-2026	Semester 5	Hours/Week 4	Total Hours 60	Credits 4	Employability

Course Objectives

To enable the learners to

1. Understand the principles of semiconductor devices and their applications.
2. Know the principle and working of oscillators.
3. Know the working of FET, MOSFET and UJT

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1 to K5	CO1	Understand the fundamentals of semiconductor devices
	CO2	Understand transistor biasing and stabilization
	CO3	Learn about the functioning of FET, MOSFET, UJT and SCR
	CO4	Understand the basic principles of amplifiers and Operational amplifiers
	CO5	Acquire knowledge on oscillators

Programme code: 03		B.Sc. Physics			
Title of the Paper		Core Paper 8 – Basics of Quantum Mechanics			
Batch 2025-2026	Semester 5	Hours/Week 4	Total Hours 60	Credits 4	Employability

Course Objectives

To enable the learners to

1. Know about De-Broglie concept
2. Understand operators and uncertainty relation
3. Know about applications of Schrodinger's equation

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1 to K5	CO1	Understand the wave aspects of matter
	CO2	Know the relation between group velocity and phase velocity of waves
	CO3	Understand uncertainty principle and its applications
	CO4	Understand the concept of operators and to solve Schrodinger's equation for simple systems in one dimension.
	CO5	Understand Schrodinger's equation, wave function and to solve Schrodinger's equation for systems in three dimensions.

Programme code: 03		B.Sc. Physics			
Title of the Paper		Core Paper 9 - Atomic and Solid State Physics			
Batch 2025-2026	Semester 6	Hours/Week 5	Total Hours 75	Credits 4	Employability

Course Objectives

To enable the learners to

1. Know about x - rays, Photoelectric effect and their applications
2. Know about different coupling schemes and the effect of magnetic and electric fields on the spectrum of an atom and molecule
3. Understand the different crystal structure and their bonds

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1 - K5	CO1	Acquire knowledge about atomic and molecular spectroscopy.
	CO2	Understand bonding in solids
	CO3	Understand crystal structure
	CO4	Gain knowledge about x-rays and photoelectric effect
	CO5	Understand the concept of Superconductors

UPH**Sub. Code: 25UPH610**

Programme code: 03		B.Sc. Physics			
Title of the Paper		Core Paper 10 – Fundamentals of Digital Electronics and Microprocessor			
Batch 2025-2026	Semester 6	Hours/Week 5	Total Hours 75	Credits 4	Employability

Course Objectives

To enable the learners to acquire knowledge about

1. Logic gates, Boolean algebra and Karnaugh map
2. Flip- flops, counters, arithmetic circuits, data processing circuits, shift registers
3. Microprocessors architecture and instruction sets

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1 - K5	CO1	Acquire knowledge on number systems, binary arithmetic operations and binary codes
	CO2	Have an understanding of logic gates, Demorgan's theorems, Karnaugh maps and simplification of Boolean expressions
	CO3	Apply the knowledge of logic gates to design flip-flops and counters
	CO4	Understand architecture of a Microprocessor
	CO5	Get exposure on Microprocessor programmes

Programme code: 03		B.Sc. Physics			
Title of the Paper		Core Paper - 11: Nuclear Physics			
Batch 2025-2026	Semester 6	Hours/Week 5	Total Hours 75	Credits 4	Employability

Course Objectives

To enable the learner to know about

1. General properties of atomic nuclei, particle accelerators and radioactivity
2. Artificial transmutation of elements and nuclear transmutation
3. Nuclear fission, fusion and elementary particles

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1 - K5	CO1	Know about basic nuclear properties and particle accelerators.
	CO2	Gain knowledge on radioactivity
	CO3	Understand artificial and nuclear transmutations
	CO4	Understand nuclear fission, fusion and detection of nuclear radiations.
	CO5	Acquire knowledge on elementary particles

UPH**Sub. Code: 25UPH2CL**

Programme code: 03		B.Sc. Physics			
Title of the Paper		Core Practical I – General Experiments			
Batch 2025-2026	Semester 1 & 2	Hours/Week 3	Total Hours 90	Credits 3	Skill Development

Course Objectives

To enable the learners to:

1. Understand the physical phenomena and fundamentals of General Physics.
2. Perform experiments in the field of General Physics.
3. Interpret the practical result to corroborate the theory.

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K3 - K5	CO1	Provide hands on experiences in conducting scientific investigations and laboratory experiments.
	CO2	Develop the ability to analyze basic experiments
	CO3	To analyze the relationship between theory and experimental results.
	CO4	To conduct experimental investigations on mechanical, electrical, heat and optical physics.
	CO5	Practice recording of experimental work and data graphing

UPH**Sub. Code: 25UPH4CM**

Programme code: 03		B.Sc. Physics			
Title of the Paper		Core Practical II – General Experiments			
Batch 2025-2026	Semester 3 & 4	Hours/Week 3	Total Hours 90	Credits 3	Skill Development

Course Objectives

To enable the learners to:

1. Understand the physical phenomena and fundamentals of general physics
2. Perform experiments in the field of general physics.
3. Interpret the practical result to corroborate the theory.

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K3-K5	CO1	Provide hands-on experiences in conducting scientific investigations and laboratory experiments.
	CO2	Develop the ability to analyze basic experiments
	CO3	Analyze the relationship between theory and experimental results.
	CO4	To conduct experimental investigations on mechanical, electrical, heat and optical physics.
	CO5	Practice recording of experimental work and data graphing

UPH**Sub Code: 25UPH6CN**

Programme code: 03		B.Sc. Physics			
Title of the Paper		Core Practical III – General Experiments			
Batch 2025-2026	Semester 5 & 6	Hours/Week 3	Total Hours 90	Credits 4	Skill Development

Course Objectives

To enable the learners to:

1. Have a good foundation in the fundamentals and applications of general Physics
2. Acquire the skill of finding and developing practical scientific facts
3. Employ the practical result to support the theory

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K3 - K5	CO1	Develop the ability to analyze basic experiments.
	CO2	Take measurements to compare experimental results in the laboratory with the theoretical analysis.
	CO3	Conduct experimental investigations on mechanical, heat and optical phenomena.
	CO4	Conduct experimental investigations on electrical and magnetic phenomena.
	CO5	Practice record keeping of experimental work and data graphing

UPH**Sub Code: 25UPH6CO**

Programme code: 03		B.Sc. Physics			
Title of the Paper		Core Practical IV – Electronics			
Batch 2025-2026	Semester 5 & 6	Hours/Week 3	Total Hours 90	Credits 3	Employability

Course Objectives

To enable the learners

1. To design and construct electronic circuits
2. To develop experimental skills and understand relation between experimental data and theoretical analysis.
3. Have a foundation of constructing electronic devices

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K3 - K5	CO1	Acquire basic knowledge in solid state electronics.
	CO2	Analyze and design analog electronic circuits using discrete components.
	CO3	Acquire knowledge in basic electronics by constructing electronic circuits and devices.
	CO4	Take measurements to compare experimental results with the theoretical data
	CO5	Practice record keeping of experimental work and data graphing

UPH

Sub Code: 25UPH6CP

Programme code: 03		B.Sc. Physics			
Title of the Paper		Core Practical V - Digital Electronics, Microprocessor and Python programming			
Batch 2025-2026	Semester 5 & 6	Hours/Week 3	Total Hours 90	Credits 3	Employability

Course objectives

To enable the learners to

1. Have foundations in the fundamentals of digital electronics.
2. Visualize the applications of digital electronics and microprocessor
3. Simulation using Python programme

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K3 to K5	CO1	Construct basic logic gates.
	CO2	Gain expertise to construct digital electronic circuits.
	CO3	Get familiarized in Microprocessor and Python programming
	CO4	Accomplish Physics concepts through python programme based tasks.
	CO5	Practice record keeping of experimental work and data graphing

UPH**Sub Code: 25UPH6Z1**

Programme code: 03		B.Sc. Physics			
Title of the Paper		Project and Viva Voce			
Batch 2025-2026	Semester 6	Hours/Week -	Total Hours -	Credits 5	Skill Development

Course objectives

To enable the learners to

1. Have foundations in the fundamentals of Physics and related area.
2. Acquire skills to develop a working model
3. Visualize the applications of theoretical concepts

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K3 - K5	CO1	Construct working models
	CO2	Gain expertise to present their ideas systematically through PPT
	CO3	Get familiarized to develop a report on the project work
	CO4	Accomplish the result accumulation and data graphing
	CO5	Gain expertise to apply knowledge on multidisciplinary field

UPH

Sub. Code: 25UPH3A1

ALLIED PHYSICS PAPER FOR B.Sc. MATHEMATICS / CHEMISTRY

Programme code: 03		For B.Sc. Mathematics and B.Sc. Chemistry			
Title of the Paper		Allied Subject II – Physics I			
Batch 2025-2026	Semester 3	Hours/Week 4	Total Hours 60	Credits 4	Skill Development

Course Objectives

To enable the learners

1. To know about mechanics, properties of matter and sound
2. To understand thermal physics
3. To know about light, electricity and electromagnetism

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1 - K5	CO1	Know about simple harmonic motion and projectile motion
	CO2	Understand moduli of elasticity and propagation of sound
	CO3	Acquire knowledge about thermal Physics
	CO4	Gain knowledge on optics
	CO5	Gain knowledge on current electricity and electromagnetism.

UPH

Sub. Code: 25UPH4A2

ALLIED PHYSICS PAPER FOR B.Sc. MATHEMATICS / CHEMISTRY

Programme code: 03		For B.Sc. Mathematics and B.Sc. Chemistry			
Title of the Paper		Allied Subject II – Physics II			
Batch 2025-2026	Semester 4	Hours/Week 4	Total Hours 60	Credits 4	Skill Development

Course Objectives

To enable the learners

1. To know about atomic physics and concepts of relativity
2. To understand nuclear and quantum Physics
3. To know the basics of lasers, electronics and communication Physics

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1- K5	CO1	Understand atomic Physics and concepts of relativity
	CO2	Know about nuclear Physics
	CO3	Know about quantum Physics
	CO4	Acquire knowledge on laser Physics
	CO5	Understand electronics and communication Physics

UPH

Sub. Code: 25UPH4AL

ALLIED PHYSICS PRACTICALS FOR B.Sc. MATHEMATICS / CHEMISTRY

Programme code: 03		For B.Sc. Mathematics and B.Sc. Chemistry			
Title of the Paper		Allied Physics Practical			
Batch 2025-2026	Semester 3 & 4	Hours/Week 3	Total Hours 90	Credits 2	Skill Development

Course Objectives

To enable the learners to:

1. Understand Physical phenomena and fundamentals of general Physics.
2. Perform experiments in Physics and understanding the results.
3. Interpret the experimental results to support the theory

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K3 - K5	CO1	Provide hands-on experiences in conducting laboratory experiments.
	CO2	Analyze relationship between theory and experimental results.
	CO3	Conduct experimental investigations on mechanical and heat and optical Physics.
	CO4	Conduct experimental investigations on optics, electricity and electronics
	CO5	Practice record keeping of experimental work

UPH

SUB. CODE : 25UHW401

ALL UG COURSES		
Title of the paper : HEALTH AND WELLNESS		
Batch 2025 – 2026	Semester IV	Credits 2

Learning Outcomes:

Upon completion of the Health & Wellness course, students will be able to:

1. Demonstrate proficiency in sports training and physical fitness practices.
2. Improve their mental and emotional well-being, fostering a positive outlook on health and life.
3. Develop competence and commitment as professionals in the field of health and wellness.
4. Awareness on drug addiction and its ill effects

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UPH

Programme Code: 03	B.Sc. Physics			
Title of the Paper	Major Elective Paper : Laser Physics and Fiber Optics			
Batch 2025-2026	Hours/Week 4	Total Hours 60	Credits 5	Employability

Course Objectives

To enable the learners to

1. Acquire knowledge about the principles of conventional and advanced lasers.
2. Understand the applications of lasers.
3. Understand fundamentals of optical fibers and their fabrication.

Course outcomes (CO)

On successful completion of the course, the students will be able to

K1 - K5	CO1	Understand the basic principles of lasers
	CO2	Explain the types of lasers and Laser amplifiers
	CO3	Illustrate the application of lasers in various fields.
	CO4	Understand optical fibers and its attenuations
	CO5	Know about fabrication of optical fibers.

UPH

Programme Code: 03	B.Sc. Physics			
Title of the Paper	Major Elective Paper - Principles of Communication Systems			
Batch 2024-2025	Hours/Week 4	Total Hours 60	Credits 5	Employability

Course Objectives

To enable the learners

1. To understand the basic idea of modulation and demodulation
2. To gain knowledge on transmission lines and antennas
3. To know about radio, cellular, fiber optic, television and satellite communications

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1 - K5	CO1	Get knowledge about modulation and demodulation
	CO2	Understand the working principles of transmission lines and antennas
	CO3	Acquire knowledge on radio and cellular communications
	CO4	Gain knowledge on fiber optic communications
	CO5	Understand television and satellite Communications

UPH

Programme Code: 03	B.Sc. Physics			
Title of the Paper	Major Elective Paper – Measurement Systems			
Batch 2025-2026	Hours/Week 4	Total Hours 60	Credits 5	Employability

Course Objectives

To enable the learners to

1. Understand the basic concepts of measurement and error analysis.
2. Get exposure to the knowledge on transducers on viscosity measurement.
3. Understand the working of ac bridges.

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1 to K5	CO1	Understand the methods of measurements
	CO2	Gain knowledge on asdic electrical measurements
	CO3	Acquire knowledge on different type of specific gravity monitoring
	CO4	Acquire knowledge on different applications of BG
	CO5	Understand the working of different electrical bridges

UPH

Programme Code: 03	B.Sc. Physics			
Title of the Paper	Major Elective Paper - Introduction to Biophysics			
Batch 2025-2026	Hours/Week 4	Total Hours 60	Credits 4	Employability

Course Objectives

To enable the learners

1. To understand the concept of Physics principles and apply it to biological phenomenon
2. To know about Biophysics, fluid run and Gas transport
3. To know about audition of human ear and Physics of Vision

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1 to K5	CO1	Apply principles of Physics toward evaluation and analyses of biological phenomenon.
	CO2	Understand the basic concepts of biophysics and fluid run.
	CO3	Know about gas transport concepts.
	CO4	Acquire knowledge on Physics of audition.
	CO5	Acquire knowledge on Physics of vision.

UPH

Programme Code: 03	B.Sc. Physics			
Title of the Paper	Major Elective Paper - Materials Science			
Batch 2025-2026	Hours/Week 4	Total Hours 60	Credits 5	Employability

Course Objectives

To enable the learners

1. To understand the electron theory of solids
2. To know about electric and dielectric properties of materials.
3. To know about magnetic and superconducting properties of materials.

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1 to K5	CO1	Understand the electron theory of solids.
	CO2	Know about electric properties of materials.
	CO3	Know about dielectric properties of materials.
	CO4	Understand magnetic properties of materials.
	CO5	Acquire knowledge about superconducting properties of materials.

UPH

Programme Code: 03	B.Sc. Physics			
Title of the Paper	Major Elective Paper - Object Oriented Programming in C++			
Batch 2025-2026	Hours/Week 4	Total Hours 60	Credits 5	Employability

Course Objective

To enable the learners to

1. Know about the basics in C++ language
2. Develop programming skills in C++ language
3. Understand about various functions and operators.

Course Outcome (CO)

On successful completion of the course, the students will be able to

K1 to K5	CO1	Acquire basic knowledge about various data types, variables, operators and solving programs for real data.
	CO2	understand about function prototyping and function overloading
	CO3	Acquire relevant information about various classes, objects and programming with various functions and arguments.
	CO4	Gain knowledge on Constructors, Destructors
	CO5	Gain knowledge on Polymorphism and inheritance

Programme Code:03	For B.A., BBA, B.Com, BCA and B.Sc., Degree Students		
Title of the Paper	Part IV – Non Major Elective - I Human Rights		
Batch 2025-2026	Hours / Week 2	Total Hours 30	Credits 2

Course Objectives

To enable the learners

1. To prepare for responsible citizenship with awareness of the relationship between Human Rights, democracy and development.
2. To impart education on national and international regime on Human Rights.
3. To sensitive students to human suffering and promotion of human life with dignity.
4. To develop skills on human rights advocacy
5. To appreciate the relationship between rights and duties
6. To foster respect for tolerance and compassion for all living creature.

Course Outcomes

After Completion of the Course the student will be able

K1 - K5	CO1	To understand the hidden truth of Human Rights by studying various provisions in the Constitution of India.
	CO2	To acquire overall knowledge regarding the Feminist perspectives in the Liberative Empowerment of Women.
	CO3	To gain knowledge about various gender roles and stereotypes involved in the comprehension of gender equality and women's rights.
	CO4	To comprehend the legal provisions and policies that foreground the safety of children in the society and to promote awareness.
	CO5	To gain enhanced knowledge about sexual and gender minorities to recognize, celebrate and acknowledge the diversified forms of gender expressions and rights.

Programme Code: 03	B.Sc. Physics		
Title of the Paper	Part IV – Non Major Elective – II Women's Rights		
Batch 2025-2026	Hours/Week 2	Total Hours 30	Credits 2

Course Objectives

To enable the learners

1. To know about the laws enacted to protect Women against violence.
2. To impart awareness about the hurdles faced by Women.
3. To develop a knowledge about the status of all forms of Women to access to justice.
4. To create awareness about Women's rights.
5. To know about laws and norms pertaining to protection of Women.
6. To understand the articles which enables the Women's rights.
7. To understand the Special Women Welfare laws.
8. To realize how the violence against Women puts an undue burden on healthcare services.

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1 - K5	CO1	Understand the importance of Women's Studies and incorporate Women's Studies with other fields.
	CO2	Analyze the realities of Women Empowerment, Portrayal of Women in Media, Development and Communication.
	CO3	Interpret the laws pertaining to violence against Women and legal consequences.
	CO4	Study the important elements in the Indian Constitution, Indian Laws for Protection of Women.
	CO5	To be Aware of Government Developmental schemes for women and to create Awareness on modernization and impact of technology on Women.

UPH

Programme Code: 03	B.Sc. Physics		
Title of the Paper	Part IV – Non Major Elective III - Consumer Affairs		
Batch 2025-2026	Hours/Week 2	Total Hours 30	Credits 2

Course Objectives

To enable the learners

1. To familiarize the students with their rights and responsibilities as a consumer.
2. To understand the procedure of redress of consumer complaints.
3. To know more about decisions on Leading Cases by Consumer Protection Act.
4. To get more knowledge about Organizational set-up under the Consumer Protection Act
5. To impart awareness about the Role of Industry Regulators in Consumer Protection
6. To understand Contemporary Issues in Consumer Affairs

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1 - K5	CO1	Know the rights and responsibility of consumers.
	CO2	Understand the importance and benefits of Consumer Protection Act.
	CO3	Apply the role of different agencies in establishing product and service standards.
	CO4	Analyze to handle the business firms' interface with consumers.
	CO5	Assess Quality and Standardization of consumer affairs

UPH

Sub.Code: 25UGC3S1

Programme Code: 03		B.Sc. Physics			
Title of the Paper		SBS I – CYBER SECURITY			
Batch 2025-2026	Semester 3	Hours/Week 2	Total Hours 30	Credits 3	Skill Development

Course Objectives

To enable the learners to

1. Know the basic concepts of Cyber Security
2. Develop an ability to understand about various modes of Cyber Crimes and Preventive measures
3. Understand about the Cyber Legal laws and Punishments

Course Outcomes (CO)

On successful completion of the course, the students will be able

K1-K5	CO1	To Understand the Concepts of Cybercrime and Cyber Frauds
	CO2	To Know about Cyber Terrorism and its preventive measures
	CO3	To Analyze about the Internet, Mobile Phone and E-commerce security issues
	CO4	To Understand about E-mail and Social Media Issues
	CO5	To Describe about various legal responses to Cybercrime

Programme Code: 03		B.Sc. Physics			
Title of the Paper		Skill Based Subject 2 – Scientific Computing – Python and Artificial Intelligence			
Batch 2025-2026	Semester 4	Hours/Week 2	Total Hours 30	Credits 3	Employability

Course Objectives

To enable the learners to

1. build basic programme using fundamental programming constructs
2. build programme for Physics related applications
3. know the applications Artificial intelligence

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1 to K5	CO1	Gain knowledge about how to use list
	CO2	Gain knowledge about conditions and loops
	CO3	Understand the concepts of functions and class
	CO4	Understand the concepts of python libraries
	CO5	Realize the applications Artificial intelligence in Physics

UPH**Sub.Code: 25UBI6S3**

Programme Code :	For B.A., BBA, B.Com, BCA and B.Sc., Degree Students			
Skill Based Subject 3 - BASICS OF INTELLECTUAL PROPERTY RIGHT'S				
Batch 2025-2026	Hours / Week 2	Total Hours 30	Credits 2	Skill Development

Course Objectives

To enable the learners to

1. create awareness about recent trends in IPR and Innovation
2. explore the basic concepts IPR
3. focus upon trademarks, copyrights, patents, industrial designs and traditional knowledge.
4. learn more about managing IP rights and legal aspects.

Course Outcomes

On successful completion of the course, the students will be able to

K1 - K5	CO1	Know about basic concepts of IPR and patent
	CO2	Understand copyrights, industrial designs and geographical indication of goods.
	CO3	Differentiate between trademarks and trade secrets
	CO4	Acquire knowledge on protection of traditional knowledge and plant varieties.
	CO5	Manage and protect IP Rights

UPH**Sub Code: 25EVS101**

Programme Code: 03		B.Sc. Physics		
Title of the Paper		Part IV – Environmental Studies		
Batch 2025-2026	Semester 1	Hours/Week 2	Total Hours 30	Credits 2

Course Objectives

1. The course will provide students with an understanding and appreciation of the complex interactions of man, health and the environment. It will expose students to the multi- disciplinary nature of environmental health sciences
2. To inculcate knowledge and create awareness about ecological and environmental concepts, issues and solutions to environmental problems.
3. To shape students into good “Ecocitizens” thereby catering to global environmental needs.
4. This course is designed to study about the types of pollutants including gases, chemicals petroleum, noise, light, global warming and radiation as well as pollutant flow and recycling and principles of environmental pollution such as air, water and soil
5. The course will address environmental stress and pollution, their sources in natural and workplace environments, their modes of transport and transformation, their ecological and public health effects, and existing methods for environmental disease prevention and remediation.

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1-K5	CO 1	Understand how interactions between organisms and their environments drive the dynamics of individuals, populations, communities and ecosystems
	CO2	Develop an in depth knowledge on the interdisciplinary relationship of cultural, ethical and social aspects of global environmental issues
	CO3	Acquire values and attitudes towards complex environmental socio-economic challenges and providing participatory role in solving current environmental problems and preventing the future ones
	CO4	Gain inherent knowledge on basic concepts of biodiversity in an ecological context and about the current threats of biodiversity
	CO5	Appraise the major concepts and terminology in the field of environmental pollutants, its interconnections and direct damage to the wildlife, in addition to human communities and ecosystems

UPH**Sub.Code: 25VED201**

Programme Code:	For B.A., BBA, B.Com, BCA and B.Sc., Degree Students		
VALUE EDUCATION – MORAL AND ETHICS			
Batch	Hours / Week	Total Hours	Credits
2025-2026	2	30	2

COURSE OBJECTIVES

1. To impart Value Education in every walk of life.
2. To help the students to reach excellence and reap success.
3. To impart the right attitude by practicing self introspection.
4. To portray the life and messages of Great Leaders.
5. To insist the need for universal brotherhood, patience and tolerance.
6. To help the students to keep them fit.
7. To educate the importance of Yoga and Meditation.

COURSE OUTCOMES (CO)

After Completion of the Course the student will be able to

K1 - K5	CO1	will be able to recognize Moral values, Ethics, contribution of leaders, Yoga and its practice
	CO2	will be able to differentiate and relate the day to day applications of Yoga and Ethics in real life situations
	CO3	can emulate the principled life of great warriors and take it forward as a message to self and the society
	CO4	will be able to Analyse the Practical outcome of practicing Moral values in real life situation
	CO5	could Evaluate and Rank the outcome of the pragmatic approach to further develop the skills

UPH

Sub. Code: 25UPH5X1

Programme Code: 03		B.Sc. Physics			
Title of the Paper		Extra Departmental Course (EDC) - Physics in Everyday life			
Batch 2025-2026	Semester 5	Hours/Week 2	Total Hours 30	Credits 3	Skill Development

Course Objectives

To study about the

1. Physics of Universe and solar systems
2. Principles, advancements and applications of Physics in various fields.
3. Physics principles involved in common household appliances

Course outcomes (CO)

On successful completion of the course, the students will be able to

K1 to K5	CO1	Understand origin of universe and study about planets.
	CO2	Study Physics in Human anatomy.
	CO3	Study about various Physics principles behind sports.
	CO4	Apply of Physics in Technology.
	CO5	Realize Physics in appliances

UPH

Programme Code: 03		B.Sc. Physics			
Title of the Paper		JOC - Electrical Appliances: Maintenance and Servicing			
Batch 2025-2026	Semester 3 / 5	Hours/Week 2	Total Hours 30	Extra Credits 2	Employability

Course Objectives

To study about

1. Fundamentals of electricity, electrical connections and wiring
2. Heating and motorized appliances
3. Refrigerator, air cooler and air conditioner appliances

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1- K5	CO1	Understand the fundamentals of electricity
	CO2	apply the fundamentals of electrical connections and wiring
	CO3	Know about heating appliances
	CO4	Apply motorized appliances
	CO5	Know about refrigerator, air cooler and air conditioner appliances

UPH

Programme Code: 03		B.Sc. Physics			
Title of the Paper		ALC - Measurement techniques and Data analysis			
Batch 2025-2026	Semester -	Hours/Week -	Total Hours -	Extra Credits 2	Entrepreneurship

Course Objectives

To study about

1. Basic concept of measurement & transducers
2. Measurement of error and standards of measurements
3. Electronic and vibration measuring instruments

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1 - K5	CO1	Understand the basic concept of measurement & transducers
	CO2	Know about measurement of error
	CO3	Gain idea on standards of measurements
	CO4	Know about electronic measuring instruments
	CO5	Know about vibration measuring instruments

CAP

Sub. Code : 25CAP101

Programme Code: 03		B.Sc. Physics			
Title of the Paper		Astronomy and Astrophysics			
Batch 2025-2026	Semester Odd	Hours/Week 2	Total Hours 30	Credits 2	Skill Development

Course Objectives

To enable the learners

1. To know about the universe and astronomical objects
2. To know about the astronomical instruments, Indian astronomy and astronomers
3. To know about the applications of astronomy

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1 - K5	CO1	Understand the origin of universe.
	CO2	Gain knowledge on astronomical objects
	CO3	Acquire knowledge on astronomical instruments
	CO4	Know about Indian Astronomy and Astronomers
	CO5	Realize various applications of astronomy

CAP

Sub. Code : 25CAP102

Programme Code: 03		B.Sc. Physics			
Title of the Paper		Stellar Evolution and Astronomical imaging			
Batch 2025-2026	Semester Odd	Hours/Week 2	Total Hours 30	Credits 2	Skill Development

Course Objectives

To enable the learners

1. To know about the calendar and constellations
2. To know about the stellar distances and stellar evolution
3. To know about the luminosity of stars and advanced astronomical imaging techniques

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1 - K5	CO1	Understand sky and calendar
	CO2	Get exposure to measure the distances in space
	CO3	Gain knowledge about the evolution of stars, their birth and decay
	CO4	Understand intensity of stars and their measurements
	CO5	Acquire knowledge on advanced imaging methods and analysis

CAP

Sub. Code : 25CNE101

Programme Code: 03		B.Sc. Physics			
Title of the Paper		Non-Conventional Energy sources and storage system			
Batch 2025-2026	Semester Odd	Hours/Week 2	Total Hours 30	Credits 2	Skill Development

Course Objectives

To enable the learners to

1. Understand various forms of non-conventional energy sources and ways to harness energy from these energy sources.
2. Have a broad understanding of scientific principles that underpin the operation of such systems.
3. Acquire knowledge on different types of energy storage systems.

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1 - K5	CO1	Know about the need of non-conventional energy
	CO2	Gain knowledge on solar and wind energy
	CO3	Acquire knowledge on Biomass, Wave, Tidal and Geothermal energy
	CO4	Understand MHD, Thermal and Hydrogen energy
	CO5	Acquire knowledge on different energy storage systems

Programme Code: 03		B.Sc. Physics			
Title of the Paper		Energy Management and Auditing			
Batch 2025-2026	Semester Odd	Hours/Week 2	Total Hours 30	Credits 2	Employability

Course Objectives

To enable the learners to

1. Understand the concepts and features of energy conservation.
2. Gain knowledge on energy management techniques.
3. Acquire knowledge on energy audit.

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1 to K5	CO1	Understand the concept of energy conservation.
	CO2	Know about energy management techniques.
	CO3	Gain knowledge on methodologies of energy audit.
	CO4	Acquire knowledge on material and energy balance.
	CO5	Understand the duties and responsibilities of energy manager and energy auditors.

CAP**Subject Code : 25CEI101**

Programme Code: 03		B.Sc. Physics			
Title of the Paper		Basic Electronic Instrumentation			
Batch 2025-2026	Semester Even	Hours/Week 2	Total Hours 30	Credits 2	Employability

Course Objectives

To enable the learners to

1. Understand the basic concepts of measurement and error analysis.
2. Get exposure to the knowledge on transducers and basic meters.
3. Understand the working of regulated power supply.

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1 to K5	CO1	Understand the concept of analog and digital measurement techniques
	CO2	Gain knowledge on accuracy of measurements and their error analysis
	CO3	Acquire knowledge on different type of transducers
	CO4	Acquire knowledge on different type of meters
	CO5	Understand the working of regulated power supply

CAP**Sub. Code : 25CEI102**

Programme Code: 03		B.Sc. Physics			
Title of the Paper		Modern Electronic Instrumentation			
Batch 2025-2026	Semester Even	Hours/Week 2	Total Hours 30	Credits 2	Employability

Course Objectives

To enable the learners to

1. Understand different types of display techniques.
2. Acquire knowledge on waveform generators and household wiring
3. Understand the function of Ardrino platform and Internet of Things

Course Outcomes (CO)

On successful completion of the course, the students will be able to

K1 to K5	CO1	Understand the different types of display techniques
	CO2	Gain knowledge on wave form generators
	CO3	Get exposure to modern house hold wiring techniques
	CO4	Acquire knowledge on Arduino software interface
	CO5	Understand the concept of Internet of Things