



IDHAYA COLLEGE FOR WOMEN, KUMBAKONAM

Programme: B.Sc. Physics

PO No.	Programme Outcomes upon completion of the B.Sc. Physics Degree Programme, the Graduates will be able
PO1	To inculcate appropriate logical skills to translate physical description in to mathematical forms.
PO2	To make available all learning methods of physics to enable the students become independent learners.
PO3	To impart Knowledge of basic concepts, laws and principles of various branches of Physics.
PO4	To Provide analytical skills to solve problems in Physics.
PO5	To describe Various aspects of Physical states through graphs and diagrams.

Semester I

S.No.	Course Code	Name of the Course	Course Outcomes
1.	22SCCPH1	Properties of Matter and Acoustics	<ul style="list-style-type: none"> ➤ To analyze the moduli of elasticity of materials. ➤ To acquire the knowledge of the flow of liquids. ➤ To understand the various characteristics of sound.
2.	22SCACMM1A	Calculus and Fourier Series	<ul style="list-style-type: none"> ➤ To solve first order and second order differential equations. ➤ To compute limits, derivatives and integrals. ➤ To understand the infinite series.
3.	22UGVED	Value Education	<ul style="list-style-type: none"> ➤ To develop a strong relationship with family and friends. ➤ To understand the critical thinking, research and Communication etc. ➤ To learn about Character, Citizenship, emotional and Spiritual
4.	22SCCPH1P	Properties of Matter	<ul style="list-style-type: none"> ➤ To know the elastic properties of structural materials.

			<ul style="list-style-type: none"> ➤ To acquire the experimental skills of verifying laws in Physics. ➤ To understand experimentally the vibrations of stretched strings.
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Semester II

S.No	Course code	Name of the Course	Course Outcomes
1.	22SCCPH2	Mechanics and Theory of Relativity	<ul style="list-style-type: none"> ➤ To explain the principles of projectiles. ➤ To gain a deeper knowledge of flow of liquids. ➤ To acquire the knowledge of mechanics and its fundamental concepts.
2.	22SCAMM1B	Algebra, Analytical Geometry (3D), Trigonometry	<ul style="list-style-type: none"> ➤ To solve simple linear equations. ➤ To learn about measure segments and angles. ➤ To demonstrate a basic understanding of complex numbers.
3.	22SCAMM1C	Ode, PDE, Laplace Transforms & Vector Analysis	<ul style="list-style-type: none"> ➤ To understand vector analysis and complex calculus. ➤ To acquire knowledge about vector fields, gradient, divergence. ➤ To gain knowledge about complex differentiation.
4.	22SCCPH2P	Practical II General Physics I	<ul style="list-style-type: none"> ➤ To know the techniques of handling laboratory instruments. ➤ To evaluate the experiments quantitatively and qualitatively. ➤ To acquire the skill of analyzing the properties of materials.
5.	22PELPS1	Professional English for Physical Sciences I	<ul style="list-style-type: none"> ➤ To learn about literary techniques and creative use of language. ➤ To develop professional format features. ➤ To understand how to critically analyze Data from research.
6.	22UGCES	Environmental Studies	<ul style="list-style-type: none"> ➤ To understand and evaluate the global scale of environmental problems.

			<ul style="list-style-type: none"> ➤ To learn about natural world works ➤ To understand how humans interacts with the environment.
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Semester III

S.No	Course code	Name of the Course	Course Outcomes
1.	22SCCPH3	Thermal Physics	<ul style="list-style-type: none"> ➤ To recall the different specific heat capacities of matters. ➤ To understand the Maxwell's thermo dynamic relations to relate the fundamental and derived quantities. ➤ To apply the knowledge of conduction of heat in practical applications.
2.	22SCCPH3P	General Physics II Practical	<ul style="list-style-type: none"> ➤ To realize practically some phenomena of Physics. ➤ To acquire the skill of handling instruments. ➤ To develop the observation and circuit drawing skills.
3.	22SCACCH1	Chemistry - I	<ul style="list-style-type: none"> ➤ To understand all the basic facts and concepts of inorganic and organic chemistry. ➤ To learn the atomic structure and basic concepts of organic chemistry like hybridization conjugation. ➤ To give an insight into all aspects of stereochemistry and to build a solid platform in this specific field.
4	22SNMECS2	Fundamentals of Information Technology	<ul style="list-style-type: none"> ➤ To understand basic concepts and terminologies in IT and IT-enabled services. ➤ To know about personal computers and their operations. ➤ To understand about operating systems and database management.
5.	22PELPS2	Professional English -II	<ul style="list-style-type: none"> ➤ To attend interviews with boldness and confidence. ➤ To adapt easily into the workplace context, having become communicatively competent. ➤ To develop strategic competence that will help in effective communication.

Semester IV

S.No	Course code	Name of the Course	Course Outcomes
1.	22SCCPH4	Electricity and Magnetism	<ul style="list-style-type: none"> ➤ To understand fundamental laws of electricity and magnetism. ➤ To analyze the calibration of electrical instruments. ➤ To verify the laws of electromagnetic induction.
2.	22SCCPH4P	General Electronics Practical	<ul style="list-style-type: none"> ➤ To analyze the electrical parameters of some electrical components. ➤ To carry out electrical experiments with better understanding. ➤ To calibrate some electrical instruments.
3.	22SCACCH2	Chemistry -II	<ul style="list-style-type: none"> ➤ To learn the nomenclature of organic molecules. ➤ To understand the chemistry of alkanes, alkenes, dienes and alkynes. ➤ To get a very good understanding of the basics of quantum chemistry.
4.	22SCNMECS2	Working Principles of Internet	<ul style="list-style-type: none"> ➤ To understand the evolution of the Internet. ➤ To acquire the basic knowledge of web. ➤ To comprehend the protocols and standards used throughout the Internet.
5.	22SCACH1P	Volumetric and organic Qualitative Analysis- Practical	<ul style="list-style-type: none"> ➤ To understand the use of volumetric pipette, burette and analytical balance. ➤ To prepare standard solution to find out the concentrations of unknown analyte. ➤ To learn the techniques of quantitative analysis of organic compounds.

Semester V

S.No	Course code	Title of the subject	Course Outcomes
1	22SCCPH5	Optics	<ul style="list-style-type: none"> ➤ To grasp the Fundamentals of Polarization and its Classification. ➤ To get the Knowledge about Interference and Holography. ➤ To understand the Working Principles of Optical instruments like Microscopes, Telescopes , Refract meters, etc.
2	22SCCPH6	Atomic and Molecular Physics	<ul style="list-style-type: none"> ➤ To learn about the Elements that made up an Atom. ➤ To enhance the Knowledge of Molecular Spectra. ➤ To provide a Detailed Study of Molecular Orbital Theories.
3	22SCCPH7	Electronics	<ul style="list-style-type: none"> ➤ To identify, Formulate and Solve Problems based on Combinational Circuits. ➤ To verify the Functions of Various Digital Integrated Circuits. ➤ To carry out the Project using Digital Integrated Circuit.
4	22SCCPH5P	Optics and Digital Electronics (Practical)	<ul style="list-style-type: none"> ➤ To obtain the Scope of the investigation as expected. ➤ To link a Process with help of the Outcomes of an Experiment. ➤ To develop the skill of experimenting collaboratively and ethically.
5	22SMBEPH1A	Solid State Physics	<ul style="list-style-type: none"> ➤ To find the crystal structure of materials applying their knowledge. ➤ To differentiate the bonding in solids and identify the defects prevalent in crystalline solids. ➤ To review the peculiar properties of superconducting materials and their implications.
6	22SSBEPH1	Electrical Wiring Fundamentals	<ul style="list-style-type: none"> ➤ To distinguish various types of Electrical Components. ➤ To recall the basic Principles of Electrical Wiring. ➤ To identify and rectify the defects in simple Electrical Circuits.

7	22UGSDC	Soft Skills Development	<ul style="list-style-type: none"> ➤ To communicate through verbal/oral communication and improve the listening skills. ➤ To become more effective individual through goal/target setting, self-motivation and practicing creative thinking. ➤ To perform effectively in multi-disciplinary and heterogeneous teams through the knowledge of team work, inter-personal relationships, conflict management and leadership quality.
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Semester VI

S.No	Course code	Name of the Course	Course Outcomes
1	22SCCPH8	Nuclear Physics	<ul style="list-style-type: none"> ➤ To gather advanced knowledge in Nuclear Physics. ➤ To explain the general properties of the Nucleus, Shell model and Collective model. ➤ To describe the working principles of Nuclear Detectors and Accelerators.
2	22SCCPH9	Theoretical Physics	<ul style="list-style-type: none"> ➤ To get familiarity with the foundation of Classical Mechanics. ➤ To develop Problem Solving Skills in Mechanics. ➤ To understand the basic formalism of Quantum Mechanics.
3	22SCCPH6P	Electronics, Microprocessor and 'C' Programming (Practical)	<ul style="list-style-type: none"> ➤ To perform few Technical Operations with Electronic equipments. ➤ To acquire the skill of verifying laws in Physics through Experiments. ➤ To realize the Applications of Electronic devices.
4	22SMBEPH2A	Microprocessor and 'C' Programming	<ul style="list-style-type: none"> ➤ To write, compile and debug programs in Assembly language. ➤ To develop algorithms for Arithmetic and Logical Problems and write Programs in Assembly and C language. ➤ To design Programs involving decision structures, loops, and Arrays.
5	22SPHPW	Project	<ul style="list-style-type: none"> ➤ To undergo projects and gain knowledge in the relevant field of study.

6	22SSBEPH2	Domestic Electrical Appliances and Measuring Instruments	<ul style="list-style-type: none"> ➤ To Identify the Defects in Electrical Appliances. ➤ To Rectify the Defects in the parts of Electrical Appliances. ➤ To Able to Design Prototypes of Simple Electrical Appliances.
7	22UGGS	Gender Studies	<ul style="list-style-type: none"> ➤ To make the students aware of feminine and masculine genders of strength and weakness. ➤ To develop sensitivity towards both genders in order to lead an ethically enriched life. ➤ To promote attitudinal change towards a gender balanced ambience, gender issues and women empowerment.

Programme: M.Sc. Physics

PO No.	Programme Outcomes upon completion of the M.Sc. Degree Programme, the Graduates will be able to
PO1	To apply the knowledge of physics to solve complex scientific problem.
PO2	To select, design and apply appropriate experimental techniques computational tools to solve the problem of physics.
PO3	To solve physics problems using quantitative and qualitative reasoning including sophisticated mathematical techniques.
PO4	To pursue research related to physics and material characterization.
PO5	To become professionally trained in the area of electronics, optical communications, nonlinear circuits.

Semester I

S.No	Course Code	Name of the Course	Course Outcomes
1.	P22PYCC11	Classical Mechanics	<ul style="list-style-type: none"> ➤ To understand about Lagrangian and Hamiltonian mechanics. ➤ To acquire the knowledge about variational calculus. ➤ To learn about the normal mode analysis and applications.
2.	P22PYCC12	Mathematical Physics	<ul style="list-style-type: none"> ➤ To acquire the knowledge about Mathematical skills. ➤ To learn about vector integration theorems. ➤ To understand about differential classical orthogonal polynomials.
3.	P22PYCC1A	Analog and Digital Electronics	<ul style="list-style-type: none"> ➤ To understand the basic principles of electronic devices. ➤ To learn about the application of Op-amp and IC 555 timer circuit. ➤ To design and analyze electronic circuits.
4.	P22PYE1A	Computational Physics with C++	<ul style="list-style-type: none"> ➤ To impart knowledge of Curve Fitting, Interpolation, Linear and Non Linear equations. ➤ To familiarize numerical integration and differentiation. ➤ To provide the knowledge of C++ language constructs.
5.	P22PYVAC1	Research Publication and Ethics	<ul style="list-style-type: none"> ➤ To understand about various publications. ➤ To learn Philosophy and Publication Ethics. ➤ To gain knowledge about open access publishing and Plagiarism tools.
6.	P22PYCC1P	General Physics and Electronics Practical I	<ul style="list-style-type: none"> ➤ To understand the different moduli using elliptical fringes. ➤ To gain knowledge of hydrogen spectrum. ➤ To understand analog and digital circuits.

Semester II

S.No	Course Code	Name of the Course	Course Outcomes
1.	P22PYCC21	Quantum Mechanics	<ul style="list-style-type: none"> ➤ To understand the foundation of Quantum Mechanics. ➤ To develop skills to solve Schrodinger's equations. ➤ To acquire knowledge about the theory of particles and spins.
2.	P22PYCC22	Electromagnetic Theory	<ul style="list-style-type: none"> ➤ To learn about fundamentals of electro and magneto statics. ➤ To understand Maxwell's equations, and scalar and vector potentials. ➤ To gain knowledge about application of dispersion and scattering of electromagnetic waves.
3.	P22PYCC2A	Advanced Mathematical Physics	<ul style="list-style-type: none"> ➤ To learn various mathematical concepts. ➤ To understand the techniques in vector space, groups. ➤ To learn functions of special types to solve physical problems.
4.	P22PYE2A	Microprocessor and Microcontroller	<ul style="list-style-type: none"> ➤ To learn about microprocessor and microcontrollers. ➤ To gain knowledge about assembly language programs ➤ To understand the configuration of electronic chips.
5.	P22PYCC2P	General Physics and Electronics I	<ul style="list-style-type: none"> ➤ To understand the different moduli using Hyperbolic fringes. ➤ To gain knowledge of thermal conductivity. ➤ To understand the characteristics of LED and photo diodes.
6.	P22CHNME1	Chemistry of Pollution, Food and Cosmetics	<ul style="list-style-type: none"> ➤ To understand about various pollutions. ➤ To acquire knowledge about constituents of food. ➤ To learn about evaluation of cosmetics.

Semester III

S.No	Course Code	Name of the Course	Course Outcomes
1	P22PYCC31	Thermodynamics and Statistical Mechanics	<ul style="list-style-type: none"> ➤ To calculate the thermo dynamical quantities, theoretically, using different methods. ➤ To construct partition function for a system in thermal equilibrium and calculate the corresponding thermo dynamical quantities. ➤ To apply Ensemble approach to solve classical and quantum thermodynamic systems.
2	P22PYCC32	Solid State Physics	<ul style="list-style-type: none"> ➤ To analyze the magnetic dielectric and optical properties of materials. ➤ To understand the peculiar properties of superconducting materials. ➤ To know new materials and their practical applications.
3	P22PYCC3A	Advanced Quantum Mechanics	<ul style="list-style-type: none"> ➤ To understand three approximation methods. ➤ To compute the correction in energy using the approximation technique. ➤ To apply the approximation method to the stationary state problem.
4	P22PYCC3P	Microprocessor and C++ Programming Practical	<ul style="list-style-type: none"> ➤ To understand three approximation methods. ➤ To compute the correction in energy using the approximation technique. ➤ To apply the approximation method to the stationary state problem.
5	P22PYEA	Physics of Nanomaterials.	<ul style="list-style-type: none"> ➤ To explain about the Nano-sized materials differ from bulk materials. ➤ To classify the synthesizing techniques suitable for different Nano-structured materials. ➤ To make use of the available instruments to study the properties of nanomaterials.
6	P22CHNME2	Chemistry in Day to Day Life	<ul style="list-style-type: none"> ➤ To acquire the fundamental concepts related to chemistry in daily life. ➤ To understand the importance of different types of commercial products for the environment. ➤ To apply the basic concepts of chemistry in the manufacture of commercial products for the society.

Semester IV

S.No	Course Code	Name of the Course	Course Outcomes
1	P22PYCC41	Crystal growth and Thin Film Physics	<ul style="list-style-type: none"> ➤ To understand the various techniques of crystal growth. ➤ To acquire knowledge in the fields of thin films. ➤ To gain knowledge of thin film preparation processes through physical and chemical methods.
2	P22PYCC42	Nuclear and Particle Physics	<ul style="list-style-type: none"> ➤ To know the ground state of deuteron and the nature of nuclear forces. ➤ To understand the nuclear models. ➤ To appreciate the theory behind the nuclear decay process.
3	P22PYIBC	Analytical Characterization Technique	<ul style="list-style-type: none"> ➤ To understand the various processes of structural characterizations. ➤ To realize how to use the instruments practically and theoretically. ➤ To understand spectral, optical, and thermal characterizations.
4	P22PYPW	Project Work	<ul style="list-style-type: none"> ➤ To accomplish individually and to obtain their attributes regarding the project. ➤ To choose methods, tools and make decisions throughout the entire project. ➤ To gain knowledge in crystal growth and nano materials.
5	P22PYVAC2	Medical Instrumentation	<ul style="list-style-type: none"> ➤ To learn modern methods of imaging techniques and their analysis. ➤ To explain the medical assistance/techniques and therapeutic equipments. ➤ To recognize the significance of biomedical instrumentation field of study.