

Department of Physics & Electronics

**Institute for Excellence in Higher Education (IEHE),
Bhopal (MP)**



NAAC Re-accredited (Third Cycle) Autonomous College
Under the UGC Scheme with 'A' Grade (CGPA-3.10)

**Program Outcomes (POs),
Program Specific Outcome (PSOs)
&
Course Outcomes (COs)
of
Department of Physics & Electronics**

B.Sc. (Honours) Physics
(Session: 2021-2022)

COURSES OFFERED IN THE INSTITUTE

Under Graduate Courses

- B.Com. Honours (Management/Account)
- B.A. Honours (Economics/History/Psychology/Sociology/Political Science/English Literature/Hindi Literature/Geography/Fashion Designing)
- **B.Sc. Honours (Physics/Chemistry/Mathematics/Electronics/Biotechnology/Geography/Forensic-Science)**

Post Graduate Courses

- MA (English)
- MA (Economics)
- MA (Social Work)
- MA (History)
- MA (Public Administration)
- MA (Political Science)
- M.Com. (Management)
- **M.Sc. (Physics)**
- M.Sc. (Chemistry)
- M.Sc. (Biotechnology)
- M.Sc. (Mathematics)

Diploma Programme

- 14 Vocational Programmes

Certificate Programme

- 31 Vocational Programmes

Training Programmes

- 09 Vocational Programmes

Special Programmes

- 03 Vocational Programmes

Program Outcomes (PO) of the Under-Graduate Courses Offered

- PO1: Domain Knowledge:** Capable of demonstrating comprehensive knowledge & understanding of one or more other disciplines that form a part of an undergraduate programme of study.
- PO2: Critical Thinking:** Critically evaluate practices, policies and theories by following scientific approach to knowledge development. Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.
- PO3: Problem Solving and Analytical Skills:** Ability to think rationally, analyse situations and solve problems adequately.
- PO4: Information and Digital Literacy:** Capability to use ICT in a variety of learning situations. Demonstrate ability to access, evaluate and use a variety of relevant information sources; and use appropriate software for analysis of data.
- PO5: Communication Skills:** The capacity to communicate effectively using appropriate media, to present complex information in a clear & concise manner. Acquire the learning abilities by focusing on LSRW (Listening, Speaking, Reading & Writing skill, which provide a stage to the students to sharpen their capacity to learn more.
- PO6: Social Interaction and sensitivity towards the societal issues:** Work effectively and respectfully with diverse teams; facilitate cooperative or coordinated effort on the part of a group and act together as a group or a team in the interests of a common cause. Elicit views of others, mediate disagreements and help reach conclusions in group settings.
- PO7: Self-directed & Life-long Learning:** Acquire the potential to engage in independent & life-long learning in the broadest context socio-technological changes. Critical sensibility to live experiences, with self-awareness and reflexivity of both and society.
- PO8: Environment and Sustainability:** Understand the issues of environmental contexts & sustainable development.
- PO9: Moral and Ethical Awareness:** Ability to embrace moral/ ethical values in conducting one's life, possess knowledge of the values and beliefs of multiple cultures and a global perspective; and capability to effectively engage in a multicultural society and interact respectfully with diverse groups.
- PO10: Effective Citizenship:** Demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.
- PO11: Research-related skills:** A sense of inquiry and capability for asking relevant/appropriate questions, problematizing, synthesizing and articulating; Ability to recognize cause and effective relationships, define problems, formulate hypotheses, interpret and draw conclusions from data, ability to plan, execute and report the results of an experiment or investigation. Efficiency to apply one's learning to real life situations or in interdisciplinary areas.
- PO12: Leadership and Management Skills:** Competence to use skills in organizing for people to reach a shared goal. During leading a project, ability to motivate others to complete a series of tasks, often according to a schedule.
- PO13: Employability and Entrepreneurial Skill:** Ability to develop employability skills such as, positive attitude, good business sense, willingness to learn, resilience, ability to work under pressure, optimism, adaptability, perseverance and motivation, and a host of similar skills.

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PROGRAMME OUTCOMES (PO): B.Sc.

Predefined Programme Outcomes	<i>Students taking admission to this program of B.Sc. get equipped with following outcomes:</i>
PO1	Domain Knowledge: Acquiring knowledge of fundamentals, basic Mathematics, domain knowledge of proper scientific models and Computing Specialization from defined problems and explaining the basic scientific principles and methods.
PO2	Scientific thinking: Inculcating scientific thinking and awareness, getting an ability to use necessary current techniques, skills, and modern tools.
PO3	Problem Analysis: Identifying, formulating, & analysing complex problems, reaching substantiated conclusions using first principles of Mathematics, natural sciences and electronic sciences.
PO4	Communication: Communicate concepts, designs, and solutions of scientific activities effectively and professionally with society at large.
PO5	Information & Digital Literacy: Capability to use ICT in a variety of learning situations. Demonstrate ability to access, evaluate and use a variety of relevant information sources; and use appropriate software for analysis of data.
PO6	Ethical Awareness: Ability to embrace moral/ ethical values in conducting one's life, possess knowledge of the values and beliefs of multiple cultures and a global perspective; and capability to support the values required for collaborative work such as mutual trust & fairness.
PO7	Environment & Sustainability: Understanding the impact of scientific solutions on societal and environmental contexts and demonstrate knowledge of and need for sustainable development.
PO8	Self-directed and Life-long Learning: Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes. Critical sensibility to live experiences, with self-awareness and reflexivity of both and society.
PO9	Research-related skills: <ul style="list-style-type: none"> • Acquiring familiarity with emerging areas of different subjects in science and their applications in various spheres of sciences and getting appraise of its relevance in future studies. • Getting ability to apply various statistical tools to research problems and ability to build statistical knowledge and knowing the statistical organization in India and abroad. • Developing scientific intuition, ability and techniques to tackle problems either theoretical or experimental in nature.
PO10	Employability Skill: Ability to develop employability skills such as, positive attitude, good business sense, willingness to learn, resilience, ability to work under pressure, optimism, adaptability, perseverance and motivation, and a host of similar skills.

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Programme Specific Outcomes (PSO): PHYSICS (*Honours/Major Subject*)

Programme Specific Outcomes	<i>The students taking up this program of BSc with Physics (Honours/Major) as a special subject of study, receive the following outcomes:</i>
PSO-1	Acquire a fundamental/systematic or coherent understanding of the academic field of physics, its different learning areas and applications in basic physics like material science, nuclear and particle physics, condensed matter physics, atomic and molecular physics, mathematical physics, and its linkages with related disciplinary areas/subjects like chemistry, mathematics, life sciences, environmental sciences, atmospheric physics, computer science, information technology.
PSO-2	Acquire a procedural knowledge that creates different types of professionals related to the Disciplinary/subject area of Physics, including professionals engaged in research and development, teaching and apart from this student can opt for government/public service
PSO-3	To equip students to handle the apparatus used in our daily life. To prepare students for a variety of carrier options in the field of Physics by accompanying all the Theory papers with appropriate Lab work including both performing practical's and preparing projects.
PSO-4	Demonstrate the ability to use skills in physics and its related areas of technology for formulating and tackling physics-related problems and identifying & applying appropriate physical principles & methodologies to solve a wide range of issues associated with physics in day-to-day life.
PSO-5	Recognize the importance of mathematical modelling simulation and computing, and the role of approximation and mathematical approaches to describing the physical world.
PSO-6	Plan and execute physics-related experiments or investigations, analyse and interpret data/information collected using appropriate methods, including the use of appropriate software such as programming languages and purpose-written packages, and report accurately the findings of the experiment/investigations while relating the conclusions/findings to relevant theories of physics.
PSO-7	To familiarize the students with the emerging areas of Physics such as Nanotechnology, Superconductivity, Condensed matter physics, LASER technology, Fibre Optics, Astrophysics, Space science etc. and their applications in various areas of Physical Sciences and to expose the students to use different processes used in the industry according to the pre-set requirement.
PSO-8	To develop communication skills involving the ability to listen carefully, to read texts and research papers analytically and to present complex information in a concise manner to different groups/audiences of technical or popular nature.
PSO-9	To encourage students to demonstrate professional behaviour such as being objective, unbiased and truthful in all aspects of work and avoiding unethical, irrational behaviour such as fabricating, falsifying or misrepresenting data or committing plagiarism.

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Mapping of PSO's BSc. Physics (Honours/Major) with POs of Under-Graduate

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
PSO-1	*	--	--	--	*	--	*	*	--	*
PSO-2	--	--	--	--	--	--	*	--	*	*
PSO-3	--	--	*	*	--	--	--	--	--	*
PSO-4	--	--	*	*	--	--	*	*	*	*
PSO-5	*	*	--	--	*	--	--	--	*	--
PSO-6	*	*	*	--	*	*	--	*	*	*
PSO-7	--	--	--	--	--	--	--	--	*	*
PSO-8	--	--	*	*	--	*	--	*	*	*
PSO-9	--	*	*	--	--	*	--	*	--	*

Course Outcomes (CO)s

Semester: I

Thermal Physics (MJS-171) (Major)

Course Outcomes	<i>The students taking up this course of BSc with Physics (Major) as a special subject of study receive the following outcomes:</i>
CO-1	Comprehend the basic concepts of thermodynamics, the first and the second law of thermodynamics, the concept of entropy and the associated theorems, the thermodynamic potentials and their physical interpretations.
CO-2	Learn the basic aspects of kinetic theory of gases, Maxwell-Boltzman distribution law, equipartition of energies, mean free path of molecular collisions, viscosity, thermal conductivity, diffusion and Brownian motion.
CO-3	Learn about the real gas equations, Vander Waal equation of state, the Joule-Thompson effect.
CO-4	In the laboratory course, the students are expected to do some basic experiments in thermal Physics, viz., determinations of coefficient of thermal conductivity, temperature coefficient of resistance, variation of thermo-emf of a thermocouple with temperature difference at its two junctions and calibration of a thermocouple.

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Semester: I

Mechanics (MNS-172) (Minor)

Course Outcomes	<i>The students taking up this course of BSc with Physics (Minor) as a special subject of study receive the following outcomes:</i>
CO-1	Understand laws of motion and their application to various dynamical situations, notion of inertial frames and concept of Galilean invariance. He / she will learn the concept of conservation of energy, momentum, angular momentum and apply them to basic problems.
CO-2	Understand the analogy between translational and rotational dynamics, and application of both motions simultaneously in analysing rolling with slipping.
CO-3	Understand the concept of moment of inertia about the given axis of symmetry for different uniform mass distributions. Understand the phenomena of collisions and idea about centre of mass and laboratory frames and their correlation.
CO-4	Understand simple principles of fluid flow and the equations governing fluid dynamics.
CO-5	Explain the phenomena of simple harmonic motion and the properties of systems executing such motions.

Semester: I

Mechanics (GES-171) (Generic Elective)

Course Outcomes	<i>The students taking up this course of BSc with Physics (Generic Elective) as a special subject of study receive the following outcomes:</i>
CO-1	To educate them about the laws of motion and their application to various dynamical situations. He / she will learn the concept of conservation of energy, momentum, angular momentum and apply them to basic problems.
CO-2	Understand the concept of moment of inertia about the given axis of symmetry for different uniform mass distributions.
CO-3	Understand the phenomena of collisions and idea about centre of mass and laboratory frames and their correlation.
CO-4	Understand the principles of elasticity through the study of Young Modulus and modulus of rigidity.

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Semester: II

Core-Mechanics (MJS-271) (Major)

Course Outcomes	<i>The students taking up this course of BSc with Physics (Major) as a special subject of study receive the following outcomes:</i>
CO-1	Understand laws of motion and their application to various dynamical situations, notion of inertial frames and concept of Galilean invariance. He / she will learn the concept of conservation of energy, momentum, angular momentum and apply them to basic problems.
CO-2	Understand the analogy between translational and rotational dynamics, and application of both motions simultaneously in analysing rolling with slipping.
CO-3	Understand the concept of moment of inertia about the given axis of symmetry for different uniform mass distributions. Understand the phenomena of collisions and idea about centre of mass and laboratory frames and their correlation.
CO-4	Understand simple principles of fluid flow and the equations governing fluid dynamics.
CO-5	Explain the phenomena of simple harmonic motion and the properties of systems executing such motions.

Semester: II

Thermal Physics (MNS-272) (Minor)

Course Outcomes	The students taking up this course of BSc with Physics (Minor) as a special subject of study receive the following outcomes:
CO-1	Comprehend the basic concepts of thermodynamics, the first and the second law of thermodynamics, the concept of entropy and the associated theorems, the thermodynamic potentials and their physical interpretations.
CO-2	Learn the basic aspects of kinetic theory of gases, Maxwell-Boltzmann distribution law, equipartition of energies, mean free path of molecular collisions, viscosity, thermal conductivity, diffusion and Brownian motion.
CO-3	Learn about the real gas equations, Vander Waal equation of state, the Joule-Thompson effect.
CO-4	In the laboratory course, the students are expected to do some basic experiments in thermal Physics, viz., determinations of coefficient of thermal conductivity, temperature coefficient of resistance, variation of thermo-emf of a thermocouple with temperature difference at its two junctions and calibration of a thermocouple.

Semester: II

Thermal Physics & Statistical Mechanics (GES-271) (Generic Elective)

(Not opted by the students in the session 2021-2022)

Course Outcomes	<i>The students taking up this course of BSc with Physics (Generic Elective) as a special subject of study receive the following outcomes:</i>
CO-1	Comprehend the basic concepts of thermodynamics, the first and the second law of thermodynamics, the concept of entropy and the associated theorems, the thermodynamic potentials and their physical interpretations.
CO-2	Learn the basic aspects of kinetic theory of gases, Maxwell-Boltzmann distribution law, equitation of energies, mean free path of molecular collisions, viscosity, thermal conductivity, diffusion and Brownian motion.
CO-3	Learn about the real gas equations, Vander-Waal equation of state, the Joule-Thompson effect.
CO-4	In the laboratory course, the students are expected to do some basic experiments in thermal Physics, viz., determinations of coefficient of thermal conductivity, temperature coefficient of resistant, variation of thermo-emf of a thermocouple with temperature difference at its two junctions and calibration of a thermocouple.

Semester: III

Mathematical Physics (S-371) (Honours-I)

Course Outcomes	<i>The students taking up this course of BSc with Physics (Honours-I) as a special subject of study receive the following outcomes:</i>
CO-1	To educate students in various special functions of Mathematics for their application to solve problems of Physics.
CO-2	To make students understand Legendre, Hermite equation, their solution, generating function of the equation and to give concept of orthogonality & recurrence, relations of these functions.
CO-3	To understand applications of special function like Bessel and Laguerre equation.
CO-4	Develop understanding of complex variable and their applications to solve problems of physics.
CO-5	Application of Potential difference equation, concept of boundary and initial conditions. Use of various methods of solving differential equations and their uses in solving various day to day life application.

Semester: III

Optics (S-372) (Honours-II/Subsidiary)

Course Outcomes	<i>The students taking up this course of BSc with Physics (Honours-II/Subsidiary) as a special subject of study receive the following outcomes:</i>
CO-1	Acquire understanding of optical phenomenon of Reflection & Refraction, knowledge of spherical surface. Mathematical derivation of lens formula for combination of lenses. Concept development of aberration and their remedy.
CO-2	Acquire knowledge of interference, coherence, fringes, and learn about various equipment's for measurement of wavelength of different spectral lines.
CO-3	Execution of various practical's related to optical phenomena's such as diffraction, polarization, etc.
CO-4	To familiarize the students with applications of various phenomena of optics in day-to-day life.
CO-5	Mathematical formulation of Einstein coefficients and types of Lasers, concept building of photodiodes, photo transistors and photo multipliers.
CO-6	To inform and familiarize students towards the use of LASER, photosensor and Holography in industrial & medical applications.

Semester: IV

Waveguides & Optics (S-471) (Honours-I)

Course Outcomes	<i>The students taking up this course of BSc with Physics (Honours-I) as a special subject of study receive the following outcomes:</i>
CO-1	Familiarize with Maxwell's Equation for EMT radiation.
CO-2	Learn basic aspect of dispersion of EM radiations in various medias.
CO-3	Building concept of EM vector and EM potentials, concept of Gauge, i.e. Lorentz's and Coulomb's gauge. Apply the gauges in solving the EM wave propagation.
CO-4	Basic concepts of Fourier analysis and solutions in homogeneous wave equation using Fourier analysis. Lienard-Wiechert potentials and their use in studying movement of point charge. Mathematical formulation of moving point charge and EM wave field associated with moving charge.
CO-5	Introduction to waveguides and propagation of EM waves with different modes in rectangular wave guides. Analysis of waveguides with determination of cut-off wavelength and guide wave length in circular and rectangular waveguides.
CO-6	Introduction to Optical Fibre Communication system and the concept building of optical fibre transmission theory. Fabrication techniques and applications of Optical fibre. Introduction to various sources related to Optical Fibre communication.

Semester: IV

Electrostatics, Magneto-statics & Electrodynamics (S-472) (Honours-II/Subsidiary)

Course Outcomes	<i>The students taking up this course of BSc with Physics (Honours-II/Subsidiary) as a special subject of study receive the following outcomes:</i>
CO-1	Developing basic concepts of Electrostatic and Electrodynamics. Introduction to capacitors, dielectric and properties of dielectrics.
CO-2	Mathematical derivation of force on moving charge, force on current carrying conductor. Calculation of magnetic field for simple geometrical situations such as solenoid anchoring laboratory use of solenoid.
CO-3	Introduction to current electricity, mathematical formulation of Kirchhoff's law and its verification through laboratory experimentation.
CO-4	Describe motion of charge particle in Electric and Magnetic fields and its applications.
CO-5	Developing basic concepts of various laws associated with EMT.

Semester: V

Digital Electronics & Computers (S-571) (Honours-I)

Course Outcomes	<i>The students taking up this course of BSc with Physics (Honours-I) as a special subject of study receive the following outcomes:</i>
CO-1	Introduction to Binary, octal, hexadecimal and BCD number system. Familiarization with the various Binary mathematical operations such as addition, subtraction, 1's compliment and 2's compliment, etc.
CO-2	Solving Boolean expressions and study of K-maps.
CO-3	Introduction to Logics gates, their truth table and applications. Different logic families and their specification.
CO-4	Study of digital devices such as Flip-Flop, Registers, Counters, Multiplexers and encoders.
CO-5	Introduction to digital memory devices such as RAM, ROM, DRAM, PROM, etc. Computer Storage devices such as floppy disk, magnetic tapes and Hard disk.

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Semester: V

Quantum Mechanics, Atomic & Molecular Spectroscopy & Nuclear Physics (S-572) (Honours-II/Subsidiary)

Course Outcomes	<i>The students taking up this course of BSc with Physics (Honours-II/Subsidiary) as a special subject of study receive the following outcomes:</i>
CO-1	Developing basic concepts of Quantum mechanics. Concept of duality, probability, uncertainty principle and wave function.
CO-2	Schrödinger wave equation and its applications, decay phenomena, harmonic oscillators and rotators.
CO-3	Atomic model and spectrum analysis. Find structure, concept of spin and Zeeman effect.
CO-4	Types of spectra, zero-point energy, Raman Effect, fluorescence and phosphorescence.
CO-5	Basic properties of nucleus, structure and stability of nucleus. A different type of emissions, nuclear reaction, and models of nucleus.

Semester: VI

Introduction to Instrumentation (S-671) (Honours-I)

Course Outcomes	<i>The students taking up this course of BSc with Physics (Honours-I) as a special subject of study receive the following outcomes:</i>
CO-1	Introduction to measurement standards of measuring instruments.
CO-2	Familiarization and theories of various electrical bridges and practical use.
CO-3	Concept of signal conditioning and uses of various devices.
CO-4	Fundamentals and construction of CRO & CRT. Various uses of CRO.
CO-5	Introduction to various sensors and their working principle's.

Semester: VI

Solid State Physics & Nonmaterial (S-672) (Honours-II/Subsidiary)

Course Outcomes	<i>The students taking up this course of BSc with Physics (Honours-II/Subsidiary) as a special subject of study receive the following outcomes:</i>
CO-1	Concepts of crystal structures and their bonding and uses of X-rays in crystal structure state.
CO-2	Knowledge building of lattice structures and their properties.
CO-3	Various Electronic devices, their fabrication and applications.
CO-4	Introduction to semiconductor devices and oscillators.
CO-5	Introduction to nanotechnology and application of nanomaterials.

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Programme: BSc (Major/Honours-I)

Subject: Physics

Mapping of COs with PSOs for Semester-I (Major)

Course		PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
Paper Title: Thermal Physics Paper Code: MJS-171	CO1	*	*	*	*		*	*	*		
	CO2	*	*	*	*	*	*		*	*	
	CO3	*	*	*	*		*	*	*	*	
	CO4	*	*	*	*		*	*	*	*	

Mapping of COs and PSOs for Semester-II (Major)

Paper Title: Core Mechanics Paper Code: MJS-271	CO1	*	*	*	*		*		*	*	
	CO2	*	*	*	*		*	*	*	*	
	CO3	*	*	*	*	*	*	*	*	*	
	CO4	*	*	*	*	*	*	*	*		
	CO5	*	*	*	*		*	*	*	*	

Mapping of COs and PSOs for Semester-III (Honours-I)

Paper Title: Mathematical Physics Paper Code: S-371	CO1	*	*	*	*	*	*		*	*	
	CO2	*	*	*	*	*		*	*	*	
	CO3	*	*	*	*	*		*	*	*	
	CO4	*	*	*	*	*		*	*	*	
	CO5	*	*	*	*	*		*	*	*	

Mapping of COs and PSOs for Semester-IV (Honours-I)

Paper Title: Waveguides & Optics Paper Code: S-471	CO1	*	*	*	*		*	*	*		
	CO2	*	*	*	*		*	*	*		
	CO3	*	*	*	*		*	*	*		
	CO4	*	*	*	*	*	*	*			
	CO5	*	*	*	*		*	*			
	CO6	*	*	*	*	*	*	*			

Mapping of COs and PSOs for Semester-V (Honours-I)

Paper Title: Digital Electronics & Computers Paper Code: S-571	CO1	*	*	*	*		*	*	*	*	
	CO2	*	*	*	*		*	*	*	*	
	CO3	*	*	*	*	*	*	*	*	*	
	CO4	*	*	*	*	*	*	*	*	*	
	CO5	*	*	*	*	*	*	*	*	*	

Mapping of COs and PSOs for Semester-VI (Honours-I)

Paper Title: Introduction to Instrumentation Paper Code: S-671	CO1	*	*	*	*		*	*	*	*	
	CO2	*	*	*	*		*	*	*	*	
	CO3	*	*	*	*	*	*	*	*	*	
	CO4	*	*	*	*	*	*	*	*	*	
	CO5	*	*	*	*	*	*	*	*	*	

Department of Physics & Electronics

Programme: BSc (Minor/Honours-II)

Subject: Physics

Mapping of COs with PSOs for Semester-I (Minor)

Course		PS01	PS02	PS03	PS04	PS05	PS06	PS07	PS08	PS09	PS010
Paper Title: Mechanics Paper Code: MNS-172	CO1	*	*	*	*		*		*	*	
	CO2	*	*	*	*		*	*	*	*	
	CO3	*	*	*	*	*	*	*	*	*	
	CO4	*	*	*	*	*	*	*	*		
	CO5	*	*	*	*		*	*	*	*	

Mapping of COs and PSOs for Semester-II (Minor)

Paper Title: Thermal Physics Paper Code: MNS-272	CO1	*	*	*	*		*	*	*		
	CO2	*	*	*	*	*	*		*	*	
	CO3	*	*	*	*		*	*	*	*	
	CO4	*	*	*	*		*	*	*	*	

Mapping of COs and PSOs for Semester-III (Honours-II/Subsidiary)

Paper Title: Optics Paper Code: S-372	CO1	*	*	*	*	*	*	*	*	*	
	CO2	*	*	*	*	*	*	*	*		
	CO3	*	*	*	*		*	*	*	*	
	CO4	*	*	*	*		*	*	*	*	
	CO5	*	*	*	*	*	*	*	*	*	
	CO6	*	*	*	*		*	*	*		

Mapping of COs and PSOs for Semester-IV (Honours-II/Subsidiary)

Paper Title: Electrostatics, Magnetostatics & Electrodynamics Paper Code: S-472	CO1	*	*	*	*	*	*	*	*	*	
	CO2	*	*	*	*		*	*	*	*	
	CO3	*	*	*	*		*	*	*	*	
	CO4	*	*	*	*	*	*	*	*		
	CO5	*	*	*	*	*	*	*	*		

Mapping of COs and PSOs for Semester-V (Honours-II/Subsidiary)

Paper Title: Quantum Mechanics, Atomic & Molecular Spectroscopy & Nuclear Physics Paper Code: S-572	CO1	*	*	*	*	*	*	*	*		
	CO2	*	*	*	*	*	*	*	*		
	CO3	*	*	*	*	*	*	*	*		
	CO4	*	*	*	*	*	*	*	*	*	
	CO5	*	*	*	*			*	*		

Mapping of COs and PSOs for Semester-VI (Honours-II/Subsidiary)

Paper Title: Solid State Physics & Nonmaterial Paper Code: S-672	CO1	*	*	*	*	*	*	*	*		
	CO2	*	*	*	*	*	*	*	*		
	CO3	*	*	*	*	*	*	*	*		
	CO4	*	*	*	*	*	*	*	*	*	
	CO5	*	*	*	*			*	*		

Department of Physics & Electronics

Programme: BSc (Generic Elective)

Subject: Physics

Mapping of COs with PSOs for Semester-I (Generic Elective)

Course		PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9	PSO10
Paper Title: Mechanics Paper Code: GES-171	CO1	*	*	*	*		*	*	*	*	
	CO2	*	*	*	*		*	*	*		
	CO3	*	*	*	*		*	*	*	*	
	CO4	*	*	*	*	*	*	*	*	*	
	CO5										

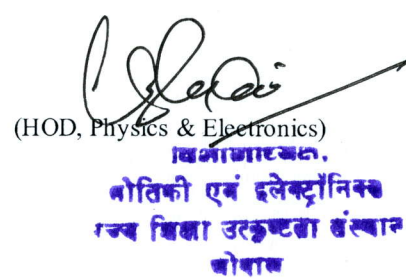
Mapping of COs and PSOs for Semester-II (Generic Elective)

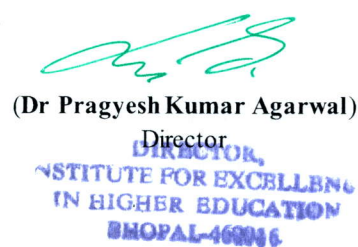
Paper Title: Thermal Physics & Statistical Mechanics Paper Code: GES-271	CO1	*	*	*	*		*	*	*	*	
	CO2	*	*	*	*		*	*	*		
	CO3	*	*	*	*		*	*	*	*	
	CO4	*	*	*	*	*	*	*	*	*	
	CO5										


(IQAC Coordinator)


(Convenor, Academic Committee)

संयोजक
अकादमिक समिति
राज्यशिक्षा उत्कृष्टता संस्थान
भोपाल


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