"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: 2020-21

Subject: Physics

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

Cours	une			Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Introduction to Quantum Mechanics	Introduction to Quantum
B.Sc. III	12		12	Origin of quantumechanics, Review of black body radiation, Photoelectreffect, matter waves, Description by Broiglie hypothesis experimental evidence of description by Broglie theory (Davisson and Germer experiment), wave particle duality, Heisenberg' uncertainty principle and different forms uncertainty principle	Origin of quant mechanics, Review of blat body radiation, Photoelect effect, matter waves, Established by the properties of Broglie hypothesis experimental evidence of Broglie theory (Davisson and Germer experiment), was particle duality, Heisenberg
	6 -			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.	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.
э. И -	64	64	P	racticals :	Practicals:

			1) To record and analyze the cooling temperature of hot object as a function of time using a thermocouple. 2) To calibrate Resistance Temperature Device (RTD) using Null Method/Off-Balance Bridge 3) Temperature of flame. 4) To determine Mechanical Equivalent of Heat, J, by Callender and Barne's constant flow method.	cooling temperature of hot object as a function of time using a thermocouple. 2) To calibrate Resistance Temperature Device (RTD) using Null Method/Off-Balance Bridge 3) Temperature of flame. 4) To determine Mechanical Equivalent of Heat, J, by Callender and Barne's constant flow
Month July			Module/Unit:	method.
Course Lect ures	Practicals	Total	Operator in Quantum Mechanics	Sub-units planned Operator in Quantum Mechanics
B.Sc. 12		12	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.	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

B.Sc. III	12		12	Magnetic Properties Materials	of Covered	
				Magnetic material permeability, susceptibility magnetization, magnet moment, electron spin Diamagnetic materials Paramagnetic materials ferromagnetic, ferromagnetic classical theory of diamagnetism, and paramagnetism, Curie law Curie constant, Weiss theory of ferromagneticsm, and ferromagnetic domain Hysteresis loop for ferromagnetic materials.	y, ic n, s, s, s, e, of d d, y, y d d, ,	
B.Sc. III		80	80	 Practicals: Self inductance by Owen's bridge. Self inductance by Rayleigh's method. Self inductance by Maxwell bridge. Measurement of BV, BH and θ using earth inductor. Hysteresis by magnetometer. 		
Month Septe	ember			Module/Unit:		
B.Sc. II	Lect	Practicals	Total	Laws of Thermodynamics Work done during isothermal and adiabatic processes, reversible & irreversible processes, Second law	Covered	

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I	. 16	-	16	Elasticity	Elasticity
B.Sc.				Bending of beam, Bending moment, Cantilever (without considering weight of cantilever), Beamsupported a 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 both the ends (with a considering weight).
II	-	64	64	Practicals: 1) Characteristics of	Practicals: 1) Characteristics of
				Transistor.	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.
lonth A	ugust		-1	Module/Unit:	Sub-units planned
ourse	Lect ures	Practicals	Total	Physical interpretation of wave function, Schrodinger's	Physical interpretation of

B.Sc., III	12 -	12	independent equation (c) and three dimension Requirements of wa function, Eigen value, Eig function, Normaliz orthogonal and orthonorma wave functions, Probabilit current density (Continuit	Requirements of wave function, Eigen value, Eigen function, Normalized orthogonal and orthonormal wave functions, Probability current density (Continuity equation). Examples on
B.Sc. I	16 -	16	function Gravitation:	function
D.C. H.			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	Motion of a particle in a
B.Sc. II	64		period, frequency, average period using using universal	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 period using using universal

	Septemb			Module/Unit:	Sub-units planned
B.Sc. III	Lect ures	Practicals	Total	Schrodinger's Steady State Equation Quantum mechanics treatment of particle in rigin box (1D and 3D). Step potential relation and	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- Tunnellin effect, α-decay, simple harmonic oscillator.	transmission cc
3.Sc. I	16	<u></u>	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.
Sc. II	64		64	Practicals:	Practicals:
			1	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 opticalsystem.	3) Goniometer II- To study the equivalent focal length opticalsystem.
Month C		November		Module/Unit:	Sub-units planned
	Lect ures	Practicals	Total	Examination	Examination
Month D	ecember	r			
				Module/Unit:	Sub-units planned
	Lect ures	Practicals	Total	Dielectric Properties of Materials	Dielectric Properties of Materials
III	6 -		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	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
				Introduction – DC and varying currents, LR Circuit, RC circuit and LC circuit, Growth and decay of currents, Theory of B.G. and constants	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

**	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.
nuary			Module/Unit:	Sub-units planned
Lect	Practicals	Total	Introduction of free electron theory (Classical and	Introduction of free electron theory (Classical and
12	-	12	Cuantum 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.	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.
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
	ures 12	Lect Practicals ures 12 -	Lect Practicals Total 12 - 12	1) Ic 555 timer. 2) Electronic switch using transistor. 3) Characteristics of FET. 4) FET as VVR. Module/Unit: Lect ures Total 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. 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

B.Sc. II		64	64	Practicals:	Practicals:
				1) 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.
W				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		l.	Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Magnetic Materials and their Properties:	Magnetic Materials and their Properties:
B.Sc. III	12	B	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	Network Theorems Introduction, Node, Junction, Branch, Loop, Active and passive elements, Thevenin's theorem, Nortan's theorem and equivalence between them, problems.	Network Theorems Introduction, Node, Junction, Branch, Loop, Active and passive elements, Thevenin's theorem, Nortan's theorem and equivalence between them, problems.



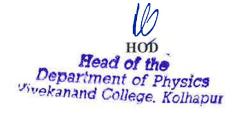
B.Sc. II	-	64	64	Practicals:	Practicals:
				1) To observe the loading effect of a multimeter while measuring voltage across a low resistance and high resistance.	1) To observe the loading effect of a multimeter while measuring voltage across a low resistance and high resistance.
				2) To observe the limitations of a multimeter for measuring high frequency voltage and currents.	2) To observe the limitations of 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 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., III	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	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.	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 A	pril			Module/Unit:	Sub-units planned
Lectures		Practicals	Total	Examination	Examination

Teacher Incharge





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

Academic Year: 2020-21

Subject: Physics

Name of the teacher: Mr. C. J. Kamble

Month Ju				Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Coupled Oscillations:	Coupled Oscillations:
B.Sc. II	12	-	12	Normal modes of vibration normal coordinates, degree of freedom, types of coupling frequency of oscillator systems, Energy transfer is coupled oscillatory system.	normal coordinates, degree of freedom, types of coupling
3.Sc. III	12	•	12	Nuclear Radiation Detectors	Nuclear Radiation Detectors
Sc. III				Introduction: Ionization chamber, G. M. counter, (principle, construction, working mechanism, limitations, merits) Scintillation Counter (principle, construction, working, advantages) Introduction to cosmic radiations, Wilson cloud chamber, Bubble chamber.	Introduction: Ionization chamber, G. M. counter, (principle, construction, working mechanism, limitations, merits) Scintillation Counter (principle, construction, working, advantages) Introduction to cosmic radiations, Wilson cloud chamber, Bubble chamber.
oc. III	- 80)	1	Practicals :	Practicals:
			10	1) Resonance pendulum. 2) S. T. of soap solution.	1) Resonance pendulum.
OKE .			3	3) S. T. by Fergusson	2) S. T. of soap solution. 3) S. T. by Fergusson modified method.

				4) Y & η using flat spiral spring.	4) Y & η using flat spiral spring.
Month July	У	,		Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Superposition of Harmonic Oscillations	Superposition of Harmonic Oscillations
B.Sc. II	B.Sc. II 12		12	Superposition of two perpendicular harmonic oscillations- for oscillations having	Superposition of two perpendicular harmonic oscillations- for oscillations having
				equal frequencies (Graphical and analytical methods) and oscillations having different	equal frequencies (Graphical and analytical methods) and oscillations having different
				frequencies (Lissajous figures), Uses of Lissajous figures.	frequencies (Lissajous figures), Uses of Lissajous figures.
B.Sc. III	12	*	12	Superposition of Harmonic Oscillations	Superposition of Harmonic Oscillations
				Linearity and superposition principle, Composition of two simple harmonic motions,	Linearity and superposition principle, Composition of two simple harmonic motions,
				Superposition of two collinear harmonic oscillations for oscillations having equal frequencies	Superposition of two collinear harmonic oscillations- for oscillations having equal frequencies
	ia.			(Analytical and geometrical methods) and oscillations having different frequencies	(Analytical and geometrical methods) and oscillations having different frequencies
				(Beats)	(Beats)

B.Sc. III	-	80	80	Practicals:	Practicals:
				1) Cardinal points by turn table method.	1) Cardinal points by turn table method.
				2) Cardinal points by Newton's 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 ed
Month Aug				Module/Unit:	Sub-units planned
Course	Lect ures	Practicals	Total	Nucleus (Nuclear Structure & General Properties of	Nucleus (Nuclear Structur & General Properties of
B.Sc. II	12	3.	12	nuclei)	nuclei)
				Introduction, Constituents of nuclei, Nuclear size, Nuclear magnetic moment, Electric quadrupole moment, Nuclear spin, Unit of atomic mass (amu), Mass defect, Packing	Introduction, Constituents nuclei, Nuclear size, Nucle magnetic moment, Elect quadrupole moment, Nucle spin, Unit of atomic magnetic magne

B.Sc. III	12	-	12	Particles Accelerators	Particles Accelerators
B.Sc. III		80	80	Need of accelerators, Types of accelerators (Qualitative orbital accelerators Cyclotron, (Principle construction, working theory, merits, demerits) Limitation of cyclotron Synchrocyclotron, construction, working, theory) . Betatron, (principle, construction, working, mathematical theory, merits) Accelerators in India. Practicals: 1) 'Y' by Koenig's method. 2) 'Y' by cornu's method. 3) Measurement of heat capacity of solid. 4) S. T. tension by drop weight method. 5) Young's modulus by vibration using AFG.	Need of accelerators, Type of accelerators (Qualitative orbital accelerators, Cyclotron, (Principle, construction, working, theory, merits, demerits) . Limitation of cyclotron, Synchrocyclotron, (construction, working, theo) . Betatron, (principle, construction, working
Month Sept	ember			Module/Unit:	Sub-units planned
3.Sc. II	Lect	Practicals	Total	Waves Motionand	Waves Motionand Ultrasonic waves
	2			Waves Motion: Transverse	Waves Motion: Transverse waves on a string, travelling



	12		12	and standing waves on a string, Normal modes of a string, Group velocity and Phase velocity, Plane waves, Spherical waves. Ultrasonic waves: Piezo-electric effect, Production of ultrasonic waves by Piezo-electric generator, Detection of ultrasonic waves, Properties ultrasonic waves, Applications of ultrasonic waves.	and standing waves on a string, Normal modes of a string, Group velocity and Phase velocity, Plane waves, Spherical waves. Ultrasonic waves: Piezoelectric effect, Production of ultrasonic waves by Piezoelectric generator, Detection of ultrasonic waves, Properties ultrasonic waves, Applications of ultrasonic waves.
B.Sc. III	12		12	Atomic Physics Quantum numbers, spatial quantization, vector atom model, Alkali Spectra, Optical spectral series, Spectral term spectral notation, energy level diagram of sodium, spin orbit interaction Zeeman effect, Explanation of Anomalous Zeeman effect on vector atom model, Anomalous Splitting of D1 and D2 Line	Atomic Physics Quantum numbers, spatial quantization, vector atom model, Alkali Spectra, Optical spectral series, Spectral term spectral notation, energy level diagram of sodium, spin orbit interaction Zeeman effect, Explanation of Anomalous Zeeman effect on vector atom model, Anomalous Splitting of D1 and D2 Line
B.Sc. III		80	80	Practicals: 1) Lloyd's single mirror. 2) Double refracting prism 3) Diameter of lycopodium powder. 4) Spherical aberration. 5) Absorption of spectrum of KMno4 solution.	Practicals: 1) Lloyd's single mirror. 2) Double refracting prism 3) Diameter of lycopodium powder. 4) Spherical aberration. 5) Absorption of spectrum of KMno4 solution.
Month Octo	ober/No	ovember	1	Module/Unit:	Sub-units planned

	Lect ures	Practicals	Total	Examination	Examination
Month D	December			Module/Unit:	
	Lect	Practicals	Total		Sub-units planned
	ures		Total	Cardinal points	Cardinal points
B.Sc. II	12		12	Thick lens, combination lenses (system)Cardipoints of an optical system (definitions) only), graphical construction of image using cardinal point Newton's formula, relation between f and f' for an optical system, relation between lateral, axial arangular magnifications.	of inal lenses (system)Cardipoints of an optical system (definitions only), graphical construction of image using cardinpoints, Newton's formulary on between formulary on between formulary cardinal construction of image using cardinal construction of the construction
S.Sc. III	12 -		e co hy or sp	Radioactive Decay Natural radioactivity, Artificial radioactivity, Study of alpha decay by magnetic spectrograph, Velocity of alpha particles, Range of α-particles, α- disintegration energy, fine structure of trays. Beta decay, Study by β ray spectrometer, continuous nature, neutrino pothesis, Gamma Decay, rigin & gamma rays, γ- ray ectrum, internal enversion, Isomerism.	Radioactive Decay Natural radioactivity, Artificial radioactivity, Study of alpha decay by magnetic spectrograph, Velocity of alpha particles, Range of aparticles, a disintegration energy, fine structure of arays. Beta decay, Study by \$\begin{align*} & & & & & & & & & & & & & & & & & & &

JUNE

	===	80	80	Practicals:	Practicals:
				1) e/m of electron by Thomson's method.	1) e/m of electron by
				Measurement of dielectric constant.	Thomson's method. 2) Measurement of dielectr 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 Janua				Module/Unit:	Sub-units planned
Course	Lect ures	Practicals	Total	Resolving Power of optical instruments	Resolving Power of optical instruments
B.Sc. II	12		12	Resolution, Resolving power of optical instruments, Rayleigh's criterion for the limit of	Resolution, Resolving power of optical instruments, Rayleigh's criterion for the limit of
				comparison between	resolution, Modified Rayleigh's criterion, comparison between magnification and resolution,
				resolving power of plane diffraction grating, resolving	resolving power of plane diffraction grating, resolving power of a prism.



B.Sc. III	12	<u>-</u>	12	Molecular Physics	Molecular Physics
				Molecular system, type of bonds, diatomic molecule as a rigid rotator rotational states of diatomic molecule, Raman effect, Experimental study of Raman effect, classical theory of Raman effect, Applications of Raman effect.	Molecular system, type of bonds, diatomic molecule as a rigid rotator rotational states of diatomic molecule, Raman effect, Experimental study of Raman effect, classical theory of Raman effect, Applications of Raman effect.
B.Sc. III	-	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	5) Hysteresis by
				magnetometer.	magnetometer.
Month Febr	ruary	J.		Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Polarization of light	Polarization of light



B.Sc. II	12	-	12	Revision of plane of vibration, plane polarization perpendicular vibration, parallel vibrations,	n, plane polarization perpendicular vibrat ,parallel vibrations,
				polarization by reflection and refraction, Idea of polarization, polarization be double	of refraction
				refraction, Huygen explanation of double refraction through uniaxia crystals, Nicol	e explanation of
				prism(construction, working), production and detection of circularly and elliptically polarized	production and detection
B.Sc. III	12			light, optical rotation - laws of rotation of plane of polarization, polarimeter.	S F Totation - 14W3 (
	12		12	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.



B.Sc. I		80	80	Principle of Superposition, Coherence and condition interference, Division amplitude	on Principle of Superposition of Interference, Division amplitude
				and division of wave from Division of wave from Lloyds sing mirror(determination of	nt, and division of wave from Division of wave from
				monochromatic source), Division o amplitude- Interference in thin	wavelength of light monochromatic source),Division amplitude-Interference in the
				parallel films (reflected ligh only), Wedge shaped films. Newton's rings and its application	t parallel films (reflected lig only), Wedge shaped film
Month Ma	rch			for determination of wavelength and refractive index of light.	for determination of wavelength and refractive index of light.
Course				Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Space Science	Space Science
B.Sc. III	12	-	12	characteristics of earth and	Cosmology, Big-bang theory, oscillating theory, steady-state theory, Hubble's law, cosmological tests, Milky way
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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	1) 'Y' by Koenig's method. 2) 'Y' by cornu's method. 3) Measurement of heat capacity of solid. 4) S. T. tension by drop weight method. 5) Young's modulus by vibration using AFG.	capacity of solid. 4) S. T. tension by drop weight method.
	1 (3.1			Module/Unit:	Sub-units planned
Month Oct		The state of the s	Total	Examination	Examination
	Lect	Practicals	Total	Examination	

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Teacher Incharge

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Heam of the Department of Physics Vivekanand College, Kolhapui

"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: 2020-21

Subject: Physics

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

Month June				Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Laws of Thermodynamics Thermodynamic system,	Laws of Thermodynamics Thermodynamic system,
B.Sc. II	12	-	12	thermodynamic variables, thermodynamic state, equation of state,	thermodynamic variables, 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	Lattice Vibration and Thermal Properties of Solid	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 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:	Practicals:
				1) Resonance pendulum.	1) Resonance pendulum.



				 2) S. T. of soap solution. 3) S. T. by Fergusso modified method. 4) Y & η using flat spiral spring. 	 2) S. T. of soap solution. 3) S. T. by Ferguss modified method. 4) Y & η using flat spiral spring.
Month Jul				Module/Unit:	Sub-units planned
	Lect	Practicals	Total	Kinetic Theory of Gases and thermometry	
B.Sc. II	12		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)	(qualitative) and it applications to specific heat of monoatomic and diatomic gases
Sc. III 1	2	¥		Amorphous, crystalline, lattice, lattice translation vectors, lattice with basis (Central , non central elements) Unit cell , Examples	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		80	80	Practicals:	Practicals:
				1) Cardinal points by turn table method.	Cardinal points by turn table method.
				2) Cardinal points by Newton's 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 Au	gust			Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Laws of Thermodynamics	Laws of Thermodynamics
	ures			Thermodynamic system,	Thermodynamic system,
B.Sc. II	12	-	12	thermodynamic variables, thermodynamic state, equation of state,	thermodynamic variables, 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



	II 1:	2	12	Magnetic Properties Materials	of Magnetic Properties Materials
				Magnetic material permeability, susceptibility magnetization, magnet moment, electron special paramagnetic material ferromagnetic, ferromagnetic classical theory diamagnetism are paramagnetism, Curie law Curie constant, Weiss theory of ferromagnetic domain Hysteresis loop for ferromagnetic materials.	Magnetic materia ty, permeability, susceptibil magnetization, magne moment, electron sp Diamagnetic materia s, Paramagnetic materia ferromagnetic, ferromagnet classical theory diamagnetism an paramagnetism, Curie law y, Curie constant, Weiss theo of ferromagnetism, ar ferromagnetic domain
B.Sc. III	=	80	80	Practicals:	Practicals:
				1) Self inductance by Owen's bridge.	1) Self inductance by Owen' 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 Sep	tember			Module/Unit:	Sub-units planned
B.Sc. II	Lect	Practicals	Total	Laws of Thermodynamics	Laws of Thermodynamics
				Work done during isothermal and adiabatic processes, reversible & irreversible processes, Second law	Work done during isothermal and adiabatic processes, reversible & irreversible processes, Second law

	12	E	12	of thermodynamics, Carnideal heat engine, Carn	ot's ideal heat argin G
				cycle (Working, efficien Carnot's	cy), cycle (Working, efficiency Carnot's
				theorem, Entropy (concep significance), change entropy, Entropy changes reversible &	in significance), change entropy, Entropy changes reversible &
				irreversible processes, The law of thermodynamic Entropy change in conduction of heat,	cs. law of thornal
				diffusion of gases ,physics significance of entropy, U attainability of absolute zero Zero	n- significance c
B.Sc. III	12	+	12	point energy.	point energy.
			12	Superconductivity	Superconductivity
*				Idea of superconductivity Critical temperature, Critical magnetic field. Meissne effect. Type I and type I Superconductors, London's Equation and Penetration Depth, Isotope effect	Critical temperature, Critical magnetic field. Meissner effect. Type I and type II Superconductors. London's
B.Sc. III	- {	30	80	1) 'V' by Voor' 1	
				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.
			1.	4) S. T. tension by drop weight method.	4) S. T. tension by drop weight method.
Month Octobe	ar/No.	_t_		5) Young's modulus by vibration using AFG.	5) Young's modulus by vibration using AFG.
	inoven	ioer		Module/Unit:	Sub-units planned
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	Lect ures	Practicals	Tota	al Examination	Examination
Month De	ecember				
	_			Module/Unit:	Sub-units planned
	Lect	Practicals	Tota	1 Thermodynamic Potentia	als Thermodynamic Potent
D.C. II				Enthalpy, Gibbs Helmho	oltz Enthal Out
B.Sc. II	12		12	Maxwell's thermodynamic	ons, Internal Energy funct Maxwell's thermodynami
				relations, Joule-Thoms effect, Clausius- Clapeyi equation, Expression for (0-CV),	on effect Clausius Cl
				CP/CV, TdS equations.	CP/CV, TdS equations.
B.Sc. III	12 -		12	Instrumentations	
				:Introduction to CRO	Instrumentations :Introduction to CRO
B.Sc. III	90			Block Diagram of CRO Applications of CRO: (1) Study of Waveform, (2) Measurement of Voltage Current, Frequency, and Phase Difference.	Applications of CRO: (Study of Waveform, (Measurement of Voltag
2.5 c . m	- 80	,	80	Practicals:	Practicals:
			i -	1) Self inductance by Owen's bridge.	The state of the s
				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.
Ionth January				5) Hysteresis by magnetometer.	5) Hysteresis by magnetometer.
January				Module/Unit:	Sub-units planned
FOE # Q				Wodule/Unit:	Sub-units planned

Course	Lect ures	Practicals	Total	Theory of Radiation	Theory of Radiation
B.Sc. II	12		12	Thermal radiation Blackbody radiation and is importance, Black body is practice, its temperature dependence emissive power absorptive power, pressure or 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 importance, Black body practice, its temperat dependence emissive power absorptive power, pressure radiation, Experimental sturn of black body radiation spectrum, Concept of energy density, Derivation Planck's law, Deduction Wien's distribution law Rayleigh Leave II.
Sc. III	80		80	method. 5) Calibration of wire using	Practicals: 1) e/m of electron by Thomson's method. 2) Measurement of dielectric constant. 3) Resistivity of semiconductor crystal with temperature by four probe method. 5) Calibration of wire using Carey-foster key



				Special functions of ICs	
B.Sc. III				IC 555, Block diagram and special functions if IC Astable Operation: Circu	es, nit of ee, sst dd ss. it s
		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 divider. Bistable Operation: Circuit diagram and circuit action.	special functions if ICs Astable Operation: Circuit diagram, frequency of oscillation and duty cycle Applications as tone brus oscillator, voltage controlled frequency shifters. Monostable operation: circuit diagram Applications
Month Feb	ruary			Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Quantum statistics	Quantum statistics



B.Sc. II	12	2=	12		
				Need of quantum statics ,Bose-Einstein distribution law, photon gas, Planck, s radiation law	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	Fermi-Dirac distribution law, free electron in metal, electron gas, comparison of M.B., B.E., and
				F.D. statistics.	F.D. statistics.
B.Sc. III	12	04	12	Digital Electronics	Digital Electronics
B.Se. III				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	2	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.
			1	Module/Unit:	Sub-units planned
Month Mar	ch				1

B.Sc. II	12	12	Degrees of freedo, momentum space, positi space ,Phase space Microstate and Macrostate Accessible microstates, prior probability thermodynam probability, probability distribution, Maxwel Boltzmann distribution law energy or speed, evaluation constants α and β, Entropy and Thermodynamic probability Distribution of molecula speeds.	momentum space, positi space ,Phase space ,Phase space ,Phase space , Microstate and Macrostate Accessible microstates, prior probability thermodynam probability, probability distribution, Maxwel Boltzmann distribution law energy or speed, evaluation of constants α and β, Entropy and Thermodynamic probability
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.	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

B.Sc. III	80	80	Practicals: 1) UJT as voltage sweep generator. 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.	Practicals: 1) UJT as voltage sweep generator. 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.
			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Examination	Examination

Teacher Incharge

Head Whe Department of Physics Tivekanand College, Kolhapur

"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: 2020-21

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.

B.Sc. I	16	e.	16	Gravitation:	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 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
B.Sc. II	-	64	64	Practicals :	Practicals :
				1) To record and analyze the cooling temperature of hot object as a function of time using a thermocouple.	1) To record and analyze the cooling temperature of hot object as a function of time using a thermocouple.
				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
				method.	method,
Month Ju	uly			Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Introduction to Quantum Mechanics	Introduction to Quantum Mechanics



B.Sc. 1		12	mechanics, Review of blabody radiation, Photoelect effect, matter waves, I Broiglie hypothesis experimental evidence of Broglie theory (Davisson a Germer experiment), wa particle duality, Heisenberg	mechanics, Review of blate body radiation, Photoelectron effect, matter waves, Description effect, and provide effect, matter waves, Description effect, and provide effect, and provide effect, matter waves, Description effect, and provide
B.Sc. 16		16	Elasticity Bending of beam, Bending moment, Cantilever (without considering weight of cantilever), Beamsupported a 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.	considering weight of cantilever), Beamsupported at both the ends (without considering weight of beam). Torsional oscillation, Work done in twisting a wire,
B.Sc	64	64	Practicals: 1) Characteristics of Transistor. 2) Use of sextant to measure height of object. 3) Crystal Oscillator. 4) Colpitts oscillator.	Practicals: 1) Characteristics of Transistor. 2) Use of sextant to measure height of object. 3) Crystal Oscillator. 4) Colpitts oscillator.
Ionth August			Module/Unit:	Sub-units planned
ourse Lect ures	Practicals	Total		Physical interpretation of wave function, Schrodinger's

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		16	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.	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: 1) To determine wavelength of 1) Sodium &2)spectrum of Mercury light usingplane diffraction grating. 2). Goniometer I-To study cardinal points of opticalsystem. 3) Goniometer II- To study the equivalent focal length of opticalsystem.	Practicals: 1) To determine wavelength of 1) Sodium &2)spectrum of Mercury light usingplane diffraction grating. 2). Goniometer I-To study cardinal points of opticalsystem. 3) Goniometer II- To study the equivalent focal length of opticalsystem.

ESTD. JUNE 1964

				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. III	Lect	Practicals	Total	Elementary band theory Introduction of free electron theory (Classical and Quantum mechanical), Kronig Penny model, Effective mass of an electron,	Elementary band theory Introduction of free electron theory (Classical and Quantum mechanical), Kronig Penny model, Effective mass of an electron,
	12	Set 1	12	Band Gaps. Conductors, Semiconductors and insulators. P and N type semiconductors. Conductivity of Semiconductors, mobility, Hall Effect, Hall voltage and Hall coefficient.	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	5®.	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	ž	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	ctober/1	November		Module/Unit:	Sub-units planned
	Lect	Practicals	Total	Examination	Examination
Month D	ecembe	r	4.8/1	Module/Unit:	Sub-units planned
	Lect	Practicals	Total		

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B.Sc.	12	5	12	Applications of Schrodinger's Steady State Equation	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 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.
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	21	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	Month January			Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Dielectric Properties of Materials	Dielectric Properties of Materials
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B.Sc.	12	S	12	Polarization. Local Electric	Polarization. Local Electric
III				Field at an Atom.	Field at an Atom.
				Depolarization Field. Electric	Depolarization Field. Electric
				Susceptibility. Polarizability.	Susceptibility. Polarizability.
				Clausius Mosotti Equation.	Clausius Mosotti Equation.
				Classical Theory of Electric	Classical Theory of Electric
				Polarizability. Normal and	Polarizability. Normal and
				Anomalous Dispersion.	Anomalous Dispersion.
				Cauchy and Sellmeir	Cauchy and Sellmeir
				relations. Langevin-Debye	relations. Langevin-Debye
				equation. Complex Dielectric	equation. Complex Dielectric
				Constant. Optical	Constant. Optical
				Phenomena. Application:	Phenomena. Application:
				Plasma Oscillations, Plasma	Plasma Oscillations, Plasma
				Frequency, Plasmons.	Frequency, Plasmons.
B.Sc. I	16	-	16	Electricity	Electricity
				Introduction – DC and	Introduction - DC and
				varying currents, LR Circuit,	varying currents, LR Circuit,
				RC circuit and LC circuit,	RC circuit and LC circuit,
				Growth and decay of currents,	Growth and decay of currents,
				Theory of B.G. and constants	Theory of B.G. and constants
			1	of D.C. time constants T	afDC time constants T
	1			of B.G., time constants T	of B.G., time constants T
				of B.G., time constants (of B.G., time constants (
				of B.G., time constants [of B.G., time constants (
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Month Febr			 To determine the wavelength of sodium light using Fresenel Biprism. To determine the Resolving Power of a Prism. To determine the Resolving Power of a Plane Diffraction Grating. 	 To determine the wavelength of sodium light using Fresenel Biprism. To determine the Resolving Power of a Prism. To determine the Resolving Power of a Plane
Month Febr			Resolving Power of a Prism. 3) To determine the Resolving Power of a Plane	2) To determine the Resolving Power of a Prism.3) To determine the
Month Febr			Resolving Power of a Plane	3) To determine the
Month Febr	1	1		Diffraction Grating.
VIUIIII) Febr			4) To determine wavelength of Laser light using diffraction of single slit.	4) To determine wavelength of Laser light using diffraction of single slit.
	ruary		Module/Unit:	
110	ect Practicals	Total	Magnetic Materials and	Sub-units planned
	res		their Properties:	Magnetic Materials and their Properties:
3.Sc. 12		12	antiformama	Magnetic intensity, magnetic induction, permeability, magnetic susceptibility. Hysteresis and hysteresis curve, diamagnetic, paramagnetic, ferromagnetic, ferrimagnetic and antiferromagnetic materials.



B.Sc. I	16		16	Network Theorems Introduction, Node, Junction, Branch, Loop, Active and passive elements, Thevenin's theorem, Nortan's theorem and equivalence between them, problems.	Network Theorems 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: 1) To determine the value of 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. 4) To determine the coefficient of thermal conductivity of a bad conductor by Lee and Charlton's disc method	Practicals: 1) To determine the value of 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. 4) To determine the coefficient of thermal conductivity of a bad conductor by Lee and Charlton's disc method
Month M. Course	Lect ures	Practicals	Total	Module/Unit: X-Ray Diffraction	Sub-units planned X-Ray Diffraction



B.Sc. III	12	-	12	Reciprocal lattice and its 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	Reciprocal lattice and its 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	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 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 April			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Examination	Examination

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Head of the
Department of Physics
Vivekanand College, Kolhapur

"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: 2020-21

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		12	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 thermometry mercury thermometer, platinum resistance thermometer, thermocouple. (Principle, construction and theory)	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	Lattice Vibration and Thermal Properties of Solid Lattice vibrations, Phonons, normal modes of one dimensional and diatomic chain, Acoustical and optical	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	phonons, Phonons spectrum in solids, Dulong Petit's law (Classical Theory), Einstein
B.Sc. III	2	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.



Month July	y			 3) Self inductance by Maxwell bridge. 4) Measurement of BV, BH and θ using earth inductor. 5) Hysteresis by magnetometer. Module/Unit: 	 3) Self inductance by Maxwell bridge. 4) Measurement of BV, BH and θ using earth inductor. 5) Hysteresis by magnetometer. 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	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,	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	Ŧ.	80	80	Practicals :	Practicals :
			87	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 Thermodynamic system,	Laws of Thermodynamics Thermodynamic system,
B.Sc. II	12	12 - 12	thermodynamic variables, thermodynamic state, equation of state,	thermodynamic variables, 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. II	I 12	4 N=	12	Magnetic Properties Materials	of Magnetic Properties Materials
B.Sc. III				diamagnetism and paramagnetism, Curie law Curie constant, Weiss theory of ferromagnetism, and ferromagnetic domain Hysteresis loop for ferromagnetic materials.	Is, Magnetic material permeability, susceptibility magnetization, magnetic moment, electron spin Diamagnetic material ferromagnetic, ferromagnetic elassical theory of diamagnetism and paramagnetism, Curie law Curie constant, Weiss theory of ferromagnetism, and ferromagnetic domain
D.5¢. III	-	80	80	Practicals:	Practicals:
				1) Cardinal points by turn table method.	1) Cardinal points by turn table method.
				2) Cardinal points by Newton's 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 C					
Month Sept				Module/Unit:	Sub-units planned
o.sc. II	Lect	Practicals	Total	Laws of Thermodynamics	Laws of Thermodynamics
				processes C 11	Work done during isothermal and adiabatic processes, reversible & irreversible processes, Second law

	12				
	12		12	of thermodynamics, Carno ideal heat engine, Carno cycle (Working, efficienc Carnot's	ideal heat engine Campat
		-		theorem, Entropy (concept significance), change entropy, Entropy changes reversible &	in significance) change :
				irreversible processes, Thi law of thermodynamic Entropy change in conduction of heat,	s. law of thormadan :
				diffusion of gases ,physica significance of entropy, Ur attainability of absolute zero Zero	- significance of onto-
B.Sc. III	12			point energy.	point energy.
B .50. III	12	-	12	Superconductivity	Superconductivity
				Idea of superconductivity Critical temperature, Critica magnetic field. Meissner effect. Type I and type II Superconductors, London's Equation and Penetration Depth, Isotope effect	Critical temperature, Critical magnetic field. Meissner effect. Type I and type II Superconductors. London's
B.Sc. III		80			
2.3 0 . III	-	6 U	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.
0.3				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	5) Young's modulus by
Month Octob				vibration using AFG.	vibration using AFG.



	Lect ures	Practicals	Total	Examination	Examination
Month D	ecember			Module/Unit:	Sub-units planned
	Lect	Practicals	Total	Thermodynamic Potentials	Thermodynamic Potentia
B.Sc. II	12		12	Enthalpy, Gibbs, Helmholt. Internal Energy function Maxwell's thermodynamical relations, Joule-Thomso effect, Clausius- Clapeyro equation, Expression for (Cl – CV), CP/CV, TdS equations.	s, Internal Energy function Maxwell's thermodynamic relations, Joule-Thoms
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.	Applications of CRO: (1
B.Sc. III	S	80	80	Practicals: 1) Self inductance by Owen's	Practicals: 1) Self inductance by Owen's
				bridge. 2) Self inductance by Rayleigh's method.	bridge. 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.
onth Janua					5) Hysteresis by magnetometer.
onun Janua	ry			Module/Unit:	Sub-units planned

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	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:	Practicals :
				1) 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 Feb	ruary		<u> </u>	Module/Unit:	Sub-units planned
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-Boltzmann distribution law, energy or speed, evaluation of constants α and β, Entropy and Thermodynamic probability, Distribution of molecular speeds.	constants α and β, Entropy and Thermodynamic probability, Distribution of molecular speeds.
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.	

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B.Sc. III	**	80	80	Practicals :	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 Mar	ch			Module/Unit:	Sub-units planned
Course	Lect ures	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	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:	oscillation and duty cycle, Applications as tone brust oscillator, voltage controlled frequency shifters. Monostable operation: circuit diagram, Applications as touch switch and frequency



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*				Circuit diagram and circuit action.	Circuit diagram and circuit action.
B.Sc. III	-	80	80	Practicals: 1) Study of divergence of LASER beam.	Practicals: 1) Study of divergence of LASER beam.
				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 Apri	l			Module/Unit:	Sub-units planned
Lectures		Practicals	Total	Examination	Examination

Teacher Incharge



Head phythe
Department of Physics
Vivekanand College, Kolhapur

"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: 2020-21

Subject: Physics

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

Month Ju	ine			Module/Unit:	Sub-units planned
	Practica ls	Lectures	Total	Practicals: 1)Measurements of length (or diameter) using Vernier	Practicals: 1)Measurements of length (or diameter) using Vernier
B.Sc. I	16	5	16	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 material of Bar by vibration	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 material of Bar by vibration
Month Ju				Module/Unit:	Sub-units planned
B.Sc.	16	2	16	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 material of Bar by vibration	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 material of Bar by vibration
Month A	ugust			Module/Unit:	Sub-units planned
B.Sc. I	16		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) Υ/η of Wire by Searle's method. 3) To determine g by Bar Pendulum. 4) To determine g by Kater's Pendulum.
Month S	eptember			Module/Unit:	Sub-units planned



B.Sc.			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. 	oscillations. 2) Y/η of Wire by Searle's method. 3) To determine g by Bar
Month (October/No	ovember		Module/Unit:	
B.Sc. I	16		16	Examination	Sub-units planned
					Examination
	December			Module/II	
B.Sc. I	16 B.Sc.	-	16	Module/Unit: Practicals:	Sub-units planned
Andly				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.	(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
Aonth Jar	luary			Module/Unit:	series LCR circuit.
	16		16	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 corion LCP	Sub-units planned 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.
onth Febr	uary			Module/Unit:	
	-			VIOdule/Linite	Sub-units planned



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 N	Iarch			Module/Unit:	Sub-units planned
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 A	pril		-	Module/Unit:	Sub-units planned
Lectures		Practical s	Total	Examination	Examination

Teacher Incharge

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Department of Physics
Vivekanand College, Kolhapur

"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: 2020-21

Subject: Physics

Name of the teacher: Mr. I. M. Mulla

Month Ju	Practica			Module/Unit:	Sub
	ls	Lectures	Total	Practicals:	Sub-units planned
				1)Measurements of length (c	Practicals:
Month July 3.Sc. 16 onth Augus Sc. I 16	16	16	1 1 1 n o o 2	Module/Unit: Practicals:)Modulus of rigidity of naterial of wire by torsional scillations.	or 1)Measurements of length (diameter) using Vernice, calliper, screw gaug spherometer and travelling microscope. 2) To determine the Moment of Inertia of a Flywheel.
				To determine 1 -	netnod.
			Po	To determine g by Bar 3	B)To determine g by Bar
				Todata	endulum.
			Pe	anduluma	To determine g by Kater's
nth Septemi					Pendulum.
ITD Soutonel	20#			odule/Unit:	1



Month C B.Sc. I	october/Nov	vember	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. Module/Unit: Examination	oscillations. 2) Y/η of Wire by Searle's method. 3) To determine g by Bar Pendulum. 4) To determine g by Kater' Pendulum. Sub-units planned
				Caumination	Examination
Month D	ecember			Module/Unit:	
	16		16 16	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. Module/Unit: Practicals: 1) Use a Multimeter for measuring (a) Resistances, (b) AC and DC Voltages (c)	Sub-units planned 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. Sub-units planned Practicals: 1) Use a Multimeter for measuring (a) Resistances, (b) AC and DC Voltages, (c),
onth Febru	larv			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 continuity.	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.



Month March		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
D.C. I 16			Module/Unit:	Sub-units 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'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:	Cul
Lectures	Practical s	Total	Examination	Sub-units planned Examination

Teacher Incharge



Head by One Department of Physics Vivekanand College, Kolhapui