

**Payyanur College, Payyanur
(Affiliated to Kannur University)**

Programme Outcomes (POs)

BSc DEGREE PROGRAMME (FOR SCIENCE)

PROGRAMME OUTCOMES (PO)

PO1: Critical Thinking and Problem-Solving - Apply critical thinking skills to analyse information and develop effective problem-solving strategies for tackling complex challenges.

PO2: Effective Communication and Social Interaction - Proficiently express ideas and engage in collaborative practices, fostering effective interpersonal connections.

PO3: Holistic Understanding - Demonstrate a multidisciplinary approach by integrating knowledge across various domains for a comprehensive understanding of complex issues.

PO4: Citizenship and Leadership - Exhibit a sense of responsibility, actively contribute to the community, and showcase leadership qualities to shape a just and inclusive society.

PO5: Global Perspective - Develop a broad awareness of global issues and an understanding of diverse perspectives, preparing for active participation in a globalized world.

PO6: Ethics, Integrity and Environmental Sustainability - Uphold high ethical standards in academic and professional endeavours, demonstrating integrity and ethical decision-making. Also acquire an understanding of environmental issues and sustainable practices, promoting responsibility towards ecological well-being.

PO7: Lifelong Learning and Adaptability - Cultivate a commitment to continuous self-directed learning, adapting to evolving challenges, and acquiring knowledge throughout life.

Programme Specific Outcomes (PSOs)

Name of the Programme: **BSc PHYSICS**

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1. Comprehensive Knowledge in Core Physics Concepts:

Graduates will demonstrate a thorough understanding of fundamental physics principles, including Mechanics, Electromagnetism, Thermodynamics, Quantum Mechanics, and Statistical Physics. This knowledge will form the basis for solving complex problems and conducting research in Physics.

PSO2. Proficiency in Mathematical and Computational Techniques:

Graduates will be skilled in applying advanced mathematical methods and computational tools to model and solve physical problems. They will be proficient in using software and programming languages relevant to physics, such as MATLAB, Python, and others.

PSO3. Experimental and Laboratory Skills:

Graduates will possess strong experimental skills, including the ability to design, conduct, and analyse experiments. They will be adept at using modern laboratory equipment and techniques, and will understand the principles of measurement, data acquisition, and error analysis.

PSO4. Research and Analytical Skills:

Graduates will be capable of conducting independent research, including formulating hypotheses, designing experiments or theoretical models, analysing data, and interpreting results. They will be able to critically evaluate scientific literature and present their findings in both written and oral formats.

PSO5. Problem-Solving and Critical Thinking:

Graduates will demonstrate strong problem-solving abilities and critical thinking skills. They will be able to approach complex physical problems systematically, identify the relevant principles and techniques required, and develop effective solutions.

PSO6. Communication and Collaboration:

Graduates will be effective communicators, able to convey complex physical concepts clearly and concisely to diverse audiences. They will also possess teamwork and collaboration skills, enabling them to work effectively in multidisciplinary and multicultural teams.

PSO7. Ethics and Professionalism:

Graduates will understand the ethical implications of scientific work and will adhere to high standards of scientific integrity and professionalism. They will be aware of the societal impact of physics and technology, and will be prepared to contribute responsibly to scientific and technological advancements.

Course Outcomes (COs)

COURSE OUTCOMES (COs)

Sl. No	Name of the Course	Outcomes
1.	KUIDSCPHY101: FUNDAMENTALS OF PHYSICS WITH PRACTICAL	<p>CO1: Understand Newton’s laws of motion and their applications in various scenarios.</p> <p>CO2: Apply Newton’s laws to solve problems related to force, momentum, and energy. Understand the concept of frictional forces and their role in motion of objects.</p> <p>CO3: Analyze the concepts of work, kinetic-energy, and work energy theorem, Understand the principle of conservation of momentum and apply this to analyze collisions.</p> <p>CO4: Apply the fundamental principles of physics to solve real world problems</p>
2.	KUIDSCPHY114: ELECTRICITY AND MAGNETISM WITH PRACTICAL	<p>CO1: Understand the fundamental concepts of electric charge, conductors, insulators, and induced charges.</p> <p>CO2: Understand coulomb's law and apply it to determine electric force and field</p> <p>CO3: Understand Gauss’s law and apply it to determine electric field due to different charge distributions.</p> <p>CO4: Understand magnetism, magnetic field properties, magnetic flux, and I analyse the force and torque on current loops</p> <p>CO5: Understand and apply Ampere’s circuital law to determine magnetic field due to current distribution.</p>
3.	KUIDSCPHY115: SEMICONDUCTOR PHYSICS AND ELECTRONICS WITH PRACTICAL	<p>CO1: Understand the concept of energy bands in solids.</p> <p>CO2: Understand the principle and applications of PN junction diode, Zener diode and LEDs.</p> <p>CO3: Understand the structure, operations, characteristics of transistor.</p> <p>CO4: Analyze the characteristics of various transistor configurations and application of BJT as amplifier.</p>
MULTI-DISCIPLINARY COURSE		
4.	KUIMDCPHY101: PHYSICS AROUND US	<p>CO1: Understand and apply the principles of physics to several day-to-day phenomena.</p> <p>CO2: Understand heat transfer and the working of common kitchen appliances</p> <p>CO3: Apply the principles of physics to the sport of soccer.</p> <p>CO4: Analyze various interesting natural phenomena based on principles of physics</p>