


COURSE OUTCOMES OF UNDERGRADUATE PROGRAMMES (2019 ONWARDS)

Name of the Programme: B.Sc PHYSICS

Course Code	Course Title	Course Outcome	
SEMESTER - I			
21UPH01	PROPERTIES OF MATTER AND ACOUSTICS	CO1	Define the fundamentals of elasticity and torsion effects.
		CO2	Demonstrate the practical concepts of bending of beams through experimental setup and solve associated problems.
		CO3	Categorize the nature of liquid flow and apply the laws of fluid dynamics in terms of viscosity and surface tension using mathematical tools.
		CO4	Analyze the universal behavior of wave motion and Doppler effect.
		CO5	Explore the production and application of ultrasonic waves and develop the knowledge of architectural acoustics.
20UPES01	PROFESSIONAL ENGLISH FOR PHYSICAL SCIENCE - I	CO1	Listening to audio text and answering questions - Listening to Instructions
		CO2	Skimming/Scanning- Reading passages on products, equipment and gadgets.
		CO3	Listening to interviews of specialists / Inventors in fields (Subject specific)
		CO4	Reading Comprehension passages
		CO5	Motivational article on Professional Competence, Professional Ethics and Life Skills)
SEMESTER - II			
		CO1	The students would learn about the behaviour of physical bodies it provides the basic concepts related to the motion of all the objects around us in our daily life.
		CO2	The course builds a foundation of various applied field in science and technology; especially in the field of mechanical engineering

21UPH02	MECHANICS	<table border="1"> <tbody> <tr> <td data-bbox="750 70 909 188">CO3</td> <td data-bbox="909 70 2172 188">The course comprises of the study vectors, laws of motion, momentum, energy, rotational motion, gravitation, fluids, elasticity and special relativity.</td> </tr> <tr> <td data-bbox="750 188 909 306">CO4</td> <td data-bbox="909 188 2172 306">Gain knowledge about some simple terms such as range, projectile, time of flight, angle of projection etc.,</td> </tr> <tr> <td data-bbox="750 306 909 424">CO5</td> <td data-bbox="909 306 2172 424">Acquire skills about the characteristics of SHM and its applications such as Lissajou's figure in many fields like calico printing and other industries</td> </tr> <tr> <td data-bbox="750 424 909 542">CO6</td> <td data-bbox="909 424 2172 542">Calculate the centre of gravity for different forms of bodies such as solid cone, solid hemisphere, hollow hemisphere and tetrahedron.</td> </tr> <tr> <td data-bbox="750 542 909 603">CO7</td> <td data-bbox="909 542 2172 603">Explain the concept of centre of pressure for bodies immersed in the fluid</td> </tr> </tbody> </table>	CO3	The course comprises of the study vectors, laws of motion, momentum, energy, rotational motion, gravitation, fluids, elasticity and special relativity.	CO4	Gain knowledge about some simple terms such as range, projectile, time of flight, angle of projection etc.,	CO5	Acquire skills about the characteristics of SHM and its applications such as Lissajou's figure in many fields like calico printing and other industries	CO6	Calculate the centre of gravity for different forms of bodies such as solid cone, solid hemisphere, hollow hemisphere and tetrahedron.	CO7	Explain the concept of centre of pressure for bodies immersed in the fluid		
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CO4	Apply the phenomenon of interference and the concept of refractive index with the use of suitable optical set up.
CO5	Explain the age and origin of the solar system and illustrate the differences between Earth and other planets in the Solar System

SEMESTER - III

19UPH03	PROPERTIES OF MATTER AND SOUND	CO1	Define the fundamentals of elasticity and torsion effects.
		CO2	Demonstrate the practical concepts of bending of beams through experimental setup and solve associated problems.
		CO3	Categorize the nature of liquid flow and apply the laws of fluid dynamics in terms of viscosity and surface tension using mathematical tools.
		CO4	Analyze the universal behavior of wave motion and Doppler effect.
		CO5	Explore the production and application of ultrasonic waves and develop the knowledge of architectural acoustics.

SEMESTER - IV

19UPH04	OPTICS	CO1	Illustrate the concept of dispersion, aberration in prism and light propagation in optical fibers.
		CO2	Explore the theoretical and practical ideas of interference.
		CO3	Analyze and apply the knowledge of diffraction in the laboratory experiments.
		CO4	Comprehend the resolution of optical instruments and analyze the resolving power of prism and grating.
		CO5	The students learnt the essential physical aspects of the phenomenon of waves , polarisation, interference and diffraction.




19UPHP02	MAJOR PRACTICAL - II	CO1	The students learnt the basic properties
		CO2	Analyze the laws of resistance using Potentiometer, P.O. box and Carey Foster's bridge and calibration of low range voltmeter using potentiometer.
		CO3	Determine the refractive index of material of lens, prism and to infer the wavelength of mercury vapour lamp.
		CO4	Apply the ballastic galvanometer to determine figure of merit and charge sensitivity to observe field along axis of a coil
		CO5	Strengthen the idea of electrical heating using Joules calorimeter

SEMESTER - V

19UPH05	ELECTRICITY AND MAGNETISM	CO1	Recognize basic terms in electricity and magnetism
		CO2	Acquire knowledge on the fundamentals of capacitors, evaluate the characteristics effect of a dielectric material in a capacitor. Develop, design and experiment with various dielectric circuits.
		CO3	Using the basic laws that underlie in the properties of electric circuit elements and various network theorems to solve problems
		CO4	Understand the laws of electrostatics and magnetostatics
		CO5	Apply theorems to construct and solve electrical circuits.
		CO1	Assess the basic idea about semiconductors and their energy band diagrams



19UPH06	BASIC ELECTRONICS	CO2	Analyze the concept of semiconductor devices, their working and applications
		CO3	Formulate the construction and applications of FET, JFET, SCR and UJT
		CO4	They are able to understand the concept of programmable devices, D.C. and A.C. network.
		CO5	concept for the design of regulators and amplifiers and implement many projects based on concept of electronic circuit..
		CO6	Students are able to understand the concepts of Amplifiers and oscillators, their types and uses in different applications
19UPHE01	ELECTIVE - MATHEMATICAL PHYSICS AND NUMERICAL METHODS	CO1	The student will be able to derive numerical methods for approximating the solution of problems of continuous mathematics
		CO2	Analyse the error incumbent in any such numerical approximation
		CO3	Implement a variety of numerical algorithms using approximate technology
		CO4	problems arising in roots of solution of non-linear equations, interpretation and approximation, numerical differentiation and integration, solution of linear
		CO5	concepts and techniques to solve the problems in theoretical and experimental physics
19UPHE02	 ELECTIVE - SOLID	CO1	symmetries and understand the relationship between the real and reciprocal space and learn the Bragg's X-ray diffraction in crystals.
		CO2	The course Provides practical knowledge of various physical phenomena such as: magnetism, dielectrics, ferroelectrics and semiconductors.
		CO3	Students would gain a hands-on learning experience by performing experiments on these properties of materials.
		CO4	Explain the concept of bonding of atoms and forces acting between them.

19UPHS02	STATE PHYSICS	CO5	Analyze the knowledge of production and properties of ceramics and polymers to synthesis of novel materials.
		CO6	Evaluate the fundamentals of dielectric polarization mechanisms and apply it in problem solving.
		CO7	Understand the basic properties of metals, insulators and semiconductors and their technological applications
		CO8	Outline the importance of solid state physics in the modern society
19UPHS03	SBEC - BIO - MEDICAL INSTRUMENTATION	CO1	Recognize the technical vocabulary associated with biomedical Instrumentation
		CO2	Understand the uses of various instruments in medicine.
		CO3	Understand the canonical structure of biomedical instrumentation systems
		CO4	Review the static and dynamic performance characteristics for instrumentation systems.
		CO5	Understand the problem and the ability to identify the necessity of equipment to a specific problem
19UPHS04	SBEC - DIGITAL ELECTRONICS	CO1	Demonstrate the various digital electronic circuits like flip flops, shift registers and counters.
		CO2	Students are able to understand different number systems and their conversion.
		CO3	Students are able to understand different number systems and their conversion.
		CO4	Be familiar with the basic concepts of construction and working of electronic devices and optical fibers



CO5	Evaluate the mathematical operation and the applications of linear and non-linear wave shaping circuits.
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SEMESTER - VI

19UPH07	ATOMIC PHYSICS	CO1	Acquire knowledge of the fundamental physics underpinning atomic physics
		CO2	Understand the concepts and potential applications of atomic physics
		CO3	Apply general considerations of quantum physics to atomic system
		CO4	Analyse production and decay reactions for fundamental particles
		CO5	The student will be able to, The structure and dynamics of atoms and simple molecules.
			The interaction between atoms, molecules and electromagnetic fields.
19UPH08	NUCLEAR PHYSICS	CO1	fundamental aspects of the structure of the nucleus, perform basic calculations using the models to derive the observed stable nuclei.
		CO2	Explain the operation of the technical components and diagnose accelerating methods, explain limitations of different types of accelerators
		CO3	This course has led the students to assess interaction of various types of radiation with matter evaluate their occurrence in their daily life.
		CO4	Acquiring skills in analyzing, interpreting radiation spectra and communicating the result of such investigation in writing.
		CO5	compound nuclear dynamics. Account for fission and fusion processes of the reactors.



		CO6	Classify elementary particles and nuclear states in terms of their quantum numbers, develop and communicate analytical skills in subatomic physics
19UPH09	QUANTUM MECHANICS AND RELATIVITY	CO1	Quantum mechanics provides a platform for the physicists to describe the behaviour of matter and energy at atomic and subatomic level.
		CO2	The course plays a fundamental role in explaining how things happen beyond our normal observations
		CO3	potential, quantum theory of H like atoms, atoms/molecules in electric and magnetic fields.
		CO4	Various practical problems solving methods related to Quantum Mechanics would be learned by students.
		CO5	Evaluate the physical interpretation of wave function, analyse time dependent and independent Schrodinger wave equation devise it for simple potential well
		CO6	Newtons laws of motion and special theory of relativity. The students studied the use of sextant for measuring heights of tower and buildings.
		19UPHE06	ELECTRONICS AND COMMUNICATION
CO2	Let describes the demodulation in the different types of receivers and its block diagrams.		
CO3	Students know lots of knowledge about television and its development to develop their practical skills		
CO4	Can explain RADAR transmitting systems, antennas, receivers and basics of satellites		
CO5	Students know what digital communication is and get some ideas about how to develop communication systems.		
CO1	terminology related to principles and measurements of various types of transducers and sensors.		




19UPHS05	SBEC - BASIC OF ELECTRICITY & APPLIANCES	CO2	The student will be able to Students shall learn about the significance of elggtric components.
		CO3	Significance of various devices and how they will operate
		CO4	It will teach the students about the circuit connection
		CO5	About the graphical relationship of resistance, capacitor and inductor.
19UPHS06	MICROPROCESSOR AND ITS APPLICATIONS	CO1	Formulate interfacing of 8085 using programmable peripheral interface and its applications.
		CO2	Evaluate the basic architecture, pin configuration and interrupts of 8085 microprocessor system.
		CO3	Analyze the design and coding knowledge on 8085 microprocessor family.
		CO4	Student will be able to run 8085 Microprocessor based system. they learnt design systems using memory chips and peripheral chips for 8085 microprocessor.
		CO5	Basic ideas on microprocessor, memory and I/O devices
19UPHP03	MAJOR PRACTICAL -III	CO1	Analyze earth's magnetic field and magnetisation using vibration magnetometer
		CO2	Demonstrate knowledge of the fundamental concepts of electricity and electromagnetism acquire hands on experience about measuring device
		CO3	Assess the principles of reflection, refraction, diffraction, interference and superposition of waves.
		CO4	Substantiate the results to various physical phenomena leading to update in field of geometrical optics.





		CO5	Acquire problem solving skills and to create more problems based on physical concepts
19UPHP04	MAJOR PRACTICAL -IV	CO1	Assess and solve basic binary math operations using the operational amplifier. Develop design competence in linear and nonlinear opamp circuit analysis.
		CO2	Define the primary functions of 8085 ALP and basic principles of C programming
		CO3	Understand the theoretical concepts and their physical significance
		CO4	Apply the theory to find the solutions of practical problems
		CO5	Analyze the problem studied through analytical calculation

COURSE OUTCOMES OF POST GRADUATE PROGRAMMES (2019 ONWARDS)

Name of the Programme: M.Sc. PHYSICS

Course Code	Course Title	Course Outcome	
SEMESTER - I			
		CO1	mathematical formulations to describe the motions of macroscopic objects using generalized coordinates, momentum, forces and energy.
		CO2	The classical mechanics would be helpful in understanding of advanced branches of modern physics.


21PPH01	CLASSICAL MECHANICS THERMODYNAMICS AND STATISTICAL MECHANICS	CO3	distribution to ideal gases, imperfect gases, quantum statistics and black body radiation
		CO4	The course is helpful for the students to understand the dynamics of the bulk material in macroscopic as well as microscopic levels
		CO5	. It is also useful to understand the relation between microscopic and macroscopic systems.
		CO6	Illustrate the Statistical laws of thermodynamics and relate it to the study of Condensed Matter Physics
21PPH02	MATHEMATICAL PHYSICS	CO1	Students would be able to understand the mathematical methods essential for solving the advanced problems in physics.
		CO2	concepts and techniques to solve the problems in theoretical and experimental physics
		CO3	and development as it serve as a tool in almost every branch of science and engineering.
		CO4	problems arising in roots of solution of non-linear equations, interpretation and approximation , numerical differentiation and integration, solution of linear
		CO5	Basic and advanced mathematical tools required for Physics Problems
		CO6	Different Techniques to solve differential and integral equations
		CO7	Various special functions and important transforms and their applications
		CO1	Explain the classical concepts of Newtonian laws to mechanical systems through the use of intense mathematical and problem solving skills.
		CO2	Explain the historical aspects of development of quantum mechanics and the differences between classical and quantum mechanics.

21PPH03	ELECTRONICS	CO3	Formulate the idea of wave function and interpret the fundamental concepts of uncertainty relations.
		CO4	Demonstrate an understanding of the basic principles of Special and General theory of relativity
		CO5	Explain the true nature of Newtonian mechanics and Lorentz Transformation equations.
		CO6	Students are able to understand the concepts of Amplifiers and oscillators, their types and uses in different applications
		CO7	Be familiar with the basic concepts of construction and working of electronic devices and optical fibers
		CO8	Apply the knowledge to understand the working of amplifiers, oscillators and multivibrators
21PPHE01	ELECTIVE - MICROPROCESSORS AND MICROCONTROLLERS	CO1	Student will be able to run 8085 Microprocessor based system. they learnt design systems using memory chips and peripheral chips for 8085 microprocessor.
		CO2	Be familiar with the basic concepts of microprocessor architecture and interfacing
		CO3	To impart skills in the programming instruction sets of microprocessor
		CO4	Apply the programming instructions to perform simple programs using microprocessor
		CO5	Finding solution for real time applications
		CO1	Demonstrate the use of mathematical software and solve simple mathematical problems.
		CO2	Explain the needs of hardware and software required for a computation task.

21PCSED2	EDC- FUNDAMENTALS OF COMPUTRES AND COMMUNICATIONS	CO3	State typical provisions of cyber law that govern the proper usage of Internet and computing resources.
		CO4	Explain the working of important application software and their use to perform any engineering activity.
		CO5	Demonstrate the use of Operating system commands and shell script.

SEMESTER - II

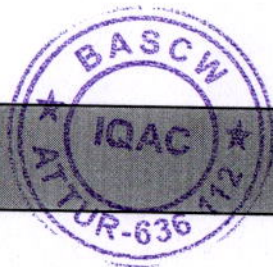
21PPH04	THEORY OF SEMICONDUCTOR DEVICES	CO1	Describe the properties of materials and application of semiconductor electronics
		CO2	Apply the knowledge of semiconductors to illustrate the functioning of basic electronic devices.
		CO3	Demonstrate the switching and amplification application of the semiconductor devices.
		CO4	Demonstrate the control applications using semiconductor devices.
		CO5	Identify the fabrication methods of integrated circuits.
		CO6	Classify and describe the semiconductor devices for special applications.

21PPH05	 QUANTUM MECHANICS	CO1	Recognize basic terms in Quantum Mechanics.
		CO2	Understand the basic principles of quantum particles
		CO3	Apply basics to construct and solve one particle equations

		CO4	Ability to design and construct particle equations in the free and bound states as well as to analyze and interpret the results
		CO5	To understand the fundamentals and concepts in operator formalism
21PPH06	COMPUTATIONAL PHYSICS AND C++ PROGRAMMING	CO1	Student will be able to run 8085 Microprocessor based system. they learnt design systems using memory chips and peripheral chips for 8085 microprocessor.
		CO2	Be familiar with the basic concepts of microprocessor architecture and interfacing
		CO3	To impart skills in the programming instruction sets of microprocessor
		CO4	Apply the programming instructions to perform simple programs using microprocessor
		CO5	Finding solution for real time applications
21PPE02	ELECTIVE - NANO PHYSICS	CO1	Apply engineering and physics concepts to the nano-scale and non-continuum domain.
		CO2	Identify and compare state-of-the-art nanofabrication methods
		CO3	Formulate appropriate tools for measurements of relevant physical properties
		CO4	Discuss and evaluate state-of-the-art characterization methods for nanomaterials
		CO5	Acquire the knowledge in applications of nanotechnology in various fields
		CO6	Compute the various techniques for growing nanomaterials and apply to interdisciplinary research.



21PPHP01	PRACTICAL - GENERAL PHYSICS EXPERIMENTS	CO1	Interferometers for various uses, practical handling of Lasers and their applications, study of GM characteristics
		CO2	Learning to use transducers and sensor in practical circuits
		CO3	Practical knowledge of radiation sources.
		CO4	These practical papers make the student familiar with General physics experiments like Cornu's method, Quincke's method, Photoelectric effect etc.
		CO5	Practical knowledge of various spectroscopic methods such as IR, Raman, Fluorescence, Ellipsometry, UV/Vis etc
21PPHP02	PRACTICAL - II - ELECTRONICS EXPERIMENTS	CO1	Assess the knowledge circuit connection, Understanding the current voltage characteristics of semiconductor devices.
		CO2	Design and analyze of electronic circuits, evaluate frequency response to understand behavior of analog electronics circuits
		CO3	Assess and solve basic binary math operations using the operational amplifier. Develop design competence in linear and nonlinear opamp circuit analysis.
		CO4	Design, development and testing of electronic circuits with OP amps, discrete electronic components and integrated circuit chips
		CO5	Designing amplifier, oscillator, and wave shaping circuits for defined specifications.
			Designing electronic filters and understanding phase sensitive lockin detection technique.
SEMESTER - III			
		CO1	electrical charge physical principles to solve problems encountered in everyday life.



19PPH07

ELECTROMAGNETIC
THEORY

CO2	Experiment various methods to evaluate electric potential, analyze, apply thermoelectric energy harvesting techniques.
CO3	Identify and apply Ampere's law and to relate to the force in magnetic field measurements.
CO4	Analyze the magnetic effect of electric current and demonstrate the associated concepts with ballistic galvanometer.
CO5	Demonstrate the practical concepts of magnetic induction through experimental setup.
CO6	Analyze the growth and decay of transient currents through mathematical techniques
CO7	Students are made to understand the fundamental properties of electric charge, solve numerical problems of electrostatic force, calculating the magnitude and direction of magnetic field.
CO8	Illustrate the practical purposes of alternating current and the related laws.
CO9	Apply vector calculus to study the behavior of electric and magnetic fields in various media.

19PPH08

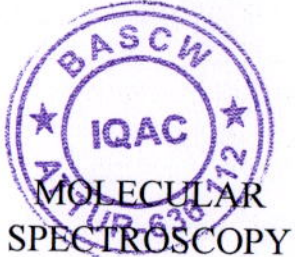
COMPUTATIONAL
METHODS AND
PROGRAMMING

CO1	Students will learn the ideas of ODE and Partial Differential Equations(PDEs) and their applications,
CO2	Boundary value problems and its application to quantum mechanical problems
CO3	Green's function and relation to Kramers Kronig relation to find optical response in solids
CO4	Theory of dielectric polarisation and applications.



		CO5	Different numerical methods, solving boundary value problem and solving with Fourier transform,
19PPH09	QUANTUM MECHANICS - II	CO1	Recognize basic terms in Quantum Mechanics.
		CO2	Understand the basic principles of quantum particles
		CO3	Apply basics to construct and solve one particle equations
		CO4	Ability to design and construct particle equations in the free and bound states as well as to analyze and interpret the results
		CO5	To understand the fundamentals and concepts in operator formalism
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		CO2	Identify and compare state-of-the-art nanofabrication methods
		CO3	Formulate appropriate tools for measurements of relevant physical properties
		CO4	Discuss and evaluate state-of-the-art characterization methods for nanomaterials
		CO5	Acquire the knowledge in applications of nanotechnology in various fields
		CO6	Compute the various techniques for growing nanomaterials and apply to interdisciplinary research.
		CO1	Distinguish between conductors, nonconductors and semiconductors based on energy band theory and classify different types of semiconductors.



19PPHED1	EDC - ELECTRONIC APPLIANCES	CO2	Demonstrate and explain electrical components, electrical circuits and DC network theorems.
		CO3	Compute different parameters for characterizing different circuits like rectifiers, regulators etc. using diodes and BJTs.
		CO4	Apply the knowledge of series, parallel and electromagnetic circuits.
		CO5	bands in solids, absorption and emission spectra, luminescence and types, basic working principle and characteristics of light detectors.
		CO1	Apply the knowledge acquired and demonstrate programming proficiency using the various addressing modes and data transfer instructions of the target
19PPHP03	MICROPROCESSOR, MICROCONTROLLER AND PROGRAMMING EXPERIMENTS	CO2	learn assembly language programming and arithmetic
		CO3	execute. They will also be exposed to practical implementation of numerical methods in programming.
		CO4	Study the Organization and internal architecture of the Intel 8085,
		CO5	segment LED displays,; Temperature measurement and control using a microprocessor etc
		CO1	List the basic ideas in image formation and the defects involved
19PPH10		CO2	Understand the central concepts and basic formalisms of interference, diffraction, polarisation and basics of spectroscopy.
		CO3	Use of tools needed to formulate problems in optics and spectroscopy
		SEMESTER - IV	

		CO4	Gain Fundamental knowledge in lasers, holography and Raman effect
		CO5	To impart knowledge related to the concepts of spectroscopy
19PPH11	NUCLEAR AND PARTICLE PHYSICS	CO1	The students learnt the basic properties of atomic and nuclear physics, Gamow theory, Alpha and Beta decay, and main aspects of quantum mechanics?.
		CO2	Basic properties of nucleus, its structure and different models that explain the behavior and characteristics.
		CO3	Bound state of deuteron by scattering theory
		CO4	Types of nuclear reactions and conservation laws, reaction mechanisms
		CO5	Basic particle physics, conservation laws C, P, T invariance and relativistic kinematics
19PPH12	COMMUNICATION ELECTRONICS	CO1	Physics plays a role in all forms of communications technology.
		CO2	Learn how physics applies to communications technology by reviewing forms of communication, exploring analog signals and electromagnetic waves, and examining digital signals and electrons.
		CO3	An analog signal in physics is just a wave.
		CO4	There are lots of types of waves, but for communication most of the important ones are part of the electromagnetic spectrum
		CO5	The electromagnetic spectrum includes light, radio waves, microwaves, infrared, ultraviolet, x-rays and gamma rays.
		CO1	Apply the techniques of crystal growth in research.




19PPHE06	ELECTIVE - MATERIAL SYNTHESIS AND CHARACTERIZATION	CO2	List out the different kinds of mechanical behavior of materials
		CO3	Classify the different types of semiconducting materials
		CO4	Compare the various non destructive methods of testing materials
		CO5	Identify the factors affecting mechanical properties of materials.

SEMESTER - I

19UPHA01	ALLIED PHYSICS-I	CO1	Analyze the behavior of sound waves and fundamental concepts of mechanics.
		CO2	Demonstrate the elastic behavior of matter and the basic concepts of surface tension of a fluid.
		CO3	Apply the fundamental thermodynamic properties and the associated laws to understand physical systems.
		CO4	Illustrate the effects of electric and magnetic fields
		CO5	Explore the importance of the laws of refraction and reflection of visible light.



SEMESTER - II

19UPHA02	ALLIED PHYSICS-II	CO1	Explain the theory and experimental ideas of interference and diffraction to physical problems.
		CO2	Discuss the applications of lasers and its types
		CO3	Apply the utility of nuclear fission and fusion and associated nuclear reactions.
		CO4	Outline the concepts of relativity and postulates of wave mechanics to the solving of potential problems
		CO5	Analyze the characteristics of devices like PNP and NPN diodes and truth tables of different logic gates.
19UPHAP01	ALLIED PHYSICS PRACTICAL - I	CO1	Demonstrate the elastic nature of materials by static torsion, torsion pendulum and young's modulus methods.
		CO2	Apply the concept of surface tension of liquid by drop weight method and determine the frequency of the given object.
		CO3	Explore the phenomena of diffraction and interference using optical experiments.
		CO4	Demonstrate the calibration of voltmeter and ammeter by potentiometer and BH using deflection magnetometer
		CO5	Analyze and design various digital electronic circuits.
SEMESTER - III			
		CO1	Electricity is one of the most important blessings that science has given to mankind
		CO2	Electricity has many uses in our day to day life

19UPHN01	NMEC - ESSENTIAL OF ELECTRICITY	CO3	Essential items like food, cloth, paper and many other things are the product of electricity
		CO4	Modern means of transportation and communication have been revolutionised by it
		CO5	Electricity plays a pivotal role in the field of medicines and surgery

SEMESTER - IV

19UPHN02	NMEC - PHYSICS IN EVERYDAY LIFE	CO1	Physics extends well into your everyday life, describing the motion, forces and energy of ordinary experience
		CO2	Application of physics in everyday life are numerous
		CO3	Physics in our everyday life activities such as walking, listening, cutting, cooking
		CO4	Today we find applications of physics in invention such as mobile phones, computer applications, game consoles, DVD players etc.
		CO5	For example medical tools, such as X-rays or laser operations
19PPHPR1	M.Sc PROJECT	CO1	The Students will gain experience in research
		CO2	They will understand their research methodology and will help them in the future research carrier
		CO3	Have advance ideas and techniques required in frontier areas of physics
		CO4	The experimental techniques required for carrier in academic and industry



COURSE OUTCOMES OF POST GRADUATE PROGRAMMES (2019 ONWARDS)

Name of the Programme: M.Phil. PHYSICS

Course Code	Course Title	Course Outcome	
SEMESTER			
18DMPPH01	SCIENTIFIC RESEARCH AND METHODOLOGY	CO1	Understand the Aim and Motivation scientific research
		CO2	Analyse the statistical description of data
		CO3	Perform procedure for computer oriented numerical methods
		CO4	Understand the meaning of probability and correction analyses
		CO5	Perform procedure for regression analysis
18DMPPH02	ADVANCED PHYSICS	CO1	Understand the structural analysis by X-Ray and Spectroscopic techniques
		CO2	study the optical and electrical characterization by using SEM,TEM,AFM,Two probe, four probe, Hall effect
		CO3	study the thermal analyses using TGA, TDA method



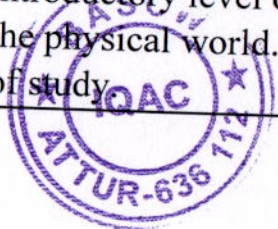
		CO4	study the compositional Analyses by using AAS,AES, FLAME,ICP- AES
		CO5	Study the vacuum techniques by using kinetic theory of gases
19DMPPHE07	MATERIAL SCIENCE	CO1	Analyse the thermodynamics of crystal growth
		CO2	Study the method of crystal growth from solution
		CO3	Study the method of crystal growth from melt
		CO4	Study the other crystal growth techniques
		CO5	Perform the analysis and characterization of crystals



DEPARTMENT OF PHYSICS

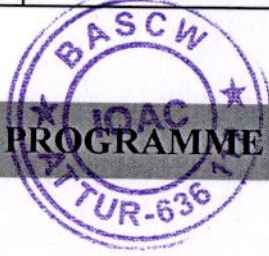
PROGRAMME OUTCOMES OF UNDERGRADUATE PROGRAMMES (2019 ONWARDS)

Name of the Programme: B.Sc PHYSICS	
PO1	To promote and apply scientific knowledge for finding sustainable solution to solve the issues pertaining to the society/Industry.
PO2	The Professional English for Physical Science Communication Skills Course is intended to help Learners in Arts and Science colleges
PO3	Identify, Analyse and formulate novel ideas to yield, substantial results in the fields of research utilizing the principles of Physical and Biological Science.
PO4	The ability to synthesize the acquired knowledge , understanding and experience for a better 2UGC Document on LOCF Physics and improved comprehension of the physics problems in nature and to create new skills and tools for their possible solutions
PO5	Develop the ability to apply the knowledge acquired in the classrom and laboratories to specific problems in theoretical and experimental Physics.
PO6	Learn, design and perform experiments in the labs to demonstrate the concepts, principles and theories learned in the classrooms
PO7	To emphasize the importance of Physics as the most important discipline for sustaining the existing industries and establishing new ones to create job opportunities at all levels of employment
PO8	Relate key concepts and scientific principles to various scientific phenomenon and their applications in day-to-day life.
PO9	Graduate will be able to demonstrate and understand the physical concepts appropriate to introductory level of physics by connecting the terms, tools and technique something embedded in the physical world. They can also apply scientific and technical knowledge and disciplines and areas of study.



PROGRAMME SPECIFIC OUTCOMES OF UNDERGRADUATE PROGRAMMES (2019 ONWARDS)

Name of the Programme: B.Sc PHYSICS	
PSO1	They can also apply scientific and technical knowledge and disciplines and areas of study.
PSO2	Students will demonstrate proficiency in mathematics and the mathematical concepts needed for a proper understanding of physics.
PSO3	Students will demonstrate knowledge of classical mechanics, electromagnetism and modern physics and be able to apply this knowledge to analyze a variety of physical phenomena.
PSO4	Students will show that they have learned skills, enabling them to take measurements in a physics laboratory and analyze the measurements to draw valid conclusions.
PSO5	Students will be capable of oral and written scientific communication and will prove that they can think critically and work independently.
PSO6	Understanding the core concept of physics subjects
PSO7	Acquire analytical and logical skill for higher Education
PSO8	Excel in Experimental and theoretical Physics
PSO9	Communicate explicitly and exchange ideas with regard to theoretical and experimental aspects, the impacts of Physics on environment and society.
PSO10	Apply reasoning, informed by the contextual knowledge to access societal, health, safety, legal, ethical and cultural issues and consequent responsibilities relevant to Physics.



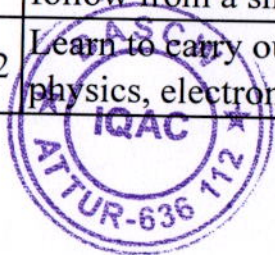
PROGRAMME OUTCOMES OF POSTGRADUATE PROGRAMMES (2019 ONWARDS)

Name of the Programme: M.Sc PHYSICS

PO1	The Master of Science in Physics program provides the candidate with knowledge, general competence, and analytical skills on an advanced level, needed in industry, consultancy, education, and research.
PO2	Apply the knowledge and skill in the design and development of Electronics circuits to fulfill the needs of Electronic Industry
PO3	Become professionally trained in the area of electronics, optical communication, nonlinear circuits, materials characterization and lasers.
PO4	Pursue research related to Physics and Materials characterization.
PO5	Demonstrate highest standards of Actuarial ethical conduct and Professional Actuarial behavior, critical, interpersonal and communication skills as well as a commitment to life-long learning.
PO6	Learned advanced condensed matter physics and material science
PO7	Learned advanced computing methods required for basic sizes as well as industrial applications
PO8	Pursue research carrier in any branch of physics

PROGRAMME SPECIFIC OUTCOMES OF POSTGRAGUATE PROGRAMMES (2019 ONWARDS)**Name of the Programme: M.Sc PHYSICS**

PSO1	Understanding the basic concepts of physics particularly concepts in classical mechanics, quantum mechanics, electrodynamics and electronics to appreciate how diverse phenomena observed in nature follow from a small set of fundamental laws,.
PSO2	Learn to carry out experiments in basic as well as certain advanced areas of physics such as nuclear physics, electronics and lasers.



PSO3	A research oriented learning that develops analytical and integrative problem-solving approaches.
PSO4	Acquire analytical and logical skill for higher Education
PSO5	Students will demonstrate proficiency in mathematics and the mathematical concepts needed for a proper understanding of physics.
PSO6	Understanding the core concept of physics subjects
PSO7	Formulate the expertise in various domains of Physics acquired through the knowledge of experimental principles to demonstrate, innovate, design and develop the skills towards the futuristic needs of the industry/society.
PSO8	Understand and apply mathematical tools required for describing and understanding physical systems

PROGRAMME OUTCOMES OF MASTER OF PHILOSOPHY PROGRAMMES (2019 ONWARDS)

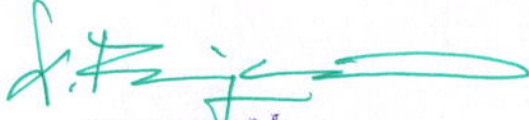
Name of the Programme: M.Phil PHYSICS	
PO1	Thorough and up-to-date knowledge in the disciplines of their choice at the forefront of a particular field.
PO2	The ability to critically evaluate information and ideas and apply multiple perspectives.
PO3	The potential to demonstrate effective strategies and methodologies applicable to specific educational domain.
PO4	Adequate skills for competent problem solving
PO5	Evaluate one's own research in relation to important and recent issues in their specialised field.
PO6	Proficiency to communicate research findings at diverse levels.
PO7	To promote and apply scientific knowledge for finding sustainable solution to solve the issues pertaining to the society/Industry.
PO8	Identify, Analyse and formulate novel ideas to yield, substantial results in the fields of research utilizing the principles of Physical and Biological Science.

PO9	Relate key concepts and scientific principles to various scientific phenomenon and their applications in day-to-day life.
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GRAMME SPECIFIC OUTCOMES OF MASTER OF PHILOSOPHY PROGRAMMES (2019 ONWA

Name of the Programme: M.Phil PHYSICS	
PSO1	Understand the mysteries of nature in terms of the fundamental principles, hypotheses and laws of physics.
PSO2	Inculcate logical reasoning among the students and help them develop such skills as to quantitatively solve a problem.
PSO3	Train the students over a wide range of analytical, experimental and computational techniques that can be applied in physics, in other scientific and technological domains.
PSO4	Develop problem solving skills, ability of independent thinking and nurture creativity.
PSO5	Mature as a researcher having reasonably good communication skills
PSO6	A research oriented learning that develops analytical and integrative problem-solving approaches.
PSO7	They can also apply scientific and technical knowledge and disciplines and areas of study.
PSO8	Compile research based knowledge and methods including design of experiments, analysis, interpretation and evaluation of information, to provide valid critique to the society.




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