Academic Year	2020-21

B.P.H.E. Society's
Ahmednagar College, Ahmednagar
Internal Quality Assurance Cell
CO, PO, and PSO Attainment Sheet

Department Name	Physics

Program Name	B.Sc.

Program Outcomes(PO)

PO1	To provide in depth knowledge of scientific and technological aspects of Physics.
PO2	To familiarize with current and recent scientific and technological developments.
PO3	To enrich knowledge through problem solving, hand on activities, study visits, projects etc.
PO4	To train students in skills related to research, education, industry, and market.
PO5	To create foundation for resaerch and development in Physics
PO6	To develop analytical abilities towards real world problems
PO7	To help students build-up a progressive and successful career in Physics
PO8	
PO9	
PO10	
PO11	
PO12	

Program Specific Outcome(PSO)

PSO1	After completion of program, students will be able to have in-depth knowledge of basic concepts in Physics.
PSO2	Students will be able to apply the laws of Physics in real life situations to solve the problems.
PSO3	After completing the program student will have developed interdisciplinary approach and can pursue higher studies in subje

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Class		F. Y. B. Sc.
Subject Code		PHY-112
Subject Name		Physics Principles and Applications
Semester No		I
Teacher Name		Y. B. Sawane
Course Outcomes		
	CO1	1. To demonstrate an understanding of electromagnetic waves and its spectrum.
	CO2	2. Understand the types and sources of electromagnetic waves and applications.
	CO3	3. To understand the general structure of atom, spectrum of hydrogen atom.
	CO4	4. To understand the atomic excitation and LASER principles. To understand the bonding mechanism in molecules and rotational and vibrational energy levels of diatomic molecules.
	CO5	5 To demonstrate quantitative problem solving skills in all the topics covered.

Course Outcomes	Program Outcomes							PSOs		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	3	1	1	0	2	1	1	3	2	1
CO2	3	1	2	0	1	1	1	3	2	1
CO3	3	2	3	1	2	2	2	3	1	2
CO4	3	3	3	3	2	3	3	3	3	3
CO5	2	2	3	2	3	3	2	2	2	2
Average	2.80	1.80	2.40	1.20	2.00	2.00	1.80	2.80	2.00	1.80

Class	F. Y. B. Sc.
Subject Code	PHY-122
Subject Name	Electricity and Magnetism
Semester No	II

Course Outcomes	Program Outcomes							PSOs		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	3	1	1	0	2	1	1	3	2	1
CO2	2	2	2	3	2	3	2	3	2	3

Teacher Name	Y. B. Sawane
Course Outcomes	
CO1	1. Demonstrate an understanding of the electric force, field and potential, and related concepts, for stationary charges.
CO2	2. Calculate electrostatic field and potential of simple charge distributions using Coulomb's law and Gauss's law.
CO3	3. Demonstrate an understanding of the dielectric and effect on dielectric due to electric field.
CO4	4. Demonstrate an understanding of the magnetic field for steady currents using Biot-Savart and Ampere's laws. Demonstrate an understanding of magnetization of materials.
CO5	5. Demonstrate quantitative problem solving skills in all the topics covered.

CO3	3	1	2	2	2	2	2	2	1	2
CO4	3	2	1	2	3	2	2	3	2	2
CO5	2	1	3	2	3	2	2	2	2	1
Average	2.60	1.40	1.80	1.80	2.40	2.00	1.80	2.60	1.80	1.80

Class	F.Y.B.Sc.
Subject Code	PHY 111
Subject Name	Mechanics and Properties of Matter
Semester No	1
Teacher Name	R V Late
Course Outcomes	
CO1	Demonstrate an understanding of Newton's laws and applying them in calculations of the motion of simple systems
CO2	Use the free body diagrams to analyse the forces on the object.

Course Outcomes	Program Outcomes							PSOs		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	3	2	1	1	3	2	1	3	2	3
CO2	2	3	1	1	1	3	2	3	2	2
CO3	3	3	3	3	3	3	2	2	1	3
CO4	3	2	3	3	3	3	3	3	2	2
CO5	2	3	2	3	2	2	3	3	2	3
Average	2.60	2.60	2.00	2.20	2.40	2.60	2.20	2.80	1.80	2.60

	CO3	Understand the concepts of energy, work, power, the concepts of conservation of energy and be able to perform calculations using them.
	CO4	Understand the concepts of surface tension and viscosity and be able to perform calculations using them.
	CO5	Demonstrate quantitative problem solving skills in all the topics covered.

Class	FYBSc	Course Outcomes	Program Outcomes							PSOs		
Subject Code	PHY 121		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
Subject Name	Heat and Thermodynamics	CO1	2	2	3	2	3	2	2	3	2	3
Semester No	2	CO2	2	3	2	2	1	2	2	2	3	2
Teacher Name	R V Late	CO3	3	2	3	2	3	2	3	2	2	1
Course Outcomes		CO4	3	2	2	2	2	3	2	2	1	3
		CO5	3	3	2	2	2	3	3	3	2	2
		Average	2.60	2.40	2.40	2.00	2.20	2.40	2.40	2.40	2.00	2.20

	CO1	Describe the properties of and relationships between the thermodynamic properties of a pure substance.
	CO2	Describe the ideal gas equation and its limitations.
	CO3	Apply the laws of thermodynamics to formulate the relations necessary to analyze a thermodynamic process
	CO4	Analyze the heat engines and calculate thermal efficiency.
	CO5	Understand the types of thermometers and their usage.

Class	FYBSc	Course Outcomes	Program Outcomes							PSOs		
Subject Code	PHY 113 (Physics Laboratory-IA)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
Subject Name	Physics Laboratory-IA	CO1	2	2	3	2	2	2	2	3	3	2
Semester No	1	CO2	2	3	3	3	2	2	3	2	2	2
Teacher Name	R V Late	CO3	2	2	2	2	2	2	3	2	2	2

Course Outcomes		
	CO1	Acquire technical and manipulative skills in using laboratory equipment, tools, and materials.
	CO2	Demonstrate an ability to collect data through observation and/or experimentation and interpreting data.
	CO3	Demonstrate an understanding of laboratory procedures including safety, and scientific methods.
	CO4	Demonstrate a deeper understanding of abstract concepts and theories gained by experiencing and visualizing them as authentic phenomena.
	CO5	Acquire the complementary skills of collaborative learning and teamwork in laboratory settings.

CO4	2	3	1	2	2	2	3	3	2	3
CO5	2	2	2	2	2	2	3	2	2	3
Average	2.00	2.40	2.20	2.20	2.00	2.00	2.80	2.40	2.20	2.40

Class	FYBSc
Subject Code	PHY 123 (Physics Laboratory-IB)
Subject Name	Physics Laboratory-IB
Semester No	2
Teacher Name	R V Late

Course Outcomes		
	CO1	Acquire technical and manipulative skills in using laboratory equipment, tools, and materials.
	CO2	Demonstrate an ability to collect data through observation and/or experimentation and interpreting data.
	CO3	Demonstrate an understanding of laboratory procedures including safety, and scientific methods.
	CO4	Demonstrate a deeper understanding of abstract concepts and theories gained by experiencing and visualizing them as authentic phenomena.

Course Outcomes	Program Outcomes							PSOs		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	3	2	3	2	2	2	2	3	3	2
CO2	3	3	3	3	2	2	3	2	2	2
CO3	3	2	2	3	2	2	3	3	2	2
CO4	2	3	2	2	2	2	3	3	2	3
CO5	2	2	2	2	2	2	3	3	3	3
Average	2.60	2.40	2.40	2.40	2.00	2.00	2.80	2.80	2.40	2.40

	CO5	Acquire the complementary skills of collaborative learning and teamwork in laboratory settings.

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Class		S.Y.B.Sc.	Course Outcomes	Program Outcomes							PSOs		
Subject Code		23122A- PHY 232		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
Subject Name		Electronics	CO1	3	2	3	2	3	1	3	3	3	3
Semester No		3	CO2	3	2	3	2	3	2	3	3	3	3
Teacher Name		Kalyan Chavan	CO3	3	3	3	3	2	3	3	2	2	2
Course Outcomes			CO4	3	3	3	3	3	3	3	3	2	1
	CO1	Apply different theorems and laws to electrical circuits	CO5	3	3	3	2	3	2	3	3	1	1
	CO2	Understand the relations in electricity.	Average	3.00	2.60	3.00	2.40	2.80	2.20	3.00	2.80	2.20	2.00
	CO3	Understand the parameters, characteristics and working of transistors and amplifiers											
	CO4	Design circuits using transistors and applications of operational amplifiers.											
	CO5	Understand the Boolean algebra and logic circuits.											

Class		S.Y.B.Sc.	Course Outcomes	Program Outcomes							PSOs		
Subject Code		PHY 233		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
Subject Name		Physics Lab 2A	CO1	2	3	3	3	3	3	3	2	2	2
Semester No		3	CO2	3	3	3	3	3	3	3	3	3	3
Teacher Name		Kalyan Chavan	CO3	1	1	3	3	3	3	3	1	1	2
Course Outcomes			CO4	1	1	3	3	3	3	3	1	1	3
	CO1	Use various instruments and equipment and Setup experimental equipment to implement an experimental approach.	CO5	1	1	1	3	1	1	2	1	1	2
	CO2	Investigate the theoretical background of an experiment and Design experiments to test a hypothesis and/or determine the value of an unknown quantity.	Average	1.60	1.80	2.60	3.00	2.60	2.60	2.80	1.60	1.60	2.40
	CO3	Analyze the data, plot appropriate graphs and reach conclusions from data analysis.											
	CO4	Work in a group to plan, implement and report on a project/experiment.											

	CO5	Keep a well-maintained and instructive laboratory logbook.

Class		S.Y.B.Sc.
Subject Code		24122-PHY 242
Subject Name		Optics
Semester No		4
Teacher Name		Kalyan Chavan
Course Outcomes		
	CO1	Acquire the basic concept of wave optics and describe how light can constructively and destructively interfere.
	CO2	Explain why a light beam spread out after passing through an aperture and summarize the polarization characteristics of electromagnetic wave
	CO3	Understand the operation of many modern optical devices that utilize wave optics
	CO4	Understand optical phenomenon such polarization, diffraction and interference in terms of the wave model
	CO5	Analyze simple example of interference and diffraction.

Course Outcomes	Program Outcomes							PSOs		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	3	2	1	1	3	2	3	3	3	3
CO2	3	2	1	1	3	3	3	3	3	3
CO3	3	2	1	1	3	3	3	3	3	3
CO4	3	2	1	1	3	3	3	3	3	3
CO5	3	2	3	2	3	3	3	3	3	3
Average	3.00	2.00	1.40	1.20	3.00	2.80	3.00	3.00	3.00	3.00

Class		S.Y.B.Sc.
Subject Code		24123B-PHY 243
Subject Name		Physics Lab 2B
Semester No		4
Teacher Name		Kalyan Chavan
Course Outcomes		
	CO1	Use various instruments and equipment and Setup experimental equipment to implement an experimental approach.
	CO2	Investigate the theoretical background of an experiment and Design experiments to test a hypothesis and/or determine the value of an unknown quantity.
	CO3	Analyze the data, plot appropriate graphs and reach conclusions from data analysis.
	CO4	Work in a group to plan, implement and report on a project/experiment.
	CO5	Keep a well-maintained and instructive laboratory logbook.

Course Outcomes	Program Outcomes							PSOs		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	2	3	3	3	3	3	3	2	2	2
CO2	3	3	3	3	3	3	3	3	3	3
CO3	1	1	3	3	3	3	3	1	1	2
CO4	1	1	3	3	3	3	3	1	1	3
CO5	1	1	1	3	1	1	2	1	1	2
Average	1.60	1.80	2.60	3.00	2.60	2.60	2.80	1.60	1.60	2.40

Class		S.Y.B.SC.	Course Outcomes	Program Outcomes							PSOs		
Subject Code		PHY-241		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
Subject Name		Oscillations, Waves, and Sound	CO1	3	2	2	1	2	1	3	3	3	2
Semester No		III	CO2	3	1	2	1	2	1	3	3	3	2
Teacher Name		L.D.Deshmukh	CO3	3	2	2	2	3	1	3	3	3	3
Course Outcomes			CO4	3	2	2	1	3	0	3	3	3	3
	CO1	To study underlying principles of oscillations and it's scope in development	CO5	3	3	2	2	3	1	3	3	3	3
	CO2	To understand and solve the equations / graphical representations of motion for simple harmonic, damped, forced oscillators and waves	Average	3.00	2.00	2.00	1.40	2.60	0.80	3.00	3.00	3.00	2.60
	CO3	To explain oscillations in terms of energy exchange with various practical applications											
	CO4	To solve numerical problems related to undamped, damped, forced oscillations and superposition of oscillations											
	CO5	To study characteristics of sound, decibel scales and applications											

Class		S.Y.B.Sc.	Course Outcomes	Program Outcomes							PSOs		
Subject Code		PHY-231 (23121)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
Subject Name		Mathematical methods in Physics	CO1	3	1	2	0	3	2	0	3	0	2
Semester No		III	CO2	3	1	3	0	3	1	0	3	0	2
Teacher Name		Shelke P B	CO3	3	1	3	0	3	2	0	3	0	2
Course Outcomes			CO4	3	1	3	0	3	2	0	3	0	2
	CO1	Understand the complex algebra useful in physics courses.	CO5	3	1	2	0	3	2	0	3	0	2
	CO2	Understand the concept of partial differentiation.	Average	3.00	1.00	2.60	0.00	3.00	1.80	0.00	3.00	0.00	2.00
	CO3	Understand the role of partial differential equations in physics											
	CO4	Understand vector algebra useful in mathematics and physics											
	CO5	Understand the concept of singular points of differential equations											

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Class	T.Y.B.Sc.	Course Outcomes	Program Outcomes							PSOs		
Subject Code	912B3		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
Subject Name	Elements of Materials Secience	CO1	3	2	1	2	2	2	3	3	2	3
Semester No	V	CO2	2	3	1	2	2	2	3	3	2	3
Teacher Name	Pravin D. More	CO3										
Course Outcomes		CO4										
CO1	Student understands the various properties of materials which are using day to day life.	CO5										
CO2	They easily identify the concept of Physics used and extend their knowledge towards.	Average	2.50	2.50	1.00	2.00	2.00	2.00	3.00	3.00	2.00	3.00
CO3												
CO4												
CO5												

Class	T.Y.B.Sc	Course Outcomes	Program Outcomes							PSOs		
Subject Code	91254		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
Subject Name	Electronics	CO1	2	1	3	2	2	2	2	3	3	3
Semester No	VI	CO2	3	3	3	2	3	2	2	2	3	2
Teacher Name	Pravin D. More	CO3	3	3	3	2	2	2	3	3	3	2
Course Outcomes		CO4	2	2	2	2	2	3	3	3	2	2
CO1	Able to design various circuits which can be used professionally.	CO5										
CO2	Able to understand AC, DC current/voltages concept for safety measurements.	Average	2.50	2.25	2.75	2.00	2.25	2.25	2.50	2.75	2.75	2.25
CO3	Able to design various types of power supply, which can be used professionally											
CO4	Able to design communication systems.											
CO5												

Class	T.Y.B.Sc.
Subject Code	PHY-353
Subject Name	Classical Mechanics
Semester No	V
Teacher Name	Sachin.D.Ralegankar
Course Outcomes	
CO1	To understand basic of Newtonian Mechanics
CO2	To understand Two body problem and Kepler's Laws of Planetary motion
CO3	To understand the basic of Scattering and its type.
CO4	To develop an understanding of Lagrangian and Hamiltonian formulation
CO5	

Course Outcomes	Program Outcomes							PSOs		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	2	3	2	2	1	2	2	2	2	3
CO2	2	2	2	3	2	1	2	2	3	2
CO3	3	1	2	2	2	2	2	2	2	3
CO4	2	3	3	3	2	3	3	2	3	3
CO5										
Average	2.25	2.25	2.25	2.50	1.75	2.00	2.25	2.00	2.50	2.75

Class	T.Y.B.Sc.
Subject Code	PHY-364
Subject Name	Nuclear Physics
Semester No	VI
Teacher Name	Sachin D. Ralegankar
Course Outcomes	
CO1	To Understand the basic properties of Nucleus
CO2	To earn the knowledge of radioactivity and related various laws
CO3	To undertand basic forces and quark model
CO4	To develope the understanding between verious nuclear models
CO5	

Course Outcomes	Program Outcomes							PSOs		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	2	2	3	3	3	2	2	2	2	3
CO2	2	2	3	3	2	2	2	2	3	3
CO3	3	2	2	2	2	3	3	2	2	3
CO4	2	2	2	2	3	2	3		3	3
CO5										
Average	2.25	2.00	2.50	2.50	2.50	2.25	2.50	2.00	2.50	3.00

Class	T Y B.Sc
Subject Code	91274
Subject Name	Laboratory Course I
Semester No	VI
Teacher Name	Pravin D. More
Course Outcomes	
CO1	Student understands therotical concept of Physics by performing practicals and hands on training
CO2	Student understands basic of instruments
CO3	

Course Outcomes	Program Outcomes							PSOs		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	3	3	2	3	3	2	2	3	2	3
CO2	3	3	3	3	3	3	2	3	3	3
CO3										
CO4										
CO5										
Average	3.00	3.00	2.50	3.00	3.00	2.50	2.00	3.00	2.50	3.00

	CO4	
	CO5	

Class	T.Y.B.Sc.
Subject Code	PHY-354
Subject Name	Atomic and Molecular Physics
Semester No	V
Teacher Name	L.D.Deshmukh
Course Outcomes	
CO1	Understand different atomic models rite from classical to quantum mechanical models.
CO2	Spectra associated with one and two valence electron systems with examples
CO3	Effect of magnetic and electric field on spectral lines can be study.
CO4	Understand the concepts of atomic and molecular spectra's,
CO5	Study the concepts of Raman Spectroscopy and its applications

Course Outcomes	Program Outcomes							PSOs		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	2	2	3	2	3	2	3	3	1	2
CO2	3	2	2	3	2	0	2	2	1	2
CO3	2	2	3	3	3	0	2	3	1	2
CO4	3	3	2	3	1	0	0	3	1	2
CO5	3	3	3	2	2	1	1	3	1	2
Average	2.60	2.40	2.60	2.60	2.20	0.60	1.60	2.80	1.00	2.00

Class	T.Y.B.Sc.
Subject Code	PHY-363
Subject Name	Thermodynamics and Statistical Physics
Semester No	VI
Teacher Name	L.D.Deshmukh
Course Outcomes	
CO1	The concepts of transport phenomenon.
CO2	Understand the concept of throttling process
CO3	Elementary concepts of Statistics such as Probability calculation mean value calculation
CO4	Concepts about the types of ensembles
CO5	Detail understanding about the classical and quantum mechanical distribution

Course Outcomes	Program Outcomes							PSOs		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	3	2	3	1	3	2	2	2	1	3
CO2	3	2	2	1	3	2	2	2	2	3
CO3	3	2	3	1	3	3	2	3	3	3
CO4	3	2	3	1	3	2	2	1	2	3
CO5	3	2	3	1	3	2	2	2	3	2
Average	3.00	2.00	2.80	1.00	3.00	2.20	2.00	2.00	2.20	2.80

Class	T.Y.B.Sc.
Subject Code	PHY-331
Subject Name	MATHEMATICAL METHODS IN PHYSICS - II

Course Outcomes	Program Outcomes							PSOs		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	2	1	3	1	3	3	3	3	2	3

Semester No		V
Teacher Name		Dr. SUHAIL A. A. R. SAYYED
Course Outcomes		
	CO1	Thorough knowledge of Curvilinear Co-ordinates
	CO2	Understanding of Special Theory of Relativity and its applications
	CO3	Ability to solve differential equations using different methods
	CO4	Thorough understanding of Special Functions
	CO5	Ability to solve different problems in physics

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO2	2	1	3	1	3	3	3	3	2	3
CO3	2	1	3	1	3	3	3	3	2	3
CO4	2	1	3	1	3	3	3	3	2	3
CO5	2	1	3	1	3	3	3	3	2	3
Average	2.00	1.00	3.00	1.00	3.00	3.00	3.00	3.00	2.00	3.00

Class		T.Y.B.Sc.
Subject Code		PHY-346H
Subject Name		Physics of Nanomaterials
Semester No		VI
Teacher Name		Dr. SUHAIL A. A. R. SAYYED
Course Outcomes		
	CO1	Understanding of basic properties of nanomaterials
	CO2	Understand different synthesis methods of nanomateirals
	CO3	Ability to apply different characterization techniques
	CO4	Thorough understanding of special nanomaterials
	CO5	Study of different appplications of nanomaterials

Course Outcomes	Program Outcomes							PSOs		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	3	3	2	3	3	2	3	3	2	3
CO2	3	3	2	3	3	2	3	3	2	3
CO3	3	3	2	3	3	2	3	3	2	3
CO4	3	3	2	3	3	2	3	3	2	3
CO5	3	3	2	3	3	2	3	3	2	3
Average	3.00	3.00	2.00	3.00	3.00	2.00	3.00	3.00	2.00	3.00

Class		T.Y.B.Sc
Subject Code		91294
Subject Name		Project
Semester No		VI
Teacher Name		Pravin More
Course Outcomes		
	CO1	Project students learn applications of concept of physics, development and setting of experimental set ups
	CO2	It also creates research aptitude amongst the students for further studies.
	CO3	Some project which are applied can be used and find application in day to day life.
	CO4	
	CO5	

Course Outcomes	Program Outcomes							PSOs		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	3	3	2	3	3	2	3	3	2	3
CO2	3	3	3	2	3	3	3	3	3	3
CO3	2	2	2	3	2	3	3	2	3	3
CO4										
CO5										
Average	2.67	2.67	2.33	2.67	2.67	2.67	3.00	2.67	2.67	3.00

Class		TYBSC	Course Outcomes	Program Outcomes							PSOs		
Subject Code		PH-335 (91253)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
Subject Name		Computational Physics	CO1	3	2	2	3	2	3	2	3	2	3
Semester No			CO2	2	3	3	2	3	2	3	2	3	2
Teacher Name		Shelke P B	CO3	3	3	2	2	3	3	3	3	2	3
Course Outcomes			CO4										
	CO1	· In this course students will learn about basic concepts of C language and various numerical methods used for solving problems.	CO5										
	CO2	· In C language students will learn about characters used in C, C-tokens, operators, variables, constants, keywords, special symbols, blank spaces, input output statements, iterative loops, if- statements, arrays, pointers, functions and graphics programming.	Average	2.67	2.67	2.33	2.33	2.67	2.67	2.67	2.67	2.33	2.67
	CO3	In numerical analysis students will learn methods to find roots of equation, integration of a function.											
	CO4												
	CO5												

Class		TYBSC	Course Outcomes	Program Outcomes							PSOs		
Subject Code		PH-342(91224)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
Subject Name		Quantum Mechanics	CO1	3	3	3	1	3	2	1	3	3	2
Semester No			CO2	3	3	2	1	3	2	1	2	3	2
Teacher Name		Shelke P B	CO3										
Course Outcomes			CO4										
	CO1	Quantum Mechanics course is a foundation course. In this course, student will learn the historical aspects of development of quantum mechanics, understand and explain the differences between classical and quantum mechanics, understand the idea of wave function and the uncertainty, relations, solve Schroedinger equation for simple potentials.	CO5										
	CO2	Also, students will gain a basic understanding of the formalism and 'language' of quantum mechanics especially commutation brackets, various quantum mechanical operators.	Average	3.00	3.00	2.50	1.00	3.00	2.00	1.00	2.50	3.00	2.00
	CO3												
	CO4												
	CO5												

Class	T.Y. B.Sc.
Subject Code	91223
Subject Name	Solid State Physics
Semester No	V
Teacher Name	K. V. Wagaskar

Course Outcomes

CO1	• Hαϖε δεεπ υνδερστανδινγ οφ ϖαριουσ τψπεσ οφ χρψσταλ στρυχτυρεσ ανδ
CO2	• σηουλδ ηαϖε υνδερστοοδ τηε χονχεπτ οφ ρεχιπροχαλ λαττιχε.
CO3	• Hαϖε χλεαρ ιδεα οφ ϖαριουσ χηαραχτεριζατιον τεχηνιθυεσ λικε ξ−ραψ διφφραχτιον, Υς−ϖισιβλε σπεχτροσχοπψ, ΣΕΜ, ΤΓΑ ετχ.
CO4	• Hαϖε υνδερστοοδ τηε φρεε ελεχτρον μοδελ, βανδ φορματιον ανδ οριγιν οφ βανδ γαπ.
CO5	Be able to understand the theory of magnetism and phenomena like superconductivity.

Course Outcomes	Program Outcomes							PSOs		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	2	3	3	2	1	1	1	1	2	3
CO2	3	2	3	2	2	1	1	2	2	2
CO3	2	3	3	2	2	1	2	1	2	3
CO4	3	3	3	2	1	2	2	2	2	2
CO5	3	3	3	2	2	2	1	1	2	3
Average	2.60	2.80	3.00	2.00	1.60	1.40	1.40	1.40	2.00	2.60

Class	T. Y. B. Sc.
Subject Code	91214
Subject Name	Classical Electrodynamics
Semester No	VI
Teacher Name	K. V. Wagaskar

Course Outcomes

CO1	1. Be able to use method of images in electrostatics to solve the boundary value problems.
CO2	Should have understood the basic laws in magneto statics like Biot-Savart's law, Ampere's law etc.
CO3	have understood the concept of magnetic vector potential.
CO4	Have understood Maxwell's laws of electrodynamics.
CO5	Be able to solve Maxwell's equations in free space and write equation of plane e-m waves.

Course Outcomes	Program Outcomes							PSOs		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	2	3	3	3	1	1	2	2	2	2
CO2	3	2	3	2	2	2	2	2	3	2
CO3	3	3	3	2	1	1	1	2	3	2
CO4	3	3	3	2	2	2	1	3	2	3
CO5	2	3	2	2	2	1	1	1	2	2
Average	2.60	2.80	2.80	2.20	1.60	1.40	1.40	2.00	2.40	2.20

Class	T.Y. B. Sc.
Subject Code	91284

Course Outcomes	Program Outcomes							PSOs		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3

Subject Name		PHYSICS PRACTICAL PAPER II
Semester No		VI
Teacher Name		K V Wagaskar
Course Outcomes		
	CO1	Have acquired necessary skills to design astable multivibrator circuit using IC-555.2. and be able to understand the characteristics of FET.
	CO2	Be able to plan and perform experiment to determine the thickness of cylindrical obstacle by using diffraction of laser light
	CO3	be able to write and execute simple programs in C language.
	CO4	Be able to perform computer interfaced Physics experiments.
	CO5	Should be able to analyse uv-visible spectroscopic data of semiconductor thin films. and be able to determine particle size by using Scherer formula from XRD.

CO1	3	3	2	1	1	2	1	2	2	1
CO2	2	3	3	2	2	2	2	2	2	2
CO3	3	2	2	1	1	2	1	3	2	1
CO4	2	3	2	2	2	2	2	2	3	2
CO5	3	3	2	2	2	2	1	3	3	2
Average	2.60	2.80	2.20	1.60	1.60	2.00	1.40	2.40	2.40	1.60

CO-PO Mapping

			Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7
		1	PHY-112	2.80	1.80	2.40	1.20	2.00	2.00	1.80
		2	PHY-122	2.60	1.40	1.80	1.80	2.40	2.00	1.80
		3	PHY 111	2.60	2.60	2.00	2.20	2.40	2.60	2.20
		4	PHY 121	2.60	2.40	2.40	2.00	2.20	2.40	2.40
		5	PHY 113 (Physic	2.00	2.40	2.20	2.20	2.00	2.00	2.80
FY	FY	6	PHY 123 (Physic	2.60	2.40	2.40	2.40	2.00	2.00	2.80
		1	23122A- PHY 23	3.00	2.60	3.00	2.40	2.80	2.20	3.00
		2	PHY 233	1.60	1.80	2.60	3.00	2.60	2.60	2.80
		3	24122-PHY 242	3.00	2.00	1.40	1.20	3.00	2.80	3.00
		4	24123B-PHY 24	1.60	1.80	2.60	3.00	2.60	2.60	2.80
		5	PHY-241	3.00	2.00	2.00	1.40	2.60	0.80	3.00
SY	SY	6	PHY-231 (2312	3.00	1.00	2.60	0.00	3.00	1.80	0.00
		1	912B3	2.50	2.50	1.00	2.00	2.00	2.00	3.00
		2	91254	2.50	2.25	2.75	2.00	2.25	2.25	2.50
		3	PHY-353	2.25	2.25	2.25	2.50	1.75	2.00	2.25
		4	PHY-364	2.25	2.00	2.50	2.50	2.50	2.25	2.50
		5	91274	3.00	3.00	2.50	3.00	3.00	2.50	2.00
		6	PHY-354	2.60	2.40	2.60	2.60	2.20	0.60	1.60
		7	PHY-363	3.00	2.00	2.80	1.00	3.00	2.20	2.00
		8	PHY-331	2.00	1.00	3.00	1.00	3.00	3.00	3.00
		9	PHY-346H	3.00	3.00	2.00	3.00	3.00	2.00	3.00
		10	91294	2.67	2.67	2.33	2.67	2.67	2.67	3.00
		11	PH-335 (91253)	2.67	2.67	2.33	2.33	2.67	2.67	2.67
		12	PH-342(91224)	3.00	3.00	2.50	1.00	3.00	2.00	1.00
		13	91223	2.60	2.80	3.00	2.00	1.60	1.40	1.40
		14	91214	2.60	2.80	2.80	2.20	1.60	1.40	1.40
TY	TY	15	91284	2.60	2.80	2.20	1.60	1.60	2.00	1.40

CO-PO ATTAINMENT

PO1	PO2	PO3	PO4	PO5	PO6	PO7
2.352	1.512	2.016	1.008	1.68	1.68	1.512
2.045333	1.101333333	1.416	1.416	1.888	1.573333	1.416
2.6	2.6	2	2.2	2.4	2.6	2.2
2.322667	2.144	2.144	1.786667	1.965333	2.144	2.144
2	2.4	2.2	2.2	2	2	2.8
2.184	2.016	2.016	2.016	1.68	1.68	2.352
3	2.6	3	2.4	2.8	2.2	3
1.6	1.8	2.6	3	2.6	2.6	2.8
3	2	1.4	1.2	3	2.8	3
1.6	1.8	2.6	3	2.6	2.6	2.8
3	2	2	1.4	2.6	0.8	3
0.92	0.306666667	0.797333	0	0.92	0.552	0
2.5	2.5	1	2	2	2	3
2.5	2.25	2.75	2	2.25	2.25	2.5
2.25	2.25	2.25	2.5	1.75	2	2.25
2.25	2	2.5	2.5	2.5	2.25	2.5
3	3	2.5	3	3	2.5	2
2.6	2.4	2.6	2.6	2.2	0.6	1.6
2.52	1.68	2.352	0.84	2.52	1.848	1.68
2	1	3	1	3	3	3
3	3	2	3	3	2	3
2.666667	2.666666667	2.333333	2.666667	2.666667	2.666667	3
2.666667	2.666666667	2.333333	2.333333	2.666667	2.666667	2.666667
3	3	2.5	1	3	2	1
2.6	2.8	3	2	1.6	1.4	1.4
2.6	2.8	2.8	2.2	1.6	1.4	1.4
2.6	2.8	2.2	1.6	1.6	2	1.4

Percentage CO-PO ATTAINMENT

PO1	PO2	PO3	PO4	PO5	PO6	PO7
84	84	84	84	84	84	84
78.66667	78.66667	78.66667	78.66667	78.66667	78.66667	78.66667
100	100	100	100	100	100	100
89.33333	89.33333	89.33333	89.33333	89.33333	89.33333	89.33333
100	100	100	100	100	100	100
84	84	84	84	84	84	84
100	100	100	100	100	100	100
100	100	100	100	100	100	100
100	100	100	100	100	100	100
100	100	100	100	100	100	100
100	100	100	100	100	100	100
30.66667	30.66667	30.66667	#DIV/0!	30.66667	30.66667	#DIV/0!
100	100	100	100	100	100	100
100	100	100	100	100	100	100
100	100	100	100	100	100	100
100	100	100	100	100	100	100
100	100	100	100	100	100	100
100	100	100	100	100	100	100
84	84	84	84	84	84	84
100	100	100	100	100	100	100
100	100	100	100	100	100	100
100	100	100	100	100	100	100
100	100	100	100	100	100	100
100	100	100	100	100	100	100
100	100	100	100	100	100	100
100	100	100	100	100	100	100
100	100	100	100	100	100	100

CO-PSO MAPPING

		Course	PSO1	PSO2	PSO3
	1	PHY-112	2.80	2.00	1.80
	2	PHY-122	2.60	1.80	1.80
	3	PHY 111	2.80	1.80	2.60
	4	PHY 121	2.40	2.00	2.20
	5	PHY 113 (Physics Laboratory-IA)	2.40	2.20	2.40
FY	6	PHY 123 (Physics Laboratory-IB)	2.80	2.40	2.40
	1	23122A- PHY 232	2.80	2.20	2.00
	2	PHY 233	1.60	1.60	2.40
	3	24122-PHY 242	3.00	3.00	3.00
	4	24123B-PHY 243	1.60	1.60	2.40
	5	PHY-241	3.00	3.00	2.60
SY	6	PHY-231 (23121)	3.00	0.00	2.00
	1	912B3	3.00	2.00	3.00
	2	91254	2.75	2.75	2.25
	3	PHY-353	2.00	2.50	2.75
	4	PHY-364	2.00	2.50	3.00
	5	91274	3.00	2.50	3.00
	6	PHY-354	2.80	1.00	2.00
	7	PHY-363	2.00	2.20	2.80
	8	PHY-331	3.00	2.00	3.00
	9	PHY-346H	3.00	2.00	3.00
	10	91294	2.67	2.67	3.00
	11	PH-335 (91253)	2.67	2.33	2.67
	12	PH-342(91224)	2.50	3.00	2.00
	13	91223	1.40	2.00	2.60
	14	91214	2.00	2.40	2.20
TY	15	91284	2.40	2.40	1.60

CO-PSO ATTAINMENT

Course	PSO1	PSO2	PSO3
PHY-112	2.352	1.68	1.512
PHY-122	2.045333	1.416	1.416
PHY 111	2.8	1.8	2.6
PHY 121	2.144	1.786667	1.965333
PHY 113 (Physics Laboratory-IA)	2.4	2.2	2.4
PHY 123 (Physics Laboratory-IB)	2.352	2.016	2.016
23122A- PHY 232	2.8	2.2	2
PHY 233	1.6	1.6	2.4
24122-PHY 242	3	3	3
24123B-PHY 243	1.6	1.6	2.4
PHY-241	3	3	2.6
PHY-231 (23121)	0.92	0	0.613333
912B3	3	2	3
91254	2.75	2.75	2.25
PHY-353	2	2.5	2.75
PHY-364	2	2.5	3
91274	3	2.5	3
PHY-354	2.8	1	2
PHY-363	1.68	1.848	2.352
PHY-331	3	2	3
PHY-346H	3	2	3
91294	2.666667	2.666667	3
PH-335 (91253)	2.666667	2.333333	2.666667
PH-342(91224)	2.5	3	2
91223	1.4	2	2.6
91214	2	2.4	2.2
91284	2.4	2.4	1.6

Percentage CO-PSO ATTAINMENT

Course	PSO1	PSO2	PSO3
PHY-112	84	84	84
PHY-122	78.66667	78.66667	78.66667
PHY 111	100	100	100
PHY 121	89.33333	89.33333	89.33333
PHY 113 (P	100	100	100
PHY 123 (P	84	84	84
23122A- P	100	100	100
PHY 233	100	100	100
24122-PHY	100	100	100
24123B-PH	100	100	100
PHY-241	100	100	100
PHY-231 (2	30.66667	#DIV/0!	30.66667
912B3	100	100	100
91254	100	100	100
PHY-353	100	100	100
PHY-364	100	100	100
91274	100	100	100
PHY-354	100	100	100
PHY-363	84	84	84
PHY-331	100	100	100
PHY-346H	100	100	100
91294	100	100	100
PH-335 (91	100	100	100
PH-342(91	100	100	100
91223	100	100	100
91214	100	100	100
91284	100	100	100