K. L. E. Society's

SCIENCE AND COMMERCE COLLEGE

(Affiliated to University of Mumbai)

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Department: - B.Sc. (Physics)

Bachelor of Science

Programme Outcomes (POs)

PO1: Knowledge: - Acquire the knowledge with fact and recognise the underlying ideas, guiding principles, mathematical formulations, experimental results, and scientific theories relating to physics, chemistry, mathematics, zoology and botany and other program-related subjects.

PO2: Skills: - Become proficient with using scientific methods, skills of observation, and the ability to derive logical conclusions from scientific experiments.

PO3: Modern Tools Usage: - Utilise cutting-edge devices, tools, and lab techniques to conduct experiments and create computer programmes in many languages.

PO4: Creativity & Analysis: - Demonstrate in-depth analytical and critical thinking skills to recognise, frame, and resolve engineering and science challenges that exist in the actual world.

PO5: Communication: - Strengthen written and verbal communication skills to effectively communicate design, analysis, and research findings.

PO6: Ethics & Environment: - Incorporate ethical, moral, and social ideals into daily living and improve the future, raise public knowledge about the environment and promote sustainability.

PO7: Individual & Team Work: - Function effectively as an individual and take the lead in a variety of field-based situations involving science, technology, and society at large.

PO8: Self-directed and Life-Long learning: - Possibility of being self-driven, which involves paying attention to ideas and goals throughout one's life in order to explore, learn, and acquire new abilities in order to improve one's quality of life and sense of worth.

Course Outcomes (CO)

SEMESTER-I

COURSE CODE: USPH101
COURSE NAME: Classical Physics

After successful completion of this course, students will be able to:	
CO-1	Apply Newton's laws for the calculations of the motion of simple systems.
CO-2	UseWorkandEnergyequivalenceanditsapplicationsthroughsuitablenumerical.
CO-3	Use Elasticity, Viscosity and Fluid Dynamics in daily life.
CO-4	Understand Real gasses and validity of the laws of thermodynamics.
CO-5	Demonstrate quantitative problem solving skills in all the topics covered

OURSE CODE: USPH102
COURSE NAME: Modern Physics

After successful completion of this course, students will be able to:	
CO-1	Understand Nuclear Properties, nuclear behavior and various types nuclear reactions
CO-2	Understand the concept of radioactivity, its applications and different types of equilibria in radioactive elements
CO-3	Understand various types of nuclear detectors and their applications
CO-4	Demonstrate and understand the quantum mechanical concepts
CO-5	Demonstrate quantitative problem solving skills in all the topics covered.

SEMESTER-II

COURSE CODE: USPH201
COURSE NAME: OPTICS-I

After successful completion of this course, students will be able to:	
CO-1	Understand the concept of lens, lens defects and their minimization.
CO-2	Significance of combination of lenses implied eyepiece optical instrument.
CO-3	Understand interference of light with few well known daily life examples.
CO-4	Understand Lasers and Optical fibers, their applications day today life.

COURSE CODE: USPH202
COURSE NAME: ELECTRICITY AND ELECTRONICS

After successful completion of this course, students will be able to:	
CO-1	Understand the basic concepts Alternating current theory, AC bridges and Circuit Theorems
CO-2	Understand the basics of Analog and Digital Electronics And Apply theme Real Life Situations
CO-3	Demonstrate quantitative problem solving skills in all the topics covered

SEMESTER-III

COURSE CODE: USPH 301
COURSE NAME: MECHANICS AND THERMODYNAMICS

After successful completion of this course, students will be able to:	
CO-1	Understand the concepts of mechanics & properties of matter & to apply them to problems
CO-2	Comprehend the basic concepts of thermodynamics & its applications in physical situation.
CO-3	Learn about situations in low temperature.
CO-4	Demonstrate tentative problem solving skills in all above areas.

COURSE CODE: USPH 302
COURSE NAME: VECTOR CALCULUS, ANALOG ELECTRONICS

After successful completion of this course, students will be able to:	
CO-1	Understand the basic concepts of mathematical physics and their applications in physical situations.
CO-2	Understand the basic laws of electrodynamics and be able to perform calculations using them.
CO-3	Understand the basics of transistor biasing, operational amplifiers, their applications
CO-4	Understand the basic concepts of oscillators and be able to perform calculations using them.
CO-5	Demonstrate quantitative problem solving skill in all the topics covered.

COURSE CODE: USPH 303
COURSE NAME: APPLIED PHYSICS-I

After successful completion of this course, students will be able to:	
CO-1	Students will be exposed to contextual real life situations.
CO-2	Students will appreciate the role of Physics in 'interdisciplinary areas related to materials and Acoustics etc.
CO-3	The learner will understand the scope of the subject in Industry & Research.
CO-4	Experimental learning opportunities will faster creative thinking & a spirit of inquiry

SEMESTER-IV

COURSE CODE: USPH 401
COURSE NAME: OPTICS

After successful completion of this course, students will be able to:	
CO-1	Understand the diffraction and polarization processes and applications of them in physical situations.
CO-2	Understand the applications of interference in design and working of interferometers.
CO-3	Understand the resolving power of different optical instruments.
CO-4	Demonstrate quantitative problem solving skills in all the topics covered.

COURSE CODE: USPH 402
COURSE NAME: QUANTUM PHYSICS

After successful completion of this course, students will be able to:	
CO-1	Understand the postulates of quantum mechanics and to understand its importance in explaining significant phenomena in Physics.
CO-2	Demonstrate quantitative problem solving skills in all the topics covered.

COURSE CODE: USPH 403
COURSE NAME: APPLIED PHYSICS II

After successful completion of this course, students will be able to:	
CO-1	Understand the concepts of mechanics & properties of matter & to apply them to problems.
CO-2	Comprehend the basic concepts of thermodynamics & its applications in physical situations.
CO-3	Learn about situations in low temperature
CO-4	Demonstrate tentative problem solving skills in all above areas.