Shri Swami Vivekanand Shikshan Sanstha's

Vivekanand College, Kolhapur (Autonomous) Department of Physics **Annual Teaching Plan**

Academic Year: 2021-22

Subject: Physics

Name of the teacher: Dr.M.M. Karanjkar

	eli	1	1	System (GI S) and its	system (GPS) and its
7.50, 1	16			Mewton's Law of Gravitation, Motion of a particle in a central force field (motion in a plane, angular momentum is conserved, areal velocity is constant), Kepler's Laws (statement only), Satellite in circular orbit and applications, Geosynchronous orbits, Weightlessness, Basic idea of global positioning system (GPS) and its	Gravitation: Newton's Law of Gravitation, Motion of a particle in a central force field (motion in a plane, angular momentum is conserved, areal velocity is constant), Kepler's Laws (statement only), Satellite in circular orbit and applications, Geosynchronous orbits, Weightlessness, Basic idea of global positioning
B.Sc. III	Lect ures 12	Practicals	Total	Physical interpretation of wave function, Schrodinger time dependent an independent equation (on and three dimensional Requirements of wave function, Eigen value, Eigen function, Normalized orthogonal and orthonorma wave functions, Probability current density (Continuity equation). Examples on Normalization of wave function	time dependent a independent equation (or and three dimensional Requirements of was function, Eigen value, Eigen function, Normalized orthogonal and orthonorm wave functions, Probabilic current density (Continuity equation). Examples

Month J	Tuly Lect	Practicals	Total	1) Characteristics of Transistor. 2) Use of sextant to measure height of object. 3) Crystal Oscillator. 4) Colpitts oscillator. Module/Unit: Introduction to Quantum	1) Characteristics of Transistor. 2) Use of sextant to measure height of object. 3) Crystal Oscillator. 4) Colpitts oscillator. Sub-units planned Introduction to Quantum
B.Sc. III	ures 12	-	12	Mechanics Origin of quantum mechanics, Review of black body radiation, Photoelectric effect, matter waves, De-Broiglie hypothesis, experimental evidence of de Broglie theory (Davisson and Germer experiment), wave particle duality, Heisenberg's uncertainty principle and different forms uncertainty principle	Mechanics Origin of quantum mechanics, Review of black body radiation, Photoelectric effect, matter waves, De-Broiglie hypothesis, experimental evidence of de Broglie theory (Davisson and Germer experiment), wave particle duality, Heisenberg's uncertainty principle and different forms uncertainty principle
B.Sc.	16		16	Bending of beam, Bending moment, Cantilever (without considering weight of cantilever), Beamsupported at both the ends (without considering weight of beam). Torsional oscillation, Work done in twisting a wire, Twisting couple on a cylinder, Torsional pendulum - Determination of Rigidity modulus and moment of inertia, Determination of Y, η and σ by Searles method	Bending of beam, Bending moment, Cantilever (without considering weight of cantilever), Beamsupported at both the ends (without considering weight of beam). Torsional oscillation, Work done in twisting a wire, Twisting couple on a cylinder, Torsional pendulum - Determination of Rigidity modulus and moment of inertia, Determination of Y, η and σ by Searles method

B.Sc.	-	64	64	Practicals:	Practicals:
				1) To record and analyze the cooling temperature of hot object as a function of time using a thermocouple.	1
				2) To calibrate Resistance Temperature Device (RTD) using Null Method/Off- Balance Bridge	2) To calibrate Resistance Temperature Device (RTD) using Null Method/Off- Balance Bridge
				3) Temperature of flame.	3) Temperature of flame.
				4) To determine Mechanical Equivalent of Heat, J, by Callender and Barne's constant flow	4) To determine Mechanical Equivalent of Heat, J, by Callender and Barne's constant flow
Month Aug	4			method.	method.
				Module/Unit:	Sub-units planned
	res	Practicals	Total	Applications of Schrodinger's Steady State Equation	Applications of Schrodinger's Steady State
II			12	Quantum mechanics treatment of particle in rigid box (1D and 3D). Step potential relation and transmission coefficient. Barrier potential- Tunnelling effect, \alpha-decay, simple harmonic oscillator.	Equation Quantum mechanics treatment of particle in rigid box (1D and 3D). Step potential relation and transmission coefficient. Barrier potential- Tunnelling effect, α-decay, simple harmonic oscillator.

B.Sc. I	16	-	16	Oscillations	Oscillations
				Simple harmonic motion (SHM), Differential equation of SHM and its solutions, Kinetic and Potential Energy, Total Energy and their time averages, Damped oscillations, Forced oscillations.	Simple harmonic motion (SHM), Differential equation of SHM and its solutions, Kinetic and Potential Energy, Total Energy and their time averages, Damped oscillations, Forced oscillations.
B.Sc. II	100	64	64	Practicals :	Practicals:
		al .		1) To determine wavelength of 1) Sodium &2) spectrum of Mercury light using plane diffraction grating.	1) To determine wavelength of 1) Sodium &2)spectrum of Mercury light usingplane diffraction grating.
				2). Goniometer I-To study cardinal points of opticalsystem.	2). Goniometer I-To study cardinal points of opticalsystem.
				3) Goniometer II- To study the equivalent focal length of opticalsystem.	3) Goniometer II- To study the equivalent focal length of opticalsystem.
				4) To study angle of specific rotation of sugar using Polarimeter.	4) To study angle of specific rotation of sugar using Polarimeter.
Month S	eptembe	er		Module/Unit:	Sub-units planned
B.Sc.	Lect	Practicals	Total	Operator in Quantum Mechanics	Operator in Quantum Mechanics
Ecov.				Definition of an operator in quantum mechanics, commutation relation in quantum mechanics, position,	Definition of an operator in quantum mechanics, commutation relation in quantum mechanics, position,

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B.Sc. I 16	momentum and angular momentum operator, Angular momentum operator in spherical polar coordinate system, Hamilton operator, Hamilton operator commutation relation between x' and p. Expectation value of an operator communication relation between L2 and components of L, Raising and lowering operator L+ and L Eigen values of L2 and L1. Concept of parity operator. Concept of Hermitian operator. 16 Electricity Introduction — DC and varying currents, LR Circuit, RC circuit and LC circuit, Growth and decay of currents, Theory of B.G. and constants of B.G., time constants T momentum operator, Angular momentum operator in spherical polar coordinate system, Hamilton operator, Hamilton operator, and poperator communication relation between L2 and components of L, Raising and lowering operator L+ and L Eigen values of L2 and L1. Concept of parity operator. Concept of Hermitian operator. Electricity Introduction — DC and varying currents, LR Circuit, Growth and decay of currents, Theory of B.G. and constants of B.G., time constants T
B.Sc. II - 64	Practicals: 1) Measurement of rise, fall and delay time using a CRO 2) Measurement of distortion of a RF signal generator using distortion factor meter. 3) . Measurement of R, L and C using a LCR bridge/ universal bridge. 4) Measurement of time period, frequency, average Practicals: 1) Measurement of rise, fall and delay time using a CRO 2) Measurement of of distortion of a RF signal generator using distortion factor meter. 3) . Measurement of R, L and C using a LCR bridge/ universal bridge. 4) Measurement of time period, frequency, average

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				period using using universal	period using using universal
				counter/frequency counter	counter/frequency counter
Month October/November				Module/Unit:	Sub-units planned
	Lect	Practicals	Total	Examination	Examination
Month D	ecembe	r	L	Module/Unit:	Sub-units planned
	Lect	Practicals	Total	Dielectric Properties of Materials	Dielectric Properties of Materials
B.Sc.	12		12	Polarization. Local Electric Field at an Atom. Depolarization Field. Electric Susceptibility. Polarizability. Clausius Mosotti Equation. Classical Theory of Electric Polarizability. Normal and Anomalous Dispersion. Cauchy and Sellmeir relations. Langevin-Debye equation. Complex Dielectric Constant. Optical Phenomena. Application: Plasma Oscillations, Plasma Frequency, Plasmons	Polarization. Local Electric Field at an Atom. Depolarization Field. Electric Susceptibility. Polarizability. Clausius Mosotti Equation. Classical Theory of Electric Polarizability. Normal and Anomalous Dispersion. Cauchy and Sellmeir relations. Langevin-Debye equation. Complex Dielectric Constant. Optical Phenomena. Application: Plasma Oscillations, Plasma Frequency, Plasmons
B.Sc. I	16	61	16	Surface Tension Surface Tension, Angle of contact and wettability, relation between surface tension, excess of pressure and radius of curvature, Experimental determination of surface tension by Jaeger's method, Factors affecting surface tension, Applications of surface tension.	Surface Tension Surface Tension, Angle of contact and wettability, relation between surface tension, excess of pressure and radius of curvature, Experimental determination of surface tension by Jaeger's method, Factors affecting surface tension, Applications of surface tension.

B.Sc. II	81	64	64	Practicals :	Practicals:
				1) Ic 555 timer.	1) Ic 555 timer.
,				2) Electronic switch using transistor.	2) Electronic switch using transistor.
				3) Characteristics of FET.	3) Characteristics of FET.
				4) FET as VVR.	4) FET as VVR.
Month Ja	ınuary			Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Magnetic Materials and their Properties:	Magnetic Materials and their Properties:
B.Sc. III	12	-	12	Magnetic intensity, magnetic induction, permeability, magnetic susceptibility. Hysteresis and hysteresis curve, diamagnetic, paramagnetic, ferromagnetic, ferrimagnetic and antiferromagnetic materials.	Magnetic intensity, magnetic induction, permeability, magnetic susceptibility. Hysteresis and hysteresis curve, diamagnetic, paramagnetic, ferromagnetic, ferrimagnetic and antiferromagnetic materials.
B.Sc. I	16		16	A.C. Circuits Complex numbers and their application in solving a. c. series LCR circuit, complex impedance, Reactance, Admittance, and Susceptance, Resonance in LCR series circuit, Sharpness of resonance (qualitative treatment only), Q-factor (definition only) A.C. Bridge - Owen's Bridge	A.C. Circuits Complex numbers and their application in solving a. c. series LCR circuit, complex impedance, Reactance, Admittance, and Susceptance, Resonance in LCR series circuit, Sharpness of resonance (qualitative treatment only), Q-factor (definition only) A.C. Bridge - Owen's Bridge



B.Sc. II	-	64	64	Practicals :	Practicals :
				To determine the wavelength of sodium light using Fresenel Biprism.	1) To determine the wavelength of sodium light using Fresenel Biprism.
				2) To determine the Resolving Power of a Prism.	2) To determine the Resolving Power of a Prism.
				3) To determine the Resolving Power of a Plane Diffraction Grating.	3) To determine the Resolving Power of a Plane Diffraction Grating.
				4) To determine wavelength of Laser light using diffraction of single slit.	4) To determine wavelength of Laser light using diffraction of single slit.
Month Fe	ebruary			Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Introduction of free electron theory (Classical and Quantum mechanical),	Introduction of free electron theory (Classical and Quantum mechanical),
B.Sc. III	12	5	12	Kronig Penny model, Effective mass of an electron, Band Gaps. Conductors, Semiconductors and insulators. P and N type semiconductors. Conductivity of Semiconductors, mobility, Hall Effect, Hall voltage and Hall coefficient.	Kronig Penny model, Effective mass of an electron, Band Gaps. Conductors, Semiconductors and insulators. P and N type semiconductors. Conductivity of Semiconductors, mobility, Hall Effect, Hall voltage and Hall coefficient.



B.Sc. I	16	i e:	16	Magnetism	Magnetism
				Introduction to magnetization and intensity of Magnetization, Biot-Savart's law & its applications - straight conductor, circular coil, solenoid carrying current, Divergence and curl of magnetic field, Magnetic vector potential, Ampere's circuital lawat earth's surface	Introduction to magnetization and intensity of Magnetization, Biot-Savart's law & its applications - straight conductor, circular coil, solenoid carrying current, Divergence and curl of magnetic field, Magnetic vector potential, Ampere's circuital lawat earth's surface
B.Sc. II	.=:	64	64	Practicals:	Practicals :
				1) To determine the value of Stefan's Constant. 2) To determine the coefficient of thermal conductivity of copper by	Stefan's Constant. 2) To determine the coefficient of thermal conductivity of copper by
				Searle's Apparatus. 3) To determine the Coefficient of Thermal Conductivity of Cu by Angstrom's Method.	Searle's Apparatus. 3) To determine the Coefficient of Thermal Conductivity of Cu by Angstrom's Method.
Month M	larch			Module/Unit:	Sub-units planned
Course	Lect ures	Practicals	Total	X-Ray Diffraction Reciprocal lattice and its	X-Ray Diffraction Reciprocal lattice and its
B.Sc.	12		12	properties, concept of Brillouin zone, diffraction of X-rays by crystals, Ewald construction, Bragg's law in reciprocal lattice, X-ray diffraction methods: 1) Laue method.	properties, concept of Brillouin zone, diffraction of X-rays by crystals, Ewald construction, Bragg's law in reciprocal lattice, X-ray diffraction methods: 1) Laue method.

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B.Sc. I	16		16	Network Theorems	Network Theorems
				Introduction, Node, Junction, Branch, Loop, Active and passive elements, Thevenin's theorem, Nortan's theorem and equivalence between them, problems.	Introduction, Node, Junction, Branch, Loop, Active and passive elements, Thevenin's theorem, Nortan's theorem and equivalence between them, problems.
B.Sc. II	3	64	64	Practicals:	Practicals:
				1)To observe the loading effect of a multimeter while measuring voltage across a low resistance and high resistance.	1)To observe the loading effect of a multimeter while measuring voltage across a low resistance and high resistance.
				2) To observe the limitations of a multimeter for measuring high frequency voltage and currents.	2) To observe the limitations of a multimeter for measuring high frequency voltage and currents.
				3) To measure Q of a coil and its dependence on frequency using a Q-meter.	3) To measure Q of a coil and its dependence on frequency using a Q-meter.
				4) Measurement of voltage, frequency, time period and phase angle using CRO	4) Measurement of voltage, frequency, time period and phase angle using CRO
Month A	pril			Module/Unit:	Sub-units planned
Lectures		Practicals	Total	Examination	Examination

Teacher Incharge



Head of the
Department of Physics
Vivekanand College, Kolhabu

Shri Swami Vivekanand Shikshan Sanstha's

Vivekanand College, Kolhapur (Autonomous) Department of Physics Annual Teaching Plan

Academic Year: 2021-22

Subject: Physics

Name of the teacher: Mr S. V. Malgaonkar

Month Jun	e			Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Crystal Structure Types of the solids,	Crystal Structure Types of the solids,
B.Sc. II	12		12	Amorphous, crystalline, lattice, lattice translation vectors, lattice with basis (Central , non central elements) Unit cell , Examples of crystal structure NaCl, KCl,	Amorphous, crystalline, lattice, lattice translation vectors, lattice with basis (Central , non central elements) Unit cell , Examples of crystal structure NaCl, KCl,
B.Sc. III	12		12	Magnetic Properties of Materials Magnetic materials, permeability, susceptibility, magnetization, magnetic moment, electron spin, Diamagnetic materials, Paramagnetic materials,	Materials Magnetic materials, permeability, susceptibility, magnetization, magnetic moment, electron spin, Diamagnetic materials, Paramagnetic materials,
				ferromagnetic, ferromagnetic, classical theory of diamagnetism and paramagnetism, Curie law, Curie constant, Weiss theory of ferromagnetism, and ferromagnetic domain, Hysteresis loop for ferromagnetic materials.	ferromagnetic, ferromagnetic, classical theory of diamagnetism and paramagnetism, Curie law, Curie constant, Weiss theory of ferromagnetism, and ferromagnetic domain, Hysteresis loop for ferromagnetic materials.
B.Sc. III	2	80	80	Practicals:	Practicals :
ANDC				 Resonance pendulum. S. T. of soap solution. 	Resonance pendulum. S. T. of soap solution.

				3) S. T. by Fergusson modified method.4) Y & η using flat spiral spring.	3) S. T. by Fergusson modified method.4) Y & η using flat spiral spring.
Month July	У		1	Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Kinetic Theory of Gases and thermometry	Kinetic Theory of Gases and thermometry
B.Sc. II	12		12	Mean free path, expression, approximate method derivation of Maxwell's law of distribution of velocities and its experimental verification, Transport Phenomena: transport of momentum (viscosity), transport of thermal energy (conduction), Transport of mass (diffusion),	Mean free path, expression, approximate method derivation of Maxwell's law of distribution of velocities and its experimental verification, Transport Phenomena: transport of momentum (viscosity), transport of thermal energy (conduction), Transport of mass (diffusion),
B.Sc. III	12		12	Lattice Vibration and Thermal Properties of Solid Lattice vibrations, Phonons, normal modes of one dimensional and diatomic chain, Acoustical and optical phonons, Phonons spectrum in solids, Dulong Petit's law (Classical Theory), Einstein	Lattice Vibration and Thermal Properties of Solid Lattice vibrations, Phonons, normal modes of one dimensional and diatomic chain, Acoustical and optical phonons, Phonons spectrum in solids, Dulong Petit's law (Classical Theory), Einstein



1) Cardinal points by turtable method. 2) Cardinal points Newton's method. 3) Diffraction at single slit. 4) Diffraction at cylindric obstacle. 5) Diffraction at straight ed	table method. by 2) Cardinal points by Newton's method. 3) Diffraction at single slit. 4) Diffraction at cylindrical obstacle.
Newton's method. 3) Diffraction at single slit. 4) Diffraction at cylindric obstacle.	Newton's method. 3) Diffraction at single slit. 4) Diffraction at cylindrical obstacle. dge 5) Diffraction at straight edge
4) Diffraction at cylindric obstacle.	cal 4) Diffraction at cylindrical obstacle.dge 5) Diffraction at straight edge
obstacle.	obstacle. dge 5) Diffraction at straight edge
5) Diffraction at straight ed	
	Sub units planned
Month August Module/Unit:	Sub-units planned
Course Lect Practicals Total Laws of Thermodynamic	cs Laws of Thermodynamics
	tem, Thermodynamic system,
B.Sc. II 12 - 12 thermodynamic variable thermodynamic structure equation of state,	oles, thermodynamic variables, tate, thermodynamic state, equation of state,
thermodynamic equilibric Zeroth Law thermodynamics, Interest energy, First law of	thermodynamic equilibrium, of Zeroth Law of thermodynamics, Internal energy, First law of
thermodynamics, convers of heat into work, spec heats CP& CV, Applicati of First Law	cific of heat into work, specific
(Isothermal process, Isochool Isobaric), relation between & CV	oric, Adiabatic process, Isochoric,



B.Sc. III	12	· ·	12	Kinetic Theory of Gases and thermometry	Kinetic Theory of Gases and thermometry
				Law of equipartition of energy (qualitative) and its applications to specific heat of monoatomic and	Law of equipartition of energy (qualitative) and its applications to specific heat of monoatomic and
				diatomic gases. Thermometry: Concept of heat and temperature, temperature scales, principle of	diatomic gases. Thermometry: Concept of heat and temperature, temperature scales, principle of
			ë	thermometry mercury thermometer, platinum resistance thermometer, thermocouple. (Principle, construction and theory)	thermometry mercury thermometer, platinum resistance thermometer, thermocouple. (Principle, construction and theory)
B.Sc. III		80	80	Practicals :	Practicals:
B.se. m				Self inductance by Owen's bridge.	1) Self inductance by Owen's bridge.
				2) Self inductance by Rayleigh's method.	2) Self inductance by Rayleigh's method.
				3) Self inductance by Maxwell bridge.	3) Self inductance by Maxwell bridge.
				4) Measurement of BV, BH and θ using earth inductor.	4) Measurement of BV, BH and θ using earth inductor.
				5) Hysteresis by magnetometer.	5) Hysteresis by magnetometer.
Month Sept	ember	I		Module/Unit:	Sub-units planned
B.Sc. II	Lect	Practicals	Total	Laws of Thermodynamics Work done during isothermal and adiabatic processes, reversible & irreversible processes, Second law	Laws of Thermodynamics Work done during isothermal and adiabatic processes, reversible & irreversible processes, Second law
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	12	-	12	of thermodynamics, Carnot's ideal heat engine, Carnot's cycle (Working, efficiency), Carnot's	of thermodynamics, Carnot' ideal heat engine, Carnot' cycle (Working, efficiency) Carnot's
				theorem, Entropy (concept & significance), change in entropy, Entropy changes in reversible &	theorem, Entropy (concept of significance), change is entropy, Entropy changes is reversible &
				irreversible processes, Third law of thermodynamics, Entropy change in conduction of heat,	irreversible processes, Thir law of thermodynamic Entropy change in conduction of heat,
				diffusion of gases ,physical significance of entropy, Unattainability of absolute zero. Zero	diffusion of gases ,physic significance of entropy, Un attainability of absolute zero
				point energy.	point energy.
B.Sc. III	12	-	12	Superconductivity	Superconductivity
				Idea of superconductivity, Critical temperature, Critical magnetic field. Meissner effect. Type I and type II Superconductors, London's Equation and Penetration Depth, Isotope effect	magnetic field. Meissn
B.Sc. III	-	80	80	1) 'Y' by Koenig's method.	1) 'Y' by Koenig's method.
				2) 'Y' by cornu's method.	2) 'Y' by cornu's method.
				3) Measurement of heat capacity of solid.	3) Measurement of he capacity of solid.
				4) S. T. tension by drop weight method.	4) S. T. tension by drop weight method.
				5) Young's modulus by vibration using AFG.	5) Young's modulus by vibration using AFG.
		vember		Module/Unit:	Sub-units planned

	Lect ures	Practicals	Total	Examination	Examination
Month Dec	ember			Module/Unit:	Sub-units planned
	Lect	Practicals	Total	Thermodynamic Potentials Enthalpy, Gibbs, Helmholtz,	Thermodynamic Potentials Enthalpy, Gibbs, Helmholtz,
B.Sc. II	12		12	Internal Energy functions, Maxwell's thermodynamical relations, Joule-Thomson effect, Clausius- Clapeyron equation, Expression for (CP – CV), CP/CV, TdS equations.	Internal Energy functions, Maxwell's thermodynamical relations, Joule-Thomson effect, Clausius- Clapeyron equation, Expression for (CP – CV), CP/CV, TdS equations.
B.Sc. III	12	-	12	Instrumentations:Introduction to CRO Block Diagram of CRO. Applications of CRO: (1) Study of Waveform, (2) Measurement of Voltage, Current, Frequency, and Phase Difference.	Instrumentations:Introduction to CRO Block Diagram of CRO. Applications of CRO: (1) Study of Waveform, (2) Measurement of Voltage, Current, Frequency, and Phase Difference.
B.Sc. III		80	80	Practicals: 1) Self inductance by Owen's bridge.	Practicals: 1) Self inductance by Owen's bridge.
				2) Self inductance by Rayleigh's method.	2) Self inductance by Rayleigh's method.
				3) Self inductance by Maxwell bridge.	3) Self inductance by Maxwell bridge.
				4) Measurement of BV, BH and θ using earth inductor.	4) Measurement of BV, BH and θ using earth inductor.
				5) Hysteresis by magnetometer.	5) Hysteresis by magnetometer.
Month Janu	iary			Module/Unit:	Sub-units planned

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Course	Lect	Practicals	Total	Theory of Radiation	Theory of Radiation
	ures			Thermal radiations,	Thermal radiations,
B.Sc. II	12		12	Blackbody radiation and its importance, Black body in practice, its temperature dependence emissive power, absorptive power, pressure of radiation Experimental study of black body radiation spectrum, Concept of energy density, Derivation of Planck's law, Deduction of Wien's distribution law, Rayleigh-Jeans Law, Stefan Boltzmann Law and Wien's displacement law from Planck's law.	Blackbody radiation and its importance, Black body in practice, its temperature dependence emissive power, absorptive power, pressure of radiation, Experimental study of black body radiation spectrum, Concept of energy density, Derivation of Planck's law, Deduction of Wien's distribution law, Rayleigh-Jeans Law, Stefan Boltzmann Law and Wien's displacement law from Planck's law.
B.Sc. III	12		12	Digital Electronics Introduction to logic gates, De-Morgan's theorem, NAND and NOR gates as universal gates, R-S and J-K flip flops, half and full adder, parallel binary adder.	Digital Electronics Introduction to logic gates, De-Morgan's theorem, NAND and NOR gates as universal gates, R-S and J-K flip flops, half and full adder, parallel binary adder.

B.Sc. III		80	80	Practicals:	Practicals:
				l) e/m of electron by Thomson's method.	1) e/m of electron by Thomson's method.
				2) Measurement of dielectric constant.	2) Measurement of dielectric constant.
				3) Resistivity of semiconductor crystal with temperature by four probe method.	3) Resistivity of semiconductor crystal with temperature by four probe method.
				5) Calibration of wire using Carey-foster key	5) Calibration of wire using Carey-foster key
Month Febr	ruary	I.		Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Classical statistics	Classical statistics
B.Sc. II	12	-	12	Degrees of freedom ,momentum space, position space ,Phase space, Microstate and Macrostate, Accessible microstates, priory probability thermodynamic probability, probability distribution, Maxwell-Boltzmann distribution law, energy or speed, evaluation of constants α and β, Entropy and Thermodynamic probability, Distribution of molecular speeds.	Degrees of freedom , momentum space, position space , Phase space, Microstate and Macrostate, Accessible microstates, priory probability thermodynamic probability, probability distribution, Maxwell-Boltzmann distribution law, energy or speed, evaluation of constants α and β, Entropy and Thermodynamic probability, Distribution of molecular speeds.
B.Sc. III	12		12	Special functions of ICs IC 555, Block diagram and special functions if ICs, Astable Operation: Circuit diagram, frequency of oscillation and duty cycle, Applications as tone brust oscillator, voltage controlled frequency shifters. Monostable operation: circuit diagram, Applications as touch switch and frequency	Special functions of ICs IC 555, Block diagram and special functions if ICs, Astable Operation: Circuit diagram, frequency of oscillation and duty cycle, Applications as tone brust oscillator, voltage controlled frequency shifters. Monostable operation: circuit diagram, Applications as touch switch and frequency

B.Sc. III	-	80	80	divider. Bistable Operation: Circuit diagram and circuit action. Practicals:	divider. Bistable Operation: Circuit diagram and circuit action. Practicals:
<				 UJT as voltage sweep generator. Astable multivibrator by using IC 555 timer. Monostable multivibrator by using IC 555 timer. IV characteristics of P-N diode and LED. Inverting amplifier using op - Amp 741. 	 UJT as voltage sweep generator. Astable multivibrator by using IC 555 timer. Monostable multivibrator by using IC 555 timer. IV characteristics of P-N diode and LED. Inverting amplifier using op - Amp 741.
Month Marc	ch			Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Quantum statistics	Quantum statistics
B.Sc. II	12		12	Need of quantum statics, Bose-Einstein distribution law, photon gas, Planck, s radiation law Fermi-Dirac distribution law, free electron in metal, electron gas, comparison of M.B., B.E., and F.D. statistics.	Need of quantum statics, Bose-Einstein distribution law, photon gas, Planck, s radiation law Fermi-Dirac distribution law, free electron in metal, electron gas, comparison of M.B., B.E., and F.D. statistics.

B.Sc. III	12		12	Bipolar transistors: n-p-n and p-n-p Transistors. Characteristics of CB, CE and CC Configurations. Current gains α and β. Relations between α and β. Load Line analysis of Transistors. DC Load line and Q point. Active, Cut-off, and Saturation Regions. Voltage Divider Bias Circuit for CE Amplifier. h-parameter Equivalent Circuit. Analysis of a single-stage CE amplifier using Hybrid Model. Input and Output Impedance, Current, Voltage and Power Gains.	Bipolar transistors: n-p-n and p-n-p Transistors. Characteristics of CB, CE and CC Configurations. Current gains α and β. Relations between α and β. Load Line analysis of Transistors. DC Load line and Q point. Active, Cut-off, and Saturation Regions. Voltage Divider Bias Circuit for CE Amplifier. h- parameter Equivalent Circuit. Analysis of a single-stage CE amplifier using Hybrid Model. Input and Output Impedance, Current, Voltage and Power Gains.
B.Sc. III		80	80	Practicals: 1) Study of divergence of LASER beam. 2) Measurement of wavelength of LASER using grating. 3) Lattice constant using XRD powder. 4) To measure numerical aperture of optical fibre. 5) Obtain interference fringes using Biprism.	Practicals: 1) Study of divergence of LASER beam. 2) Measurement of wavelength of LASER using grating. 3) Lattice constant using XRD powder. 4) To measure numerical aperture of optical fibre. 5) Obtain interference fringes using Biprism.
Month Apri	l			Module/Unit:	Sub-units planned
Lectures	Lectures Practicals Total			Examination	Examination

Teacher Incharge



Head of the
Department of Physics
Vivekanand College, Kolhapur

Shri Swami Vivekanand Shikshan Sanstha's

Vivekanand College, Kolhapur (Autonomous) Department of Physics Annual Teaching Plan

Academic Year: 2021-22

Subject: Physics

Name of the teacher: Dr. G. J. Navathe

Month Ju	ine			Module/Unit: Sub-units planned	
Course	Lect ures	Practicals	Total	Operator in Quantum Mechanics	Operator in Quantum Mechanics
B.Sc. III	12		12	Definition of an operator in quantum mechanics, commutation relation in quantum mechanics, position, momentum and angular momentum operator, Angular momentum operator in spherical polar coordinate system, Hamilton operator, Hamilton operator commutation relation between x' and p. Expectation value of an operator communication relation between L2 and components of L, Raising and lowering operator L+ and L Eigen values of L2 and L1. Concept of parity operator. Concept of Hermitian operator.	Definition of an operator in quantum mechanics, commutation relation in quantum mechanics, position, momentum and angular momentum operator, Angular momentum operator in spherical polar coordinate system, Hamilton operator, Hamilton operator commutation relation between x' and p. Expectation value of an operator communication relation between L2 and components of L, Raising and lowering operator L+ and L Eigen values of L2 and L1. Concept of parity operator. Concept of Hermitian operator.



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			Bending of beam, Bending moment, Cantilever (without considering weight of cantilever), Beamsupported at both the ends (without considering weight of beam). Torsional oscillation, Work done in twisting a wire, Twisting couple on a cylinder, Torsional pendulum - Determination of Rigidity modulus and moment of inertia, Determination of Y, η and σ by Searles method.	Bending of beam, Bending moment, Cantilever (without considering weight of cantilever), Beamsupported at both the ends (without considering weight of beam). Torsional oscillation, Work done in twisting a wire, Twisting couple on a cylinder, Torsional pendulum - Determination of Rigidity modulus and moment of inertia, Determination of Y, η and σ by Searles method.
.=:	64	64	Practicals :	Practicals :
			1) Characteristics of Transistor.	1) Characteristics of Transistor.
			2) Use of sextant to measure height of object.	2) Use of sextant to measure height of object.
			3) Crystal Oscillator.	3) Crystal Oscillator.
			4) Colpitts oscillator.	4) Colpitts oscillator.
ıly			Module/Unit:	Sub-units planned
Lect ures	Practicals	Total	Applications of Schrodinger's Steady State Equation	Applications of Schrodinger's Steady State Equation
12	-	12	Quantum mechanics treatment of particle in rigid box (1D and 3D). Step potential relation and transmission coefficient. Barrier potential- Tunnelling effect, α-decay, simple harmonic oscillator.	Quantum mechanics treatment of particle in rigid box (1D and 3D). Step potential relation and transmission coefficient. Barrier potential- Tunnelling effect, α-decay, simple harmonic oscillator.
	ıly	lly Lect Practicals ures	Lect Practicals Total ures	cantilever), Beamsupported at both the ends (without considering weight of beam). Torsional oscillation, Work done in twisting a wire, Twisting couple on a cylinder, Torsional pendulum - Determination of Rigidity modulus and moment of inertia, Determination of Y, η and σ by Searles method. - 64 64 Practicals: 1) Characteristics of Transistor. 2) Use of sextant to measure height of object. 3) Crystal Oscillator. 4) Colpitts oscillator. Module/Unit: Lect Practicals Total Applications of Schrodinger's Steady State Equation Quantum mechanics treatment of particle in rigid box (1D and 3D). Step potential relation and transmission coefficient. Barrier potential- Tunnelling effect, α-decay, simple

X

B.Sc.	16	1	16	Gravitation:	Gravitation:
I				Newton's Law of Gravitation, Motion of a particle in a central force field (motion in a plane, angular momentum is conserved, areal velocity is constant), Kepler's Laws (statement only), Satellite in circular orbit and applications, Geosynchronous orbits, Weightlessness, Basic idea of global positioning system (GPS) and its	Newton's Law of Gravitation, Motion of a particle in a central force field (motion in a plane, angular momentum is conserved, areal velocity is constant), Kepler's Laws (statement only), Satellite in circular orbit and applications, Geosynchronous orbits, Weightlessness, Basic idea of global positioning system (GPS) and its applications
B.Sc.	le .	64	64	Practicals:	Practicals :
II				1) To determine wavelength of 1) Sodium &2)spectrum of Mercury light usingplane diffraction grating.	1) To determine wavelength of 1) Sodium &2)spectrum of Mercury light usingplane diffraction grating.
				2). Goniometer I-To study cardinal points of opticalsystem.	2). Goniometer I-To study cardinal points of opticalsystem.
				3) Goniometer II- To study the equivalent focal length of opticalsystem.	3) Goniometer II- To study the equivalent focal length of opticalsystem.
				4) To study angle of specific rotation of sugar using Polarimeter.	4) To study angle of specific rotation of sugar using Polarimeter.
Month A	August			Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Physical interpretation of wave function, Schrodinger's	Physical interpretation of wave function, Schrodinger's



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B.Sc.	12		12	time dependent and independent equation (one and three dimensional) Requirements of wave function, Eigen value, Eigen function, Normalized orthogonal and orthonormal wave functions, Probability current density (Continuity equation). Examples on Normalization of wave function	time dependent and independent equation (one and three dimensional) Requirements of wave function, Eigen value, Eigen function, Normalized orthogonal and orthonormal wave functions, Probability current density (Continuity equation). Examples on Normalization of wave function
B.Sc. I	16	y#3	16	Surface Tension	Surface Tension
				Surface Tension, Angle of contact and wettability, relation between surface tension, excess of pressure and radius of curvature, Experimental determination of surface tension by Jaeger's method, Factors affecting surface tension, Applications of surface tension.	Surface Tension, Angle of contact and wettability, relation between surface tension, excess of pressure and radius of curvature, Experimental determination of surface tension by Jaeger's method, Factors affecting surface tension, Applications of surface tension.
B.Sc. II	.e.	64	64	Practicals :	Practicals:
		*		 To record and analyze the cooling temperature of hot object as a function of time using a thermocouple. To calibrate Resistance Temperature Device (RTD) using Null Method/Off-Balance Bridge 	 To record and analyze the cooling temperature of hot object as a function of time using a thermocouple. To calibrate Resistance Temperature Device (RTD) using Null Method/Off-Balance Bridge
				3) Temperature of flame.	3) Temperature of flame.
				4) To determine Mechanical Equivalent of Heat, J, by Callender and Barne's constant flow	4) To determine Mechanical Equivalent of Heat, J, by Callender and Barne's constant flow



				method.	method.
Month Se	eptembe	er		Module/Unit:	Sub-units planned
B.Sc.	Lect	Practicals	Total	Introduction to Quantum Mechanics Origin of quantum mechanics, Review of black body radiation, Photoelectric effect, matter waves, De-Broiglie hypothesis,	Introduction to Quantum Mechanics Origin of quantum mechanics, Review of black body radiation, Photoelectric effect, matter waves, De-Broiglie hypothesis,
	12	-	12	experimental evidence of de Broglie theory (Davisson and Germer experiment), wave particle duality, Heisenberg's uncertainty principle and different forms uncertainty principle	experimental evidence of de Broglie theory (Davisson and Germer experiment), wave particle duality, Heisenberg's uncertainty principle and different forms uncertainty principle



B.Sc. I	16	i=:	16	Oscillations	Oscillations
				Simple harmonic motion (SHM), Differential equation of SHM and its solutions, Kinetic and Potential Energy, Total Energy and their time averages, Damped oscillations, Forced oscillations.	Simple harmonic motion (SHM), Differential equation of SHM and its solutions, Kinetic and Potential Energy, Total Energy and their time averages, Damped oscillations, Forced oscillations.
B.Sc. II	.	64	64	Practicals:	Practicals:
				1) Measurement of rise, fall and delay time using a CRO	1) Measurement of rise, fall and delay time using a CRO
				2) Measurement of distortion of a RF signal generator using distortion factor meter.	2) Measurement of distortion of a RF signal generator using distortion factor meter.
				3) . Measurement of R, L and C using a LCR bridge/ universal bridge.	3) . Measurement of R, L and C using a LCR bridge/ universal bridge.
				4) Measurement of time period, frequency, average period using using universal counter/frequency counter	4) Measurement of time period, frequency, average period using using universal counter/frequency counter
Month O	Month October/November			Module/Unit:	Sub-units planned
	Lect	Practicals	Total	Examination	Examination
Month D	Month December			Module/Unit:	Sub-units planned
	Lect ures	Practicals	Total	Elementary band theory	Elementary band theory



B.Sc. III	12		12	Introduction of free electron theory (Classical and Quantum mechanical), Kronig Penny model, Effective mass of an electron, Band Gaps. Conductors, Semiconductors and insulators. P and N type semiconductors. Conductivity of Semiconductors, mobility, Hall Effect, Hall voltage and Hall coefficient.	Introduction of free electron theory (Classical and Quantum mechanical), Kronig Penny model, Effective mass of an electron, Band Gaps. Conductors, Semiconductors and insulators. P and N type semiconductors. Conductivity of Semiconductors, mobility, Hall Effect, Hall voltage and Hall coefficient.
B.Sc. I	16	-	16	A.C. Circuits	A.C. Circuits
				Complex numbers and their application in solving a. c. series LCR circuit, complex impedance, Reactance, Admittance, and Susceptance, Resonance in LCR series circuit, Sharpness of resonance (qualitative treatment only), Q-factor (definition only) A.C. Bridge - Owen's Bridge	Complex numbers and their application in solving a. c. series LCR circuit, complex impedance, Reactance, Admittance, and Susceptance, Resonance in LCR series circuit, Sharpness of resonance (qualitative treatment only), Q-factor (definition only) A.C. Bridge - Owen's Bridge
B.Sc. II	:= 0	64	64	Practicals:	Practicals:
				1) Ic 555 timer.	1) Ic 555 timer.
				2) Electronic switch using transistor.	2) Electronic switch using transistor.
				3) Characteristics of FET.	3) Characteristics of FET.
				4) FET as VVR.	4) FET as VVR.
Month Ja	l nuary			Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Dielectric Properties of Materials	Dielectric Properties of Materials



B.Sc. III	12	12	Polarization. Local Electric Field at an Atom. Depolarization Field. Electric Susceptibility. Polarizability. Clausius Mosotti Equation. Classical Theory of Electric Polarizability. Normal and Anomalous Dispersion. Cauchy and Sellmeir relations. Langevin-Debye equation. Complex Dielectric Constant. Optical Phenomena. Application: Plasma Oscillations, Plasma Frequency, Plasmons.	Polarization. Local Electric Field at an Atom. Depolarization Field. Electric Susceptibility. Polarizability. Clausius Mosotti Equation. Classical Theory of Electric Polarizability. Normal and Anomalous Dispersion. Cauchy and Sellmeir relations. Langevin-Debye equation. Complex Dielectric Constant. Optical Phenomena. Application: Plasma Oscillations, Plasma Frequency, Plasmons.
B.Sc. I	16	16	Electricity Introduction – DC and varying currents, LR Circuit, RC circuit and LC circuit, Growth and decay of currents, Theory of B.G. and constants of B.G., time constants T	Electricity Introduction – DC and varying currents, LR Circuit, RC circuit and LC circuit, Growth and decay of currents, Theory of B.G. and constants of B.G., time constants T



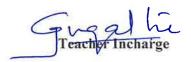
B.Sc. II	(4)	64	64	Practicals :	Practicals:
		×		1) To determine the wavelength of sodium light using Fresenel Biprism.	To determine the wavelength of sodium light using Fresenel Biprism.
				2) To determine the Resolving Power of a Prism.	2) To determine the Resolving Power of a Prism.
				3) To determine the Resolving Power of a Plane Diffraction Grating.	3) To determine the Resolving Power of a Plane Diffraction Grating.
				4) To determine wavelength of Laser light using diffraction of single slit.	4) To determine wavelength of Laser light using diffraction of single slit.
Month F	ebruary			Module/Unit:	Sub-units planned
Course	Lect ures	Practicals	Total	Magnetic Materials and their Properties:	Magnetic Materials and their Properties:
B.Sc.	12		12	Magnetic intensity, magnetic induction, permeability, magnetic susceptibility. Hysteresis and hysteresis curve, diamagnetic, paramagnetic, ferromagnetic, ferrimagnetic and antiferromagnetic materials.	Magnetic intensity, magnetic induction, permeability, magnetic susceptibility. Hysteresis and hysteresis curve, diamagnetic, paramagnetic, ferromagnetic, ferrimagnetic and antiferromagnetic materials.
B.Sc. I	16	+	16	Magnetism	Magnetism
				Introduction to magnetization and intensity of Magnetization, Biot-Savart's law & its applications - straight conductor, circular coil, solenoid carrying current, Divergence and curl of magnetic field, Magnetic vector potential, Ampere's circuital lawat earth's surface	Introduction to magnetization and intensity of Magnetization, Biot-Savart's law & its applications - straight conductor, circular coil, solenoid carrying current, Divergence and curl of magnetic field, Magnetic vector potential, Ampere's circuital lawat earth's surface



B.Sc. II	120	64	64	Practicals :	Practicals:
				1)To determine the value of Stefan's Constant.	1)To determine the value of Stefan's Constant.
				2) To determine the coefficient of thermal conductivity of copper by Searle's Apparatus.	2) To determine the coefficient of thermal conductivity of copper by Searle's Apparatus.
				3) To determine the Coefficient of Thermal Conductivity of Cu by Angstrom's Method.	3) To determine the Coefficient of Thermal Conductivity of Cu by Angstrom's Method.
				4) To determine the coefficient of thermal conductivity of a bad conductor by Lee and Charlton's disc method	4) To determine the coefficient of thermal conductivity of a bad conductor by Lee and Charlton's disc method
Month M	larch	<u> </u>		Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	X-Ray Diffraction Reciprocal lattice and its	X-Ray Diffraction Reciprocal lattice and its
B.Sc.	12		12	properties, concept of Brillouin zone, diffraction of X-rays by crystals, Ewald construction, Bragg's law in reciprocal lattice, X-ray diffraction methods: 1) Laue method. 2) Rotating crystal 3) Powder method - Principle, Construction, Working, analysis of cubic crystal by powder crystal method	properties, concept of Brillouin zone, diffraction of X-rays by crystals, Ewald construction, Bragg's law in reciprocal lattice, X-ray diffraction methods: 1) Laue method. 2) Rotating crystal 3) Powder method - Principle, Construction, Working, analysis of cubic crystal by powder crystal method



B.Sc. I	16		16	Network Theorems	Network Theorems
		- 42		Introduction, Node, Junction, Branch, Loop, Active and passive elements, Thevenin's theorem, Nortan's theorem and equivalence between them, problems.	Introduction, Node, Junction, Branch, Loop, Active and passive elements, Thevenin's theorem, Nortan's theorem and equivalence between them, problems.
B.Sc. II	-	64	64	Practicals:	Practicals:
				1) To observe the loading effect of a multimeter while measuring voltage across a low resistance and high resistance.	1)To observe the loading effect of a multimeter while measuring voltage across a low resistance and high resistance.
				2) To observe the limitations of a multimeter for measuring high frequency voltage and currents.	2) To observe the limitations of amultimeter for measuring high frequency voltage and currents.
				3) To measure Q of a coil and its dependence on frequency using a Q-meter.	3) To measure Q of a coil and its dependence on frequency using a Q-meter.
				4) Measurement of voltage, frequency, time period and phase angle using CRO	4) Measurement of voltage, frequency, time period and phase angle using CRO
Month April				Module/Unit:	Sub-units planned
Lectures		Practicals	Total	Examination	Examination





Hearing the
Department of Physics
Vivekanand College, Kolheeu

Shri Swami Vivekanand Shikshan Sanstha's

Vivekanand College, Kolhapur (Autonomous) Department of Physics Annual Teaching Plan

Academic Year: 2021-22

Subject: Physics

Name of the teacher: Dr. S. I. Inamdar

Month June				Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Kinetic Theory of Gases and thermometry	Kinetic Theory of Gases and thermometry
B.Sc. II	12	5	12	Law of equipartition of energy (qualitative) and its applications to specific heat of monoatomic and diatomic gases. Thermometry: Concept of heat and temperature, temperature scales, principle of thermometry mercury thermometer, platinum resistance thermometer, thermocouple. (Principle, construction and theory)	Law of equipartition of energy (qualitative) and its applications to specific heat of monoatomic and diatomic gases. Thermometry: Concept of heat and temperature, temperature scales, principle of thermometry mercury thermometer, platinum resistance thermometer, thermocouple. (Principle, construction and theory
B.Sc. III	12	=	12	Types of the solids, Amorphous, crystalline, lattice, lattice translation vectors, lattice with basis (Central , non central elements) Unit cell , Examples of crystal structure NaCl, KCl,	Crystal Structure Types of the solids, Amorphous, crystalline, lattice, lattice translation vectors, lattice with basis (Central , non central elements) Unit cell , Examples of crystal structure NaCl, KCl,
B.Sc. III	9	80	80	Practicals: 1) Cardinal points by turn table method. 2) Cardinal points by Newton's method.	Practicals: 1) Cardinal points by turn table method. 2) Cardinal points by Newton's method.

				3) Diffraction at single slit.	3) Diffraction at single slit.
				4) Diffraction at cylindrical obstacle.	4) Diffraction at cylindrical obstacle.
				5) Diffraction at straight edge	5) Diffraction at straight edge
Month July	у			Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Kinetic Theory of Gases and thermometry	Kinetic Theory of Gases and thermometry
B.Sc. II	12	-	12	Mean free path, expression, approximate method derivation of Maxwell's law of distribution of	Mean free path, expression, approximate method derivation of Maxwell's law of distribution of
				velocities and its experimental verification, Transport Phenomena: transport of momentum	velocities and its experimental verification, Transport Phenomena: transport of momentum
				(viscosity), transport of thermal energy (conduction), Transport of mass (diffusion),	(viscosity), transport of thermal energy (conduction), Transport of mass (diffusion),
B.Sc. III	12	-	12	Magnetic Properties of Materials	Magnetic Properties of Materials
				Magnetic materials, permeability, susceptibility, magnetization, magnetic moment, electron spin, Diamagnetic materials, Paramagnetic materials, ferromagnetic, ferromagnetic, classical theory of diamagnetism and paramagnetism, Curie law, Curie constant, Weiss theory of ferromagnetic domain, Hysteresis loop for ferromagnetic materials.	Magnetic materials, permeability, susceptibility, magnetization, magnetic moment, electron spin, Diamagnetic materials, Paramagnetic materials, ferromagnetic, ferromagnetic, classical theory of diamagnetism and paramagnetism, Curie law, Curie constant, Weiss theory of ferromagnetic domain, Hysteresis loop for ferromagnetic materials.



B.Sc. III	*	80	80	Practicals:	Practicals:
				1) Resonance pendulum.	1) Resonance pendulum.
				2) S. T. of soap solution.	2) S. T. of soap solution.
				3) S. T. by Fergusson modified method.	3) S. T. by Fergusson modified method.
				4) Y & η using flat spiral spring.	4) Y & η using flat spiral spring.
Month Aug	gust			Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Laws of Thermodynamics	Laws of Thermodynamics
B.Sc. II	12	-	12	Work done during isothermal and adiabatic processes, reversible & irreversible processes, Second law of thermodynamics, Carnot's	Work done during isothermal and adiabatic processes, reversible & irreversible processes, Second law of thermodynamics, Carnot's
				ideal heat engine, Carnot's cycle (Working, efficiency), Carnot's	ideal heat engine, Carnot's cycle (Working, efficiency), Carnot's
				theorem, Entropy (concept & significance), change in entropy, Entropy changes in reversible &	theorem, Entropy (concept & significance), change in entropy, Entropy changes in reversible &
		927		irreversible processes, Third law of thermodynamics, Entropy change in conduction of heat,	irreversible processes, Third law of thermodynamics, Entropy change in conduction of heat,
				diffusion of gases ,physical significance of entropy, Unattainability of absolute zero. Zero	diffusion of gases ,physical significance of entropy, Unattainability of absolute zero. Zero
				point energy.	point energy.



B.Sc. III	12		12	Lattice Vibration and Thermal Properties of Solid Lattice vibrations, Phonons, normal modes of one dimensional and diatomic chain, Acoustical and optical phonons, Phonons spectrum in solids, Dulong Petit's law (Classical Theory), Einstein	Lattice Vibration and Thermal Properties of Solid Lattice vibrations, Phonons, normal modes of one dimensional and diatomic chain, Acoustical and optical phonons, Phonons spectrum in solids, Dulong Petit's law (Classical Theory), Einstein
B.Sc. III		80	80	Practicals: 1) Cardinal points by turn table method. 2) Cardinal points by Newton's method. 3) Diffraction at single slit. 4) Diffraction at cylindrical obstacle. 5) Diffraction at straight edge	Practicals: 1) Cardinal points by turn table method. 2) Cardinal points by Newton's method. 3) Diffraction at single slit. 4) Diffraction at cylindrical obstacle. 5) Diffraction at straight edge
Month Sept	Month September			Module/Unit:	Sub-units planned
B.Sc. II	Lect	Practicals	Total	Thermodynamic Potentials Enthalpy, Gibbs, Helmholtz, Internal Energy functions, Maxwell's thermodynamical relations, Joule-Thomson effect, Clausius- Clapeyron	Thermodynamic Potentials Enthalpy, Gibbs, Helmholtz, Internal Energy functions, Maxwell's thermodynamical relations, Joule-Thomson effect, Clausius- Clapeyron

	12	-	12	equation, Expression for (CP – CV),	equation, Expression for (CP – CV),
				CP/CV, TdS equations.	CP/CV, TdS equations.
B.Sc. III	12	·	12	Instrumentations :Introduction to CRO	Instrumentations :Introduction to CRO
				Block Diagram of CRO. Applications of CRO: (1) Study of Waveform, (2) Measurement of Voltage, Current, Frequency, and Phase Difference.	Block Diagram of CRO. Applications of CRO: (1) Study of Waveform, (2) Measurement of Voltage, Current, Frequency, and Phase Difference.
B.Sc. III	-8	80	80	1) 'Y' by Koenig's method.	1) 'Y' by Koenig's method.
				2) 'Y' by cornu's method.	2) 'Y' by cornu's method.
				3) Measurement of heat capacity of solid.	3) Measurement of heat capacity of solid.
				4) S. T. tension by drop weight method.	4) S. T. tension by drop weight method.
				5) Young's modulus by vibration using AFG.	5) Young's modulus by vibration using AFG.
Month October/November			1	Module/Unit:	Sub-units planned
	Lect	Practicals	Total	Examination	Examination
Month Dec	ember			Module/Unit:	Sub-units planned
	Lect	Practicals	Total	Laws of Thermodynamics	Laws of Thermodynamics

B.Sc. II	12	-	12	Thermodynamic system, thermodynamic thermodynamic state, equation of state,	Thermodynamic system, thermodynamic thermodynamic state, equation of state,
				thermodynamic equilibrium, Zeroth Law of thermodynamics, Internal energy, First law of	thermodynamic equilibrium, Zeroth Law of thermodynamics, Internal energy, First law of
				thermodynamics, conversion of heat into work, specific heats CP& CV, Applications of First Law	thermodynamics, conversion of heat into work, specific heats CP& CV, Applications of First Law
				(Isothermal process, Adiabatic process, Isochoric, Isobaric), relation between CP & CV	(Isothermal process, Adiabatic process, Isochoric, Isobaric), relation between CP & CV
B.Sc. III	12	12	12	Superconductivity	Superconductivity
				Idea of superconductivity, Critical temperature, Critical magnetic field. Meissner effect. Type I and type II Superconductors, London's Equation and Penetration Depth, Isotope effect	Idea of superconductivity, Critical temperature, Critical magnetic field. Meissner effect. Type I and type II Superconductors, London's Equation and Penetration Depth, Isotope effect
B.Sc. III	1840	80	80	Practicals :	Practicals:
				1) Self inductance by Owen's bridge.	1) Self inductance by Owen's bridge.
				2) Self inductance by Rayleigh's method.	2) Self inductance by Rayleigh's method.
				3) Self inductance by Maxwell bridge.	3) Self inductance by Maxwell bridge.
				4) Measurement of BV, BH and θ using earth inductor.	4) Measurement of BV, BH and θ using earth inductor.
				5) Hysteresis by magnetometer.	5) Hysteresis by magnetometer.
Month Janu	iary	3		Module/Unit:	Sub-units planned

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Course	Lect	Practicals	Total	Classical statistics	Classical statistics
B.Sc. II	ures 12	-	12	Degrees of freedom ,momentum space, position space ,Phase space, Microstate and Macrostate, Accessible microstates, priory probability thermodynamic probability, probability distribution, Maxwell-	Degrees of freedom ,momentum space, position space ,Phase space, Microstate and Macrostate, Accessible microstates, priory probability thermodynamic probability, probability distribution, Maxwell-
				Boltzmann distribution law, energy or speed, evaluation of constants α and β, Entropy and Thermodynamic probability, Distribution of molecular speeds.	Boltzmann distribution law, energy or speed, evaluation of constants α and β, Entropy and Thermodynamic probability, Distribution of molecular speeds.
				Theory of Radiation Thermal radiations, Blackbody radiation and its importance, Black body in practice, its temperature dependence emissive power, absorptive power, pressure of radiation experimental study of black body radiation spectrum, Concept of energy density, Derivation of Planck's law, Deduction of Wien's distribution law, Rayleigh-Jeans Law, Stefan Boltzmann Law and Wien's displacement law from Planck's law.	



B.Sc. III	12	*	12	Special functions of ICs	Special functions of ICs
				IC 555, Block diagram and special functions if ICs, Astable Operation: Circuit diagram, frequency of oscillation and duty cycle, Applications as tone brust oscillator, voltage controlled frequency shifters. Monostable operation: circuit diagram, Applications as touch switch and frequency divider. Bistable Operation: Circuit diagram and circuit action.	IC 555, Block diagram and special functions if ICs, Astable Operation: Circuit diagram, frequency of oscillation and duty cycle, Applications as tone brust oscillator, voltage controlled frequency shifters. Monostable operation: circuit diagram, Applications as touch switch and frequency divider. Bistable Operation: Circuit diagram and circuit action.
B.Sc. III		80	80	Practicals :	Practicals :
				 e/m of electron by Thomson's method. Measurement of dielectric constant. Resistivity of semiconductor crystal with temperature by four probe 	Thomson's method. 2) Measurement of dielectric constant.
				method.	method.
				5) Calibration of wire using Carey-foster key	5) Calibration of wire using Carey-foster key
Month Febr	ruary			Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Theory of Radiation	Theory of Radiation



B.Sc. II	12		12	Thermal radiations, Blackbody radiation and its importance, Black body in practice, its temperature dependence emissive power, absorptive power, pressure of radiation Experimental study of black body radiation spectrum, Concept of energy	Thermal radiations, Blackbody radiation and its importance, Black body in practice, its temperature dependence emissive power, absorptive power, pressure of radiation Experimental study of black body radiation spectrum, Concept of energy
				density, Derivation of Planck's law, Deduction of Wien's distribution law, Rayleigh-Jeans Law, Stefan Boltzmann Law and Wien's displacement law from Planck's law.	density, Derivation of Planck's law, Deduction of Wien's distribution law, Rayleigh-Jeans Law, Stefan Boltzmann Law and Wien's displacement law from Planck's law.
B.Sc. III	12	:#:	12	Digital Electronics	Digital Electronics
				Introduction to logic gates, De-Morgan's theorem, NAND and NOR gates as universal gates, R-S and J-K flip flops, half and full adder, parallel binary adder.	Introduction to logic gates, De-Morgan's theorem, NAND and NOR gates as universal gates, R-S and J-K flip flops, half and full adder, parallel binary adder.
B.Sc. III	-	80	80	Practicals :	Practicals:
-				1) Study of divergence of LASER beam.	1) Study of divergence of LASER beam.
				2) Measurement of wavelength of LASER using grating.	2) Measurement of wavelength of LASER using grating.
				3) Lattice constant using XRD powder.	3) Lattice constant using XRD powder.
				4) To measure numerical aperture of optical fibre.	4) To measure numerical aperture of optical fibre.
				5) Obtain interference fringes using Biprism.	5) Obtain interference fringes using Biprism.
Month Mai	rch	.1		Module/Unit:	Sub-units planned
				L	K



	Lect	Practicals	Total	Quantum statistics	Onort
	ures				Quantum statistics
				Need of quantum sta ,Bose-Einstein distribu law, photon gas, Planck radiation law	tion Bose-Einstein distribut law, photon gas, Planck, radiation law
B.Sc. II	12			Fermi-Dirac distribution I free electron in metal, elect gas, comparison of M. B.E., and	ron free electron
D.SC. 11	12		12	F.D. statistics.	F.D. statistics.
3.Sc. III 12	-		12	Bipolar Junction	
			1	ransistors:	transistors:
			10	n-p-n and p-n-p Transistors. Characteristics of CB, CE and	Characteristics of CB. CF and
			g	C Configurations. Current ains α and β. Relations	CC Configurations. Current gains α and β. Relations
			L	etween α and β . Load Line nalysis of Transistors. DC oad line and Q point. Active,	between a and \beta. Load Line
			R	ut-off, and Saturation egions. Voltage Divider Bias reuit for CE Amplifier. h-	Cut-off, and Saturation Regions. Voltage Divider
			Ar	rameter Equivalent Circuit. nalysis of a single-stage CF	Bias Circuit for CE Amplifier. h- parameter Equivalent Circuit, Analysis of a single-
			ını	plifier using Hybrid Model. but and Output Impedance, rrent, Voltage and Power	stage CE amplifier using Hybrid Model. Input and



		 2) Astable multivibrator by using IC 555 timer. 3) Monostable multivibrator by using IC 555 timer. 4) IV characteristics of P-N diode and LED. 5) Inverting amplifier using op - Amp 741. 	using IC 555 timer. 3) Monostable multivibrator by using IC 555 timer. 4) IV characteristics of P-N
		Module/Unit:	7
Practicals	Total		Sub-units planned
	Practicals	Practicals Total	by using IC 555 timer. 4) IV characteristics of P-N diode and LED. 5) Inverting amplifier using op - Amp 741. Module/Unit:

Teacher Incharge

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Head of the Department of Physics Vivekanand College, Kolha**DU**(

"Dissemination of Education for Knowledge, Science and Culture" -Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha's

Vivekanand College, Kolhapur (Autonomous) Department of Physics **Annual Teaching Plan**

Academic Year: 2021-22

Subject: Physics

Name of the teacher: Miss P. Y. Hawaldar

Month J		10.		Module/Unit:	
	Practica	lectures	Total	Practicals:	Sub-units planned
	ls			1)Measurements of length	Practicals:
B.Sc. I				diameter) using Verr	
1				calling.	diameter) using Vorn
1 1		B a		Sau Sau	ge, calliper, screw gan
1 1		8		microscope.	ing spherometer and travelli
1 1				2) To determine the Mome	microscope.
1 1		1		of inertia of a Flywheel	Cr - determine the Mome
				3) 10 determine the Mome	of Inertia of a Flywheel.
		J		of mertia of a disc using	
	1	1		auxiliary annular ring.	g of inertia of a disc using
				4) Young's modulus of	auxiliary annular ring
Month Jul	v			material of Bar by vibration	4) Young's modulus of
B.Sc. 10				Module/Unit:	material of Bar by vibration
I	,		16	Practicals:	Sub-units planned
		1		1)Measurements of length (o	Practicals:
	1	1	1	diameter) using Vernie	" 1: The state of teligiti (0
		1	1	calliper, screw gauge	using Vernie
	1	1	1	spherometer and travelling	gauge
		1		microscope.	spherometer and travelling
1				2) To determine the Moment	Inicroscope
		1	1	of inertia of a Flywheel	cr - determine the Moment
				3) 10 determine the Moment	of mertia of a Flywheel
		1	1.	of a disc using	
		1	"	auxillary annular ring	of inertia of a disc using
		l.	4	+) Young's modulus of	auxiliary annular ring.
Ionth Augu	st		I	naterial of Bar by vibration	4) Young's modulus of
.Sc. I 16		112	1	viodule/Unit:	material of Bar by vibration
1.0	11.57	16		racticals:	Sub-units planned Practicals:
			1)Modulus of rigidity of	
		1	l n	naterial of wire by torsional	1)Modulus of rigidity of
1		1	0.	scillations.	material of wire by torsional oscillations.
		1	2)	Y/η of Wire by Searle's	
		1	111	etnod.	2) Y/η of Wire by Searle's method.
1			(3)	To determine g by Bar	
			PE	enaulum.	3)To determine g by Bar Pendulum.
			(4)	To determine g by Kater's	1) To dotam:
onth Septem	hou		Pe	nanhum	4) To determine g by Kater's Pendulum.
mui septem	Der			odule/Unit:	Pendulum



Month October/November B.Sc. I 16	Practicals: 1) Modulus of rigidity of material of wire by torsional oscillations. 2) Y/η of Wire by Searle's method. 3) To determine g by Bar Pendulum. 4) To determine g by Kater's Pendulum. Practicals: 1) Modulus of rigidity of material of wire by torsional oscillations. 2) Y/η of Wire by Searle's method. 3) To determine g by Bar Pendulum. 4) To determine g by Kater's Pendulum. 4) To determine g by Kater's Pendulum.
1 10	Module/Unit:
	Examination Sub-units planned
Month December B.Sc. I 16 B.Sc.	Examination
B.Sc. I 16 B.Sc 10	Module/Unit:
	Fracticals · Sub-units plan.
	1) USC a Multimate a la l'acticola
	measuring (a) Resistances, (b) AC and DC Voltages, (c), Checking electric for (b) AC and DC Resistances,
	Checking electrical s. (c), (b) AC and DC V.
	Continuity. Checking electrical fuses and Checking electrical fuses and Continuity
	2) To determine constants of B. G. Continuity. 2) To determine constants of Continuity. 2) To determine
	B. G. 2) To determine constants of B. G.
	using De'Saut 1 (apacitances 3) To com-
Month January	To ucle in a sure of the same
B.Sc. I 16	
B.Sc. I 16	Module/Unit: Sub-
16	Sub-units planned Practicals:
	1) Use a Multimeter for Practicals:
	The distribution of the second
	AC and DC Voltages, (c), Checking electrical s AC and DC Voltages, (c), Checking electrical s
	Continuity. Continuity. Checking electrical fuses and Checking electrical fuses and Continuity.
	2) To determine constants of Continuity. B. G. Continuity. 2) To determine constants of Continuity.
	3) To compare constants of B. G.
	using De'Saura 1 To age
	using the same in
	series LCR circuit. 4) To determine impedance of series LCR circuit.
	of series LCR circuit.
Maria	
Month February	
	Module/Unit:
	Sub-units planned
AMANO CO	



			1) To verify the Theven theorem. 2) To verify the Norton theorem. 3) Determination of low resistance using Carey foster's Bridge. 4)) Verification of Kircho voltage and current law	theorem. 2) To verify the Norton theorem. 3) Determination of low resistance using Communication of the standard control of
Month March B.Sc. I 16 Month April	-	16	Module/Unit: Practicals: 1) To verify the Thevenin theorem. 2) To verify the Norton theorem. 3) Determination of low resistance using Carey foster's Bridge. 4)) Verification of Kirchoff's voltage and current law	Sub-units planned Practicals: 1) To verify the Thevenin theorem. 2) To verify the Norton theorem. 3) Determination of low resistance using Carey foster's Bridge. 4)) Verification of Kirchoff's voltage and current law
Lectures	To		Module/Unit:	
2007 T.M	Practical	Total	Evan:	Sub units 1
	S		Examination	Sub-units planned Examination

P. J. Howles
Teacher Incharge



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"Dissemination of Education for Knowledge, Science and Culture" -Shikshanmaharshi Dr. Bapuji Salunkhe Shri Swami Vivekanand Shikshan Sanstha's

Vivekanand College, Kolhapur (Autonomous) Department of Physics **Annual Teaching Plan**

Academic Year: 2021-22

Subject: Physics

Name of the teacher: Mr. V. S. Ashtekar

Month Ju					
I I	Practica	Lectures	Tr 1	Module/Unit:	10
	ls	Cottines	Total	Practicals:	Sub-units planned
B.Sc. I				1)Measurements of lon	Practicals:
5.50.1	- 1	16	16	The state of the s	gtn (or 1) Measurements of length
		1		Calliner	There is a second
1 1	1	1		spherometer and	gauge, calliper, screw
1		. [Illicroscone	elling spherometer and travelli
1	1	1		(2) To determine the Ma	0300116
4	1	1		1 or morna of a Florella 1	official (2) To determine the Man
1 1				1 2) 10 determine the No.	of mettla of a Flyubasi
1		-		a monia or a hi	1 O defermine the X
1	1	1			o los merua or a di-
		1		T) I Oung's modulus c	dillillar ring
Month July				material of Bar by vibratio	T) I oung's modulus c
B.Sc. 16	1 =			Module/Unit:	material of Bar by william
I	1-	10	5	Practicals:	out units planned
		1	1	1)Measurements of length	Practicals:
			- A	diameter) using Ver	(or 1)Measurements of law 1
1		1	1.	calliner ven	
1			1 5	spherometer and gau	ige, calliper, screw gauge
	1	- 1	r	spherometer and travellinicroscope.	spherometer and travelling
			1 2	To determine the Mome	
1		1	0	f Inertia of a Flywheel.	2) To determine the Moment
		1	3	To determine the Mome	of Inertia of a Flywheel.
		1	0	finertia of a disc usin	2) 10 deferming the Ar
-1			aı	ixiliary annular ring.	o i metua or a di-
	1	M)	(4)	Young's modulus of	auxiliary annular ring.
Ionth August			ma	aterial of Park	4) Young's modulus of
Sc. I 16			M	aterial of Bar by vibration odule/Unit:	material of Bar by vibration
- .0		16	Pr	acticals:	Sub-units planned
1		JA.	1100	Andulus C	Practicals:
1	1	1	ma	Modulus of rigidity of	1)Modulus of
		1	OSC	terial of wire by torsional illations.	1)Modulus of rigidity of
		. [000	manons	material of wire by torsional oscillations.
		JØ.	met	//η of Wire by Searle's	2) Y/n of W: 1
-1	1		3)T	detamo	2) Y/η of Wire by Searle's method.
1			Pen	o determine g by Bar Iulum.	3)To determine
1			4) T	ratati.	3)To determine g by Bar Pendulum.
-			Pan	determine g by Kater's	4) To detarm:
	1		rend	ulum.	4) To determine g by Kater's Pendulum.
nth September					r chaulum.
The second second			Modi	ıle/Unit:	
AND COL			Tarout	nor onic	Sub-units planned



B.Sc. I 16		16	Practicals: 1) Modulus of rigidity of material of wire by tors oscillations. 2) Y/η of Wire by Searl method. 3) To determine g by Ba Pendulum. 4) To determine g by Ka Pendulum.	sional le's r	Practicals: 1) Modulus of rigidity of material of wire by torsion oscillations. 2) Υ/η of Wire by Searle's method. 3) To determine g by Bar Pendulum. 4) To determine g by Kater' Pendulum.
Month October/No	vember				1
B.Sc. I 16	16		Module/Unit:		Sub.
1	10	1	Examination		Sub-units planned
Month December				21	Examination
B.Sc. I 16 B.Sc.		1	Module/Unit:		
I 10 B.Sc.	- 16	1	Practicals:		Sub-units planned
1		1)Use a Multimeter for		Practicals:
		1.11	reasuring (a) Donie	.	1)Use a Multimate C
				(-)	incasuring (a) Register
	1		TOURING Electrical f	1	(v) AC and DC Voltage
fe fi	1		orientally.	2000	The chillip electrical firm
	1	[2)	To determine constants	11007	- onthiully
	1	J D.	U.	4.5	2) To determine constants of
1 1	1	(3)	To compare capacitances	1	, U.
		1 40	us De Namera L i		3) To compare capacitances
Maril		(- 1	10 determine impad		Sing De Namore Leid
Month January			CI CIPCLIST	1 1 7	10 determine impod-
B.Sc. I 16	16	Mo	dule/Unit:		THE LOT CITCHIT
B.Sc. I 16 -	16	1		130	ub-units planned
	1.0	Pra	cticals :	D.	mad: 1
		1)U	se a Multimeter for	IN	racticals:
	1	mea	Suring (a) Regist-	me	Use a Multimeter for
1				HIL	asuring (a) Register
		CITCO	Allig electrical for	1 (0)	AC and DC Volt
	1	446	111U11 V	-	ecking electrical fuses and attinuity.
1	1	B. G.	determine constants of		
		2. 0.		B. C	o determine constants of
		usina	compare capacitances		
	1	1	De Sality'e buil	usin	o compare capacitances g De'Sauty's bridge.
1	1	series	determine impedance of LCR circuit.	4) To	o determine impedance
			LCR circuit.	of se	ries LCR circuit.
					- Circuit.
	1				
nth Eak					1
nth February		Modul	/r: ·		1
		Module	/Unit:	Sub-	nits planned



	16	Practicals: 1) To verify the Thevenin theorem. 2) To verify the Norton theorem. 3) Determination of low resistance using Carey foster's Bridge. 4)) Verification of Kirchoff voltage and current law	Practicals: 1) To verify the Thevenin theorem. 2) To verify the Norton theorem. 3) Determination of low resistance using Carey foster's Bridge. 4)) Verification of Kirchoff's voltage and current law
Month March B.Sc. I 16	16	Module/Unit: Practicals: 1) To verify the Thevenin theorem. 2) To verify the Norton theorem. 3) Determination of low resistance using Carey foster's Bridge. 4)) Verification of Kirchoff's voltage and current law	Sub-units planned Practicals: 1) To verify the Thevenin theorem. 2) To verify the Norton theorem. 3) Determination of low resistance using Carey foster's Bridge. 4)) Verification of Kirchoff's voltage and current law
Month April ectures Practical s	Total	Module/Unit: Examination	Sub-units planned Examination

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"Dissemination of Education for Knowledge, Science and Culture" -Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha's

Vivekanand College, Kolhapur (Autonomous) **Department of Physics** Annual Teaching Plan

Academic Year: 2021-22

Subject: Physics

Name of the teacher: Mr. R. P. Mungle

Month Ju	ine				
	Practica	Lectures	T	Module/Unit:	CL
	ls	Decidies	Total	Practicals:	Sub-units planned
B.Sc. I			1	1)Measurements of length	Practicals:
D.Sc. 1	16	-	16	diameter) using Ver	
1			10	Calling	diameter) lising Vorm
1	J	1		5ª	uge, calliper, screw gang
1				microscope.	lling spherometer and travelling
1		1		2) To determine the Morn	microscope
r jin		1		of Inertia of a Flywheel.	2) To determine the Mome
1	1			3) To determine the state of a Flywheel.	Ut Itlertia of a Flywhool
1		1		3) To determine the Mom	Oll 3) 10 determine the Man
1	1	1		of inertia of a disc usi	ng of inertia of a disc using
l l		1		auxiliary annular ring	auxiliary annular ring.
		1		4) Young's modulus of	4) Young's modulus of
Month July		1		material of Bar by vibration	material of Danie "
B.Sc. 16			16	Wiodule/Unit:	
	1	1	O	Practicals:	Sub-units planned Practicals:
1	- 1	1		1)Measurements of length (or 1)M
1		1	1	diameter) Using Vorn:	on li
- 1	1	1	1	calliper, screw gave	using Vernion
1		1		cohome	camper, screw gover
1	1	J.	- 1	microscope.	6 spiletometer and fravelling
1	1		6	2) To determine the Momen	microscope
			1	of Inertia of a Flywheel.	It 2) To determine the Moment
		1		3) To determine the Momen	of illettia of a Flywhool
J.				of inertia of the Momen	1) 10 determine the Mon
1		1		of inertia of a disc using	of inertia of a disc using
1		1		nuxiliary annular ring.	auxiliary annular ring.
- 41			1,	Young's modulus of	4) Young's modulus of
onth Augus	t		1	naterial of Bar by vibration	material of Bar by vibration
Sc. I 16	-	16	1)	rodule/Unit:	Sub-units planned
		10	1	racticals:	Practicals:
1		T	1 1	Modulus of rigidity of	Tracticals:
16	- 1	1	41	laterial of wire by torsional	1)Modulus of rigidity of
1			10:	ciliations	material of wire by torsional
		1	(2)	Y/η of Wire by Searle's	oscillations.
		1	111	eniod.	2) Y/η of Wire by Searle's
		1		To determine g by Bar	method.
	1	1	Pe	ndulum.	3)To determine g by Bar
		1	(4)	To determine g by Kater's	r chaulum.
			Pe	ndulum.	4) To determine g by Kater's
	1			addiulii.	Pendulum.
		1	1		1
1.0	or .				
th September					
th Septemb	D COL		Mo	dule/Unit:	Sub-units planned

		16	 Practicals: 1) Modulus of rigidity of material of wire by torsio oscillations. 2) Y/η of Wire by Searle's method. 3) To determine g by Bar Pendulum. 4) To determine g by Kate Pendulum. 	oscillations. 2) Y/η of Wire by Searle's method. 3) To determine g by Bar
Month October B.Sc. I 16	November	16	Module/Unit:	Sub-units planned
		10	Examination	Examination
Month Decemb	er		M	
B.Sc. I 16 B.	Sc	16	Module/Unit: Practicals:	Sub-units planned
Month January 3.Sc. I 16 3.Sc. I 16		l 4 S	1) Use a Multimeter for measuring (a) Resistances, (b) AC and DC Voltages, (c), Checking electrical fuses and Continuity. 2) To determine constants of B. G. 3) To compare capacitances using De'Sauty's bridge. 4) To determine impedance of eries LCR circuit. Module/Unit:	(b) AC and DC Voltages, (c), Checking electrical fuses and Continuity. 2) To determine constants of B. G. 3) To compare capacitances
3.Sc. I 16		1) m A Cl Cc 2) B. 3) usi 4)	To compare capacitances ng De'Sauty's bridge. To determine impedance of	Practicals: 1)Use a Multimeter for measuring (a) Resistances, (b) AC and DC Voltages, (c), Checking electrical fuses and Continuity. 2) To determine constants of B. G. 3) To compare capacitances using De'Sauty's bridge. 4) To determine impedance of series LCR circuit.
nth February			lule/Unit:	1



B.Sc. I		16	Practicals: 1) To verify the Thevenin theorem. 2) To verify the Norton theorem. 3) Determination of low resistance using Carey foster's Bridge. 4)) Verification of Kirchoff voltage and current law	Practicals: 1) To verify the Thevenin theorem. 2) To verify the Norton theorem. 3) Determination of low resistance using Carey foster's Bridge. 4)) Verification of Kirchoff's voltage and current law
Month March			Module/Unit:	
B.Sc. I 16		16	Practicals: 1) To verify the Thevenin theorem. 2) To verify the Norton theorem. 3) Determination of low resistance using Carey foster's Bridge. 4)) Verification of Kirchoff's voltage and current law	Sub-units planned Practicals: 1) To verify the Thevenin theorem. 2) To verify the Norton theorem. 3) Determination of low resistance using Carey foster's Bridge. 4)) Verification of Kirchoff's voltage and current law
Month April ectures			Module/Unit:	
Citates	Practical s	Total	Examination Examination	Sub-units planned Examination

Mingares
Teacher Incharge

ESTD. JUNE 1964

Heall of the
Department of Physics
Vivekanand College, Kolhapus

"Dissemination of Education for Knowledge, Science and Culture" -Shikshanmaharshi Dr. Bapuji Salunkhe Shri Swami Vivekanand Shikshan Sanstha's

Vivekanand College, Kolhapur (Autonomous) Department of Physics **Annual Teaching Plan**

Academic Year: 2021-22

Subject: Physics

Name of the teacher: Mr. A. V. Shinde

Month June	actica	Lagton	I Tr	Module/Unit:	Sub unita -1
B.Sc. I	actica	Lectures	Total	Practicals: 1) Measurements of length (diameter) using Vernicalliper, screw gaug spherometer and travellin microscope. 2) To determine the Momen of Inertia of a Flywheel. 3) To determine the Momen	diameter) using Vernicalliper, screw gaug spherometer and travelling microscope. 2) To determine the Moment of Inertia of a Flywheel. 3) To determine the Moment of Inertia of a Flywheel.
Month July B.Sc. 16		-		of inertia of a disc using auxiliary annular ring. 4) Young's modulus of material of Bar by vibration Module/Unit: Practicals: 1) Measurements of length (or diameter) using Vernier calliper, screw gauge, spherometer and travelling microscope. 2) To determine the Moment of Inertia of a Flywheel. 3) To determine the Moment of inertia of a disc using auxiliary annular ring. 4) Young's modulus of	auxiliary annular ring. 4) Young's modulus of material of Bar by vibration Sub-units planned Practicals: 1) Measurements of length (or diameter) using Vernier calliper, screw gauge, spherometer and travelling microscope. 2) To determine the Moment of Inertia of a Flywheel. 3) To determine the Moment of inertia of a disc using auxiliary annular ring.
onth August				material of Bar by vibration	4) Young's modulus of material of Bar by vibration
Sc. I 16		1	6 1 1 1 1 1 1 1 1 1	naterial of wire by torsional scillations.) Y/η of Wire by Searle's nethod.)To determine g by Bar endulum. To determine g by Kater's	Sub-units planned Practicals: 1) Modulus of rigidity of material of wire by torsional oscillations. 2) Y/η of Wire by Searle's method. 3) To determine g by Bar Pendulum. 4) To determine g by Kater's Pendulum.
nth September				4	



	. I 16		16	Practicals: 1) Modulus of rigidity of material of wire by torsions oscillations. 2) Υ/η of Wire by Searle's method. 3) To determine g by Bar Pendulum. 4) To determine g by Kater' Pendulum.	oscillations. 2) Y/η of Wire by Searle's method. 3) To determine g by Bar
Month	October/No	vember			
B.Sc. I	16		16	Module/Unit:	Sub-units planned
			1.0	Examination	Examination
Month	December				
B.Sc. I	16 B.Sc.	•	16	Module/Unit:	Sub-units planned
	1		10	Practicals: 1) Use a Multimeter for	Practicals:
				measuring (a) Resistances, (b) AC and DC Voltages, (c), Checking electrical fuses and Continuity. 2) To determine constants of B. G. 3) To compare capacitances using De'Sauty's bridge. 4) To determine impedance of	(b) AC and DC Voltages, (c), Checking electrical fuses and Continuity. 2) To determine constants of B. G. 3) To compare capacitances
Month Ja				series LCR circuit	series LCR circuit.
3.Sc. I	16		16	Module/Unit:	Sub-units planned
,.SC. 1	16			3) To compare capacitances using De'Sauty's bridge. 4) To determine impedance of	Practicals: 1) Use a Multimeter for measuring (a) Resistances, (b) AC and DC Voltages, (c), Checking electrical fuses and Continuity. 2) To determine constants of B. G. 3) To compare capacitances using De'Sauty's bridge. 4) To determine impedance of series LCR circuit.
nth Febr	uary			Module/Unit:	
			1 1	Andrel - /III :	



B.Sc. I	16		16	Practicals: 1) To verify the Thevenin theorem. 2) To verify the Norton theorem. 3) Determination of low resistance using Carey foster's Bridge. 4)) Verification of Kirchoff's voltage and current law	Practicals: 1) To verify the Thevenin theorem. 2) To verify the Norton theorem. 3) Determination of low resistance using Carey foster's Bridge. 4)) Verification of Kirchoff's voltage and current law
Month Ma	rch			Module/Unit:	Sub-units planned
2.50, 1	10		16	Practicals: 1) To verify the Thevenin theorem. 2) To verify the Norton theorem. 3) Determination of low resistance using Carey foster's Bridge. 4)) Verification of Kirchoff's voltage and current law	Practicals: 1) To verify the Thevenin theorem. 2) To verify the Norton theorem. 3) Determination of low resistance using Carey foster's Bridge. 4)) Verification of Kirchoff's voltage and current law
Month April				Module/Unit:	
ectures		Practical s	Total	Examination	Sub-units planned Examination

Jinde Ab Teacher Incharge



Head of the
Department of Physics
Vivekanand College, Kolhabur