

Anjuman Islam Janjira Degree College of Science

Murud Janjira

Lokmanya Tilak Road, Murud-Janjira dist. Raigad. Maharashtra 402401

Academic Calendar

Teaching Plan for Semester-I Year: 2025-2026

Course	F.Y.B.Sc. (Physics)			
Course Code				
Title	INTRODUCTION TO MECHANICS			
Credits	2 Credits (30 Lectures)			
Name of the	Mr. Altaf Isuf Fakir			
Month	Date	Topic	Lectures	Duration per Month
	UNIT I		15	8
Jul-25	8-7-2025	Newton’s first, second and third laws of motion		
	9-7-2025	interpretation and applications		
	15-7-2025	pseudo forces		
	16-7-2025	inertial and non-inertial frames of reference		
	22-7-2025	Worked out examples		
	23-7-2025	Advantages & disadvantages of friction in daily		
	29-7-2025	Friction as the component of Contact force		
	30-7-2025	Kinetic Friction, Static friction		
Aug-25	5-8-2025	laws of friction	15	9
	5-8-2025	Understanding friction at atomic level		
	6-8-2025	Kinetic Energy, Work and Work-energy theorem		
	12-8-2025	Potential Energy		
	12-8-2025	Conservative and Non-Conservative Forces		
	13-8-2025	Different forms of Energy: Mass Energy Equivalence		
	19-8-2025	Worked out Examples		
	UNIT II			
	20-8-2025	Centre of Mass of solid objects		
Sep-25	26-8-2025	Conservation of momentum in a system of particle	15	9
	2-9-2025	Angular momentum of a particle and system of particle		
	3-9-2025	conservation of angular momentum		
	9-9-2025	Worked out Examples		
	10-9-2025	The Simple Harmonic Oscillator		
	16-9-2025	Relation between Simple Harmonic Motion and Uniform Circular Motion		
	17-9-2025	Damped Harmonic Motion		
	23-9-2025	Forced Oscillations and Resonance		
	24-9-2025	Two Body Oscillations		
Oct-25	30-9-2025	Examples of Simple Harmonic oscillations	15	4
	1-10-2025	Simple Pendulum		
	7-10-2025	Torsional Pendulum		
	8-10-2025	Compound pendulum		
		Worked out Examples		
		Tot. Lec.	30	30

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Academic Calendar

Teaching Plan for Semester-I Year: 2025-2026				
Course	F.Y.B.Sc. (Physics)			
Course Code	USPHP1			
Title	PHYSICS PRACTICAL COURSE			
Credits	2 Credits (30 Lectures)			
Name of the Faculty	Mr. Altaf Isuf Fakir			
Month	Date	Topic	Batch	Lectures per Month
Jul-25	09-07-25	Introductory Session of practical's	Batch- A	14
	14-7-2025	Torsional Oscillation: To determine modulus of rigidity η of a material of wire by Torsional oscillations		
	16-7-2025	Torsional Oscillation: To determine modulus of rigidity η of a material of wire by Torsional oscillations		
	21-7-2025	Moment of inertial of Flywheel		
	23-7-2025	Moment of inertial of Flywheel		
	28-7-2025	Young's Modulus of a wire material by method of vibrations		
	30-7-2025	Young's Modulus of a wire material by method of vibrations		
Aug-25	04-8-2025	LDR Characteristics: To study the dependence of LDR resistance on intensity of light		14
	06-8-2025	LDR Characteristics: To study the dependence of LDR resistance on intensity of light		
	11-8-2025	Frequency of AC Mains: To determine frequency of AC mains		
	13-8-2025	Frequency of AC Mains: To determine frequency of AC mains		
	18-8-2025	To study Thermistor characteristics: Resistance Vs Temperature		
	20-8-2025	To study Thermistor characteristics: Resistance Vs Temperature		
	25-8-2025	To determine capacitance in AC circuits using R and C		
Sep-25	01-9-2025	To determine capacitance in AC circuits using R and C		18
	03-9-2025	To determine Inductance in AC circuits using L		
	08-09-25	To determine Inductance in AC circuits using L		
	10-9-2025	Use of Vernier Callipers, Micrometer Screw Gauge and Travelling Microscope		
	15-9-2025	Spectrometer: Schuster's Method		
	17-9-2025	To determine the Resistance & Capacitance using Color code/Number & verify using Multimeter (Analog/Digital).		
	22-9-2025	Use of digital multimeter		
	24-9-2025	Revision of practicals		
	29-9-2025	Revision of practicals		
	01-10-2025	Revision of practicals		
Oct-25	6-10-2025	Journal Checking		10
	8-10-2025	Journal Checking		
	13-10-2025	Journal Checking		
	15-10-2025	Journal Certification		
		Tot. Lec.		56

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Teaching Plan for Semester-I Year: 2025-2026

Course	F.Y.B.Sc. (Physics) NEP20202 (Vocational Skill		Vertical 04	VSC
Course Code	USHPVSC1			
Title	LABORATORY EQUIPMENT MAINTENANCE			
Credits	2 Credits			
Name of the	Mr. Altaf Isuf Fakir			
Month	Date	Topic	Lectures	ture per Mo
		UNIT-I		
Jul-25	10-7-2025	Testing of Passive Electronic Components using Digital Multimeter (DMM)	07	5
	10-7-2025	Passive components - resistors, capacitors, inductors, failures in fixed resistors, testing of resistors		
	17-7-2025	Passive components - resistors, capacitors, inductors, failures in fixed resistors, testing of resistors		
	24-7-2025	variable resistors, variable resistor as potentiometer, measuring resistors using color codes		
	31-7-2025	variable resistors, variable resistor as potentiometer, measuring resistors using color codes		
Aug-25	07-8-2025	Testing of various types of capacitors & inductors		3
	14-8-2025	Testing of various types of capacitors & inductors		
		UNIT-II		
	21-8-2025	Testing of semiconductor devices, soldering and troubleshooting	08	4
Sep-25	4-9-2025	Testing of semiconductor devices, soldering and troubleshooting		
	11-9-2025	Semiconductor devices: diode, bipolar junction transistors etc, causes & types of failures in semiconductor devices.		
	18-9-2025	Semiconductor devices: diode, bipolar junction transistors etc, causes & types of failures in semiconductor devices.		
	25-9-2025	Basics of soldering: soldering alloy, soldering iron, soldering & desoldering, dry soldering and good		
Oct-25	09-10-2025	Basics of soldering: soldering alloy, soldering iron, soldering & desoldering, dry soldering and good		3
	16-10-2025	Laboratory Power supplies – basic testing and troubleshooting		
	23-10-2025	Laboratory Power supplies – basic testing and troubleshooting		
		Tot. Lec.	15	15

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Teaching Plan for Semester-I Year: 2025-2026

Course	F.Y.B.Sc. (Physics) NEP20202 (Vocational Skill		Vertical 04	VSC
Course Code	USHPVSC1			
Title	LABORATORY EQUIPMENT MAINTENANCE PRACTICAL			
Credits	2 Credits			
Name of the	Mr. Altaf Isuf Fakir			
Month	Date	Topic	Lectures	ture per Mo

Jul-25	10-7-2025	To identify different types of Wires, power cables, probes, fuses used in the laboratory and check their continuity using DMM	30	10
	10-7-2025	Identification of various types passive components		
	17-7-2025	Measurement of resistors using colour codes & DMM and testing of capacitors and inductors.		
	24-7-2025	Identification of various types of semiconductor devices		
	31-7-2025	Testing of semiconductor devices: diode, bipolar junction transistors, Field effect transistors etc.		
Aug-25	07-8-2025	Soldering and desoldering of electronic components in a given circuit		6
	14-8-2025	Mounting simple circuit on PCB and testing.		
	21-8-2025	Troubleshooting a given circuit.		
Sep-25	4-9-2025	Study of a.c power supply & troubleshooting		8
	11-9-2025	Study of d.c power supply and troubleshooting		
	18-9-2025	Revision		
	25-9-2025	Revision		
Oct-25	09-10-2025	Revision		6
	16-10-2025	Revision		
	23-10-2025	Exam Preparation and Revisions		
		Tot. Lect.	30	30

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Teaching Plan for Semester-I Year: 2025-2026

Course	F.Y.B.Sc. (Physics) NEP20202 (Vocational Skill		Vertical 04	SEC
Course Code	USPHPSEC1			
Title	Basic Instrumentation skills and Basic Mathematical Skills for Physics			
Credits	2 Credits			
Name of the	Mr. Altaf Isuf Fakir			
Month	Date	Topic	Lectures	ture per Mo
Jul-25	12-7-2025	Study and use of Vernier Callipers & Micrometer Screw Gauge, Study and use of Travelling Microscope.	45	12
	19-7-2025	Study and use of Spectrometer.		
	19-7-2025	Study and determination of Focal length of a convex		
	26-7-2025	Fundamentals of Electronic Component, Use of Multimeter (analog, Digital), Voltmeter, Ammeter.		
Aug-25	02-8-2025	Use of CRO - voltage (AC, DC), Frequency and Phase measurement.		12
	09-8-2025	Different types of power supplies., Logic gate IC Testing.		
	16-8-2025	Soldering electronic circuits.		
	23-8-2025	Study and use of Thevenin's theorem. Building Electronic Circuits using Breadboard.		
Sep-25	6-9-2025	Graph plotting - plotting of graphs and finding slope and intercept.		12
	13-9-2025	Graph plotting - semi log graph paper.		
	20-9-2025	Theory of errors and calculating-Error for given data		
	27-9-2025	Use of scientific Calculator, Basic trigonometry and its applications in physics		
Oct-25	04-10-2025	Concept of logarithm and its application to Physics		9
	11-10-2025	Concept of derivatives and its application to Physics		
	18-10-2025	Concept of integration and its application to Physics		
		Tot. Lec.	45	45

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Teaching Plan for Semester-III Year: 2025-2026

Course	S.Y.B.Sc. Physics Minor Course- 1				
Course Code					
Title	MECHANICS				
Credits	2 Credits (30 Lectures)				
Name of the	Mr. Altaf Isuf Fakir				
Month	Date	Topic	Lectures	Duration per Month	
	UNIT I- Mechanics of Energy and forces		15	3	
Jun-25	23-6-2025	Introduction to syllabus and chapter			
	24-6-2025	Work done by constant force, work done by variable force			
	30-6-2025	Work done by constant force, work done by variable force			
Jul-25	1-7-2025	Kinetic energy and work-kinetic energy theorem		15	9
	7-7-2025	Power, Potential energy, conservative and non - conservative forces			
	8-7-2025	Conservative Forces and Potential Energy, Conservation of Mechanical Energy			
	14-7-2025	Work Done by Nonconservative Forces, Relationship Between Conservative Forces and			
	15-7-2025	Conservation of Energy in General			
	21-7-2025	Mass–Energy Equivalence			
	22-7-2025	Quantization of Energy			
	28-7-2025	Equivalence of Shear strain to compression and extension strains			
Aug-25	29-7-2025	Relations between elastic constants	15	9	
	4-8-2025	Energy stored in a strained body			
	5-8-2025	couple for twist in cylinder.			
	11-8-2025	Worked out Examples			
	UNIT II-Mechanics of Collisions, Elasticity & Gravitation				
	12-8-2025	Centre of mass, Motion of system of particles			
	12-8-2025	Conservation of Momentum for a Two-Particle System			
	18-8-2025	Concept of Angular momentum of a particle, Angular momentum for many particles system			
	19-8-2025	Concept of Angular momentum of a particle, Angular momentum for many particles system			
	25-8-2025	Angular momentum of a rotating rigid body			
26-8-2025	Angular momentum of a rotating rigid body				
Sep-25	1-9-2025	Angular momentum conservation	15	9	
	2-9-2025	Impulse and momentum			
	8-9-2025	Collisions			
	9-9-2025	Elastic and Non- elastic collisions in one			
	15-9-2025	Gravitational potential energy, gravitational			
	16-9-2025	Calculation of gravitational potential			
	22-9-2025	Calculation of gravitational field			
	23-9-2025	Inertial and gravitational mass.			
	29-9-2025	Worked out Examples			
		Tot. Lec.	30	30	

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Teaching Plan for Semester-III Year: 2025-2026

Course	S.Y.B.Sc. Physics Minor Course- 1 Practical			
Course Code	USPHMNP1 (MN - I)			
Title	MECHANICS			
Credits	2 Credits (30 Lectures)			
Name of the	Mr. Altaf Isuf Fakir			
Month	Date	Topic	Batch	ture per Mo
Jun-25	20-6-2025	To determine modulus of rigidity η using Flat spiral spring		6
	27-6-2025	Determination of Dispersive power of prism using spectrometer		
Jul-25	4-7-2025	To determine Young's modulus Y using Flat spiral spring		12
	11-7-2025	Determination of acceleration due to gravity g using Kater's pendulum		
	18-7-2025	Log Decrement using Simple pendulum		
	25-7-2025	Figure of merit of a mirror galvanometer		
Aug-25	1-8-2025	Determination of R.I. of liquid by laser		12
	8-8-2025	Passive (RC) low pass filter		
	22-8-2025	Passive (RC) High pass Filter		
	22-8-2025	Passive (RC) Band pass		
Sep-25	12-9-2025	To find least count of different types of optical instruments		12
	19-9-2025	To calculate and measure values of passive components		
	26-9-2025	To demonstrate an experiment and explain principles of Physics		
	26-9-2025	Execute a short experiment which will showcase either innovation		
Tot. Lec.				42

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Teaching Plan for Semester-II Year: 2025-2026

Course	F.Y.B.Sc. (Physics)			
Course Code				
Title	Optics			
Credits	2 Credits (30 Lectures)			
Name of the	Mr. Altaf Isuf Fakir			
Month	Date	Topic	Lectures	ture per Mo
UNIT I				4
Nov-2025	18-11-2025	Introduction to lenses, Terminology and sign		
	19-11-2025	Introduction to Thin lenses and Lens equation for single convex lens		
	25-11-2025	Lens maker's equation: Positions of the Principal Foci		
	26-11-2025	Newton's Lens equation.		
	2-12-2025	Lateral, Longitudinal and Angular magnification		
	3-12-2025	Deviation by a thin lens and its power		
	9-12-2025	Equivalent focal length of two thin lenses		

Dec-2025	10-12-2025	Equivalent focal length of two thin lenses	15	8
	16-12-2025	Focal length of the equivalent lens & power of two thin lenses		
	17-12-2025	Focal length of the equivalent lens & power of two thin lenses		
	23-12-2025	Concept of cardinal points and their significance		
	24-12-2025	Spherical aberration & reduction		
Jan-26	6-1-2026	Spherical aberration & reduction	15	8
	7-1-2026	chromatic aberration & reduction (Qualitative).		
	13-1-2026	Suitable numerical with appropriate difficulty level.		
	UNIT II			
	14-1-2026	Introduction, Huygens-Fresnel's theory		
	20-1-2026	Fresnel's assumptions		
	21-1-2026	Distinction between interference and diffraction		
	27-1-2026	Fresnel and Fraunhofer types of diffraction		
	28-1-2026	Introduction, Fraunhofer diffraction at a single slit		
Feb-26	3-2-2026	intensity distribution in diffraction pattern due to a single slit	15	8
	4-2-2026	Fraunhofer diffraction at double slit (Qualitative)		
	10-2-2026	Distinction between single slit and double slit diffraction patterns.		
	11-2-2026	Principle, construction, working, Applications of Michelson Interferometer:		
	17-2-2026	Principle, construction, working, Applications of Michelson Interferometer:		
	18-2-2026	a) Measurement of wavelength		
	24-2-2026	b) Determination of the difference in the wavelength of two waves		
	25-2-2026	c) Determination of the refractive index of gases.		
March-26	4-3-2026	Polarization: Introduction, Polarization	30	2
	10-3-2026	Types of Polarization		
		Tot. Lec.	30	30

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Academic Calendar

Teaching Plan for Semester-II Year: 2025-2026

Course	F.Y.B.Sc. (Physics)			
Course Code	USPHP2			
Title	PHYSICS PRACTICAL COURSE			
Credits	2 Credits (30 Lectures)			
Name of the Faculty	Mr. Altaf Isuf Fakir			
Month	Date	Topic	Batch	ure per M
Nov-25	17-11-25	Introductory Session of practical's		8
	19-11-2025	Study of LASER Beam Divergence		
	24-11-2025	Study of LASER Beam Divergence		
	26-11-2025	Spectrometer: To determine of angle of Prism		
Dec-25	01-12-2025	Spectrometer: To determine of angle of Prism		16
	03-12-2025	Spectrometer: To determine refractive index of prism material		
	08-12-2025	Combination of Lenses: To determine equivalent focal length of a lens system by magnification method		
	09-12-2025	Combination of Lenses: To determine equivalent focal length of a lens system by magnification method		
	15-12-2025	Study of Logic gates & To verify De Morgan's		

	17-12-2025	Study of Logic gates & To verify De Morgan's	Batch- A	
	22-12-2025	To study EX-OR Gate and verify its truth table		
	24-12-2025	To study EX-OR Gate and verify its truth table		
Jan-26	05-1-2026	To study half adder and full adder and verify their truth table Ex-OR Gate		14
	07-1-2026	To study half adder and full adder and verify their truth table Ex-OR Gate		
	12-1-2026	Transistor configurations : CB/CE/CC (study of input-output characteristics)		
	14-1-2026	Transistor configurations : CB/CE/CC (study of input-output characteristics)		
	19-01-26	Radius of ball bearings (single pan balance)		
	21-1-2026	Use of PC for graph plotting		
	28-1-2026	I-V Characteristics of LED		
Feb-26	2-2-2026	Study of I-V characteristics of solar cell		16
	04-2-2026	Testing of components		
	09-2-2026	Revision of practicals		
	11-2-2026	Revision of practicals		
	16-2-2026	Revision of practicals		
	18-02-2026	Journal Checking		
	23-02-2026	Journal Checking		
Mar-26	25-02-2026	Journal Checking		6
	4-03-2026	Journal Certification		
Tot. Lec.				60

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Academic Calendar

Teaching Plan for Semester-IV Year: 2025-2026

Course	S.Y.B.Sc. Physics Minor Course- 2			
Course Code				
Title	Sound			
Credits	2 Credits (30 Lectures)			
Name of the	Mr. Altaf Isuf Fakir			
Month	Date	Topic	Lectures	ture per Mo
	UNIT I- Wave Motion & Velocity of Sound		15	5
Nov-25	4-11-2025	Introduction to syllabus and chapter		
	17-11-2025	Wave motion, characteristic of wave motion		
	18-11-2025	transverse wave, longitudinal wave		
	24-11-2025	relation between frequency and wavelength		
	25-11-2025	equation of Simple Harmonic Wave		
Dec-25	1-12-2025	particle velocity and wave velocity		8
	2-12-2025	particle velocity and wave velocity		
	8-12-2025	energy of a progressive wave.		
	9-12-2025	Velocity of longitudinal waves in gases		
	15-12-2025	newton's formula for velocity of sound		
	16-12-2025	effect of temperature, effect of pressure		
	22-12-2025	velocity of sound in water		
	23-12-2025	velocity of sound in air.		
Jan-26	5-1-2026	Numerical		7
	6-1-2026	Numerical		
	UNIT II-Phenomena of Sound			
	12-1-2026	Stationary waves, properties of stationary longitudinal waves		
	13-1-2026	energy of stationary wave, Interference of sound waves		

	19-1-2026	special cases, Conditions for Interference of sound waves, Introduction to beats.	15	8
	20-1-2026	Velocity of transverse waves along a stretched		
	27-1-2026	laws of transverse wave, verification of the law transverse vibration of strings,		
Feb-26	2-2-2026	Kundts tube, Musical sound and noise,		
	3-2-2026	characteristic of musical sound.		
	9-2-2026	Acoustics of building: reverberation,		
	10-2-2026	explanation of Sabine's formula and importance of		
	16-2-2026	absorption coefficient,		
	17-2-2026	Acoustics of building,		
	23-2-2026	factors affecting acoustics of building		
	24-2-2026	sound distribution in an auditorium.		
Mar-26	9-3-2026	Numericals	30	2
	10-3-2026	Numericals		
		Tot. Lec.	30	30

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Teaching Plan for Semester-III Year: 2025-2026

Course	S.Y.B.Sc. Physics Minor Course- 2 Practical			
Course Code	USPHMNP2 (MN - II)			
Title				
Credits	2 Credits (30 Lectures)			
Name of the	Mr. Altaf Isuf Fakir			
Month	Date	Topic	Batch	ture per Mo
Nov-25	14-11-2025	1. Brewster's law: determination of μ		12
	21-11-2025	4. Determination of angle of diffraction using grating (Istorder only)		
	28-11-2025	5. To determine wavelength of monochromatic light by using biprism.		
Dec-25	5-12-2025	7. I-V Characteristics of Solar cell with different intensity of light		12
	12-12-2025	8. Verification of Stefans law (Electrical Method)		
	19-12-2025	9. To determine the load resistance value using maximum power transfer theorem.		
Jan-26	2-1-2026	10. To verify the relation between the volume of the resonating air column and the frequency of the note emitted using a volume resonator		20
	9-1-2026	12. To study electrical characteristics of		
	16-1-2026	13. To determine coefficient of viscosity of a liquid using Poiseuille's method		
	23-1-2026	14. To determine the value of the mechanical equivalent of heat (J) by electrical method		
	30-1-2026	To find least count of different types of optical instruments		
Feb-26	6-2-2026	To calculate and measure values of passive components		16
	13-2-2026	To prepare chart for and explain the devices /components used for experiments		
	20-2-2026	To demonstrate an experiment and explain principles of Physics		

	27-2-2026	Practicals Revision		
Mar-26	6-3-2026	Practicals Revision		8
	13-3-2026	Practicals Revision		
		Tot. Lec.		68