"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: 2019-20

Subject: Physics

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

Month Ju	ıne			Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Introduction to Quantum Mechanics	Introduction to Quantum Mechanics
B.Sc.	12		12	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	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. 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:	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 J	uly			Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Operator in Quantum Mechanics	Operator in Quantum Mechanics
B.Sc.	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	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

B.Sc.	16	3 55	16	Elasticity	Elasticity
I				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.	ž.	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	-	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) 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
Month S	eptemb	er		Module/Unit:	Sub-units planned



B.Sc.	Lect ures	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 harmonic oscillator.	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.
B.Sc. I	16		16	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	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		64	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.	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 counter/frequency counter	4) Measurement of time period, frequency, average period using using universal counter/frequency counter
Month (October/	November		Module/Unit:	Sub-units planned
	Lect	Practicals	Total	Examination	Examination
Month I	Decembe	er		Module/Unit:	Sub-units planned
	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	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.

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B.Sc. II	-	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	anuary			Module/Unit:	Sub with all
Course	Lect	Practicals	Total	D.C.	Sub-units planned
D.C.	ures		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.	induction, permeability magnetic susceptibility Hysteresis and hysteresis curve, diamagnetic paramagnetic, ferromagnetic
3.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

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B.Sc. II	2	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.
				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	Introduction of free electron theory (Classical and Quantum mechanical),	Introduction of free electron theory (Classical and Quantum mechanical),
B.Sc.	12		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	-	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 M	larch	1	1	Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	X-Ray Diffraction	X-Ray Diffraction

III	12	12	Reciprocal lattice and properties, concept Brillouin zone, diffraction X-rays by crystals, Ew construction, Bragg's law reciprocal lattice, X-t diffraction methods: 1) La method. 2) Rotating crystal Powder method - Princip Construction, Working analysis of cubic crystal be powder crystal method	X-rays by crystals, Ewald construction, Bragg's law i reciprocal lattice, X-ray diffraction methods: 1) Lau method. 2) Rotating crystal Powder method - Principle,
B.Sc. I 16	-	16	Network Theorems	Notice of The
				Network Theorems
	1		Introduction, Node, Junction	
1			Branch, Loop, Active and	Branch, Loop, Active and
			passive elements, Thevenin's	passive elements, Thevenin's
. [theorem, Nortan's theorem	theorem, Nortan's theorem
1	1		and equivalence between them, problems.	and equivalence between
			mem, problems.	them, problems.
B.Sc. II	64	64	Practicals:	D d
1			1	Practicals:
	1		1) To determine the value of	1)To determine the value of
			Stefan's Constant.	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.
1	1		3) To determine the	3) To determine the
			Coefficient of Thermal	Coefficient of Thermal
			Conductivity of Cu by Angstrom's Method.	Conductivity of Cu by Angstrom's Method.
1			4) To determine the	4) To 1
1		1 1	coefficient of thermal	- cc :
			conductivity of a had	conduction's
			conductor by Lee and	conductivity of a bad conductor by Lee and
1 1	1	TO 10.5	Charlton's disc method	Charlton's disc method
onth Amil				- 11 AL S GISC HIERIOU
onth April			Modula/Linia	
onth April	Practicals	ı	Module/Unit:	Sub-units planned
	Practicals	ı	Module/Unit:	

Head of the Department of Physics Vivekanand College, Kolhapui

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Shri Swami Vivekanand Shikshan Sanstha's

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

Academic Year: 2019-20

Subject: Physics

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

Month Ju		920		Module/Unit:	Sub-units planned
Course	Lect ures	Practicals	Total	Coupled Oscillations:	Coupled Oscillations:
B.Sc. II	12	=	12	Normal modes of vibration, normal coordinates, degrees of freedom, types of coupling, frequency of oscillatory systems, Energy transfer in coupled oscillatory system.	normal coordinates, degree of freedom, types of coupling
B.Sc. III	12	-	12	Nuclear Radiation Detectors 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.	Nuclear Radiation Detectors 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.
Sc. III	- {	30	80	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.

				4) Diffraction at cylindrical obstacle.	4) Diffraction at cylindrical obstacle.
				5) Diffraction at straight edge	5) Diffraction at straight edge
Month July				Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Superposition of Harmonic Oscillations	Superposition of Harmonic Oscillations
B.Sc. II	12	-	12	Superposition of two perpendicular harmonic oscillations- for oscillations having	Superposition of two perpendicular harmoni oscillations- for oscillation having
				equal frequencies (Graphical and analytical methods) and oscillations having different	equal frequencies (Graphica and analytical methods) and oscillations having different
				frequencies (Lissajous figures), Uses of Lissajous figures.	frequencies (Lissajou figures), Uses of Lissajou figures.
B.Sc. III	12	*	12	Superposition of Harmonic Oscillations	Superposition of Harmoni 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 collinea harmonic oscillations- for oscillations having equa frequencies
				(Analytical and geometrical	(Analytical and geometrical
				methods) and oscillations having different frequencies	methods) and oscillation having different frequencies

B.Sc. III	14	80	80	Practicals:	Practicals :
				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 Au	gust			Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Particles Accelerators Need of accelerators, Types of	Particles Accelerators Need of accelerators, Types
B.Sc. II	12		12	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.	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.



- 12	Nuclear Radiation Detectors	Nuclear Radiation Detectors
	Introduction : Ionization	Introduction : Ionization
	chamber, G. M. counter, (chamber, G. M. counter, (
	principle, construction,	principle, construction,
	working mechanism,	working mechanism,
	limitations, merits)	limitations, merits)
	Scintillation Counter (Scintillation Counter (
	principle, construction,	principle, construction,
	working, advantages)	working, advantages)
	Introduction to cosmic	Introduction to cosmic
	radiations, Wilson cloud	radiations, Wilson cloud
	chamber, Bubble chamber.	chamber, Bubble chamber.
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.
	Module/Unit:	Sub-units planned
Practicals Total	al Waves Motionand	Waves Motionand
Fracticals 100	Ultrasonic waves	Ultrasonic waves
	Waves Motion: Transverse waves on a string, travelling	Waves Motion: Transverse waves on a string, travelling
	Waves Motion	on: Transverse



	12		12	and standing waves on a string,	and standing waves on a string,
				Normal modes of a string, Group velocity and Phase velocity, Plane waves, Spherical waves.	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	Ultrasonic waves: Piezo- electric effect, Production of ultrasonic waves by Piezo- electric
				generator, Detection of ultrasonic waves, Properties ultrasonic waves, Applications of	generator, Detection of ultrasonic waves, Properties ultrasonic waves, Applications of
				ultrasonic waves.	ultrasonic waves.
B.Sc. III	12		12	Practicals:	Practicals:
				1) Lloyd's single mirror.	1) Lloyd's single mirror.
				2) Double refracting prism	2) Double refracting prism
				3) Diameter of lycopodium powder.	3) Diameter of lycopodium powder.
				4) Spherical aberration.	4) Spherical aberration.
				5) Absorption of spectrum of KMno4 solution.	5) Absorption of spectrum of KMno4 solution.
B.Sc. III	1/2	80	80	Radioactive Decay	Radioactive Decay
				Natural radioactivity, Artificial radioactivity, Study of alpha decay by magnetic spectrograph, Velocity of alpha particles, Range of α-	Natural radioactivity, Artificial radioactivity, Study of alpha decay by magnetic spectrograph, Velocity of alpha particles, Range of α-
				particles, α- disintegration	particles, α- disintegration
				energy, fine structure of αrays. Beta decay, Study by β	energy, fine structure of αrays. Beta decay, Study by β
				- ray spectrometer,	- ray spectrometer,
				continuous nature, neutrino	continuous nature, neutrino
				hypothesis, Gamma Decay, origin & gamma rays, γ- ray	hypothesis, Gamma Decay, origin & gamma rays, γ- ray
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				spectrum, internal conversion, Isomerism.	spectrum, internal conversion, Isomerism.
Month October/November				Module/Unit:	Sub-units planned
	Lect	Practicals	Total	Examination	Examination
Month Dec	ember			Module/Unit:	Sub-units planned
	Lect	Practicals	Total	Cardinal points Thick lens, combination of	Cardinal points Thick lens, combination of
B.Sc. II	12	-	12	lenses (system)Cardinal points of an optical system (definitions	lenses (system)Cardinal points of an optical system (definitions
				between f and f ' for any optical system, relation between lateral, axial and angular magnifications.	only), graphical construction of image using cardinal points, Newton's formula, relation between f and f ' for any
					optical system, relation between lateral, axial and angular
					magnifications.
B.Sc. III	12	02	12	Atomic Physics	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	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	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.
Month Janu	lary		=	Module/Unit:	Sub-units planned
Course	Lect	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, Modified Rayleigh's criterion, comparison between magnification and resolution, resolving power of plane diffraction grating, resolving power of a prism.	Resolution, Resolving power of optical instruments, Rayleigh's criterion for the limit of resolution, Modified Rayleigh's criterion, comparison between magnification and resolution, resolving power of plane diffraction grating, resolving power of a prism.
B.Sc. III	12	-	12	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



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 magnetometer.	5) Hysteresis by magnetometer.
Month Febr	ruary			Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Polarization of light	Polarization of light
B.Sc. II	ures 12		12	Revision of plane of vibration, plane polarization, perpendicular vibration, parallel vibrations,	Revision of plane of vibration , plane polarization, perpendicular vibration ,parallel vibrations,
				polarization by reflection and refraction, Idea of polarization, polarization by double	polarization by reflection and refraction, Idea of polarization, polarization by double
				refraction, Huygens explanation of double refraction through uniaxial crystals, Nicol	refraction, Huygens explanation of double refraction through uniaxial crystals, Nicol
				prism(construction, working), production and detection of circularly and elliptically polarized	prism(construction, working), production and detection of circularly and elliptically polarized
				light, optical rotation - laws of rotation of plane of polarization, polarimeter.	light, optical rotation - laws of rotation of plane of polarization, polarimeter.



B.Sc. III	12	5 5 .	12	Space Science	Space Science
				Cosmology, Big-bang theory, oscillating theory, steady-state theory, Hubble's law, cosmological tests, Milky way galaxy, our solar system, features of sun, interior of sunspots, static characteristics of earth and mars.	Cosmology, Big-bang theory, oscillating theory, steady-state theory, Hubble's law, cosmological tests, Milky way galaxy, our solar system, features of sun, interior of sunspots, static characteristics of earth and mars.
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.
Month Mar	ch			Module/Unit:	Sub-units planned
Course	Lect	Practicals	Total	Laser Physics	Laser Physics



B.Sc. II	12	· C	12	Ordinary Light, Laser, Spontaneous and stimulated emission, Populations Inversion, Monochromaticity, directionality, Pumping (optical, electrical) Ruby laser He-Ne laser, Diode laser, Laser applications, (Industrial, medical, nuclear, optical), Types of lasers	Ordinary Light, Laser, Spontaneous and stimulated emission, Populations Inversion, Monochromaticity, directionality, Pumping (optical, electrical) Ruby laser He-Ne laser, Diode laser, Laser applications, (Industrial, medical, nuclear, optical), Types of lasers
B.Sc. III	12		12	Principle of Superposition ,Coherence and condition for interference, Division of amplitude and division of wave front, Division of wave front — Lloyds single mirror(determination of	Principle of Superposition ,Coherence and condition for interference, Division of amplitude and division of wave front, Division of wave front – Lloyds single mirror(determination of
				wavelength of light of monochromatic source),Division of amplitude- Interference in thin	wavelength of light of monochromatic source),Division of amplitude-Interference in thin
				parallel films (reflected light only), Wedge shaped films, Newton's rings and its application	parallel films (reflected light only), Wedge shaped films, Newton's rings and its application
				for determination of wavelength and refractive index of light.	for determination of wavelength and refractive index of light.



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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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: 2019-20

Subject: Physics

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

Month June	e			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	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	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.	of ferromagnetism, and ferromagnetic domain, Hysteresis loop for ferromagnetic materials.
B.Sc. III	2:	80	80	Practicals:	Practicals :
				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 July	/	<u> </u>		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	14	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	1.E	12	Crystal Structure	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,	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) 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 Au	gust			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	diatomic gases. Thermometry: Concept of heat and temperature, temperature scales, principle of
				thermometry mercury thermometer, platinum resistance thermometer, thermocouple. (Principle,	thermometry mercury thermometer, platinum resistance thermometer, thermocouple. (Principle,



B.Sc. III - 80 80 Month September	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 Practicals: 1) Resonance pendulum. 2) S. T. of soap solution. 3) S. T. by Fergusson modified method. 4) Y & \(\particle{\text{Vibration}} \) 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 Practicals: 1) Resonance pendulum. 2) S. T. of soap solution. 3) S. T. by Fergusson modified method. 4) Y & \(\particle{\text{vibration}} \) and diatomic chain, Acoustical and optical phonons, Phonons spectrum in solids, Dulong Petit's law (Classical Theory), Einstein 1) Resonance pendulum. 2) S. T. of soap solution. 3) S. T. by Fergusson modified method. 4) Y & \(\particle{\text{vibrations}} \) Practicals: 1) Resonance pendulum. 2) S. T. of soap solution. 3) S. T. by Fergusson modified method. 4) Y & \(\particle{\text{vibrations}} \) Practicals: 1) Resonance pendulum. 2) S. T. of soap solution. 3) S. T. by Fergusson modified method. 4) Y & \(\particle{\text{vibrations}} \) Practicals: 1) Resonance pendulum. 2) S. T. of soap solution. 3) S. T. by Fergusson modified method. 4) Y & \(\particle{\text{vibrations}} \) Practicals: 1) Resonance pendulum. 2) S. T. of soap solution.
B.Sc. II Lect Practicals Total	Module/Unit: Sub-units planned
ures	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 by processes, Second law



	Lect	Practicals	Total	Examination	
	ures		1		Examination
Month Dec	ember			Module/Unit:	
	Lect	Practicals	I m		Sub-units planned
	ures	racticals	Total	Thermodynamic Poten	
B.Sc. II	10			Enthalpy, Gibbs, Helm	a Juantic Fotentia
D.Sc. 11	12	2	12	Maxwell's thermodynam	tions, Internal Energy function Maxwell's thermodynamic
				relations, Joule-Thor effect, Clausius- Clape equation, Expression for - CV),	mson relations, Joule-Thoms
				CP/CV, TdS equations.	-CV),
1				- quarions.	CP/CV, TdS equations.
B.Sc. III					
B.Sc. III 12	2 -		12	Instrumentations	
			1	:Introduction to CRO	Instrumentations :Introduction to CRO
3.Sc. III -	80		I C F	Block Diagram of CRO Applications of CRO: (Study of Waveform, (2 Measurement of Voltage Current, Frequency, and Phase Difference.	O. Block Diagram of CRO. Applications of CRO: (1) Study of Waveform, (2) Measurement of Voltage
1		80	' P	racticals :	Practicals:
			l) bi) Self inductance by Owen's ridge.	1) Self inductance by Owen's bridge.
			2) Ra	Self inductance by ayleigh's method.	
			OH	Self inductance by Maxwell dge.	3) Self inductance by Maxwell bridge.
			and	Measurement of BV, BH θ using earth inductor.	4) Measurement of BV, BH and θ using earth inductor.
nth January				Hysteresis by gnetometer.	5) Hysteresis by magnetometer.
20,			Mod	dule/Unit:	Sub-units planned
). For					Prantied

Course	Lect	Practicals	Total	Theory of Radiation	The state of the s
B.Sc. III 12	ures 12		12	Thermal radiation Thermal radiation Blackbody radiation and importance, Black body practice, its temperate dependence emissive power absorptive power, pressure radiation, Experimental study of black body radiation spectrum, Concept of energy density, Derivation of Planck law, Deduction of Wien' distribution law, Rayleigh Jeans Law, Stefan Boltzmann Law and Wien's displacement law from Planck's law. Practicals:	Blackbody radiation and importance, Black body practice, its tempera dependence emissive power, pressure radiation, Experimental strong of black body radiation of black body radiation spectrum, Concept of energy density, Derivation Planck's law, Deduction Wien's distribution la Rayleigh-Jeans Law, Steff Boltzmann Law and Wien's displacement law from Planck's law.
			t r	1) e/m of electron by Thomson's method. 2) Measurement of dielectric constant. 3) Resistivity of semiconductor crystal with temperature by four probemethod. 6) Calibration of wire using Carey-forter.	Practicals: 1) e/m of electron be 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

	II - 80	80	Special functions of IC	Cs Special functions of ICs
			IC 555, Block diagrams special functions if Astable Operation: Of diagram, frequency oscillation and duty Applications as tone oscillator, voltage contributes.	ICs, Circuit of cycle, brust rolled fters. ircuit as ency tion: require require require control of the cycle and the cycle are as the cycle and the cycle are as the cycle are a
Month Fel	bruary			action.
Course	Lect Practicals		Module/Unit:	Sub-units planned
	ures	Total	Classical statistics Degrees of freed	Classical statistics
B.Sc. III 1	2	p p d B er co	momentum space, positive space Phase space Phase space Accessible microstates, priorobability thermodynam robability, probability probability, probability stribution, Maxwell coltzmann distribution law largy or speed, evaluation constants α and β, Entropy and the probability stribution of molecula speeds.	space , Phase space te, Microstate and Macrostate Accessible microstates, priory probability thermodynamic probability probability probability distribution, Maxwell-by, Boltzmann distribution law, energy or speed, evaluation of constants a and b, Entropy and Thermodynamic probability.
		Intr De- NA) univ flip	oduction to logic gates, Morgan's theorem, ND and NOR gates as rersal gates, R-S and J-K flops, half and full adder, llel binary adder.	De-Morgan's theorem,

1	I -	80	80	Practicals:		Practicals:
				1) Study of LASER beam.	divergence of	f 1) Study of divergence LASER beam.
				2) Measur wavelength of l grating.	LASER using	
				3) Lattice constant powder.	nt using XRD	3) Lattice constant using X powder.
				4) To measure aperture of optica	l fibre.	4) To measure numeri aperture of optical fibre.
Month Ma	rch			5) Obtain interfer using Biprism.		5) Obtain interference fring using Biprism.
Course	Lect	Practicals	Tul	Module/Unit:		Sub-units planned
	ures		Total	Quantum statistic		Quantum statistics
B.Sc. III 1	2			law, photon gas, radiation law Fermi-Dirac distribution free electron in metal gas, comparison of B.E., and F.D. statistics.	planck, s la ra ration law, l ,electron from M.B., B.	Bose-Einstein distribution aw, photon gas, Planck, sadiation law ermi-Dirac distribution law, see electron in metal , electron is, comparison of M.B., E., and
	2		12	Bipolar J transistors:		olar Junction
Go.			e e a L C R	n-p-n and p-n-p Trai Characteristics of CB, CC Configurations. Tains α and β. Re etween α and β. Loa nalysis of Transistor oad line and Q point.	nsistors. n-p CE and Cha Current CC gain d Line betw rs. DC Active, Load uration Cut-cer Bias Regio	-n and p-n-p Transistors. racteristics of CB, CE and Configurations. Current s α and β. Relations reen α and β. Load Line rsis of Transistors. DC line and Q point. Active, off, and Saturation

B.Sc. III			Analysis of a single-stage (amplifier using Hybrid Mode Input and Output Impedanc Current, Voltage and Power Gains.	el. stage CE amplifier usi
	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.
Ionth April			Module/Unit:	
ectures	Practicals	Total	Examination	Sub-units planned Examination

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JUNE 1964

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: 2019-20

Subject: Physics

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

C				Module/Unit:	Sub
Course	Lect	Practicals	Tota	THEORY OF Cases	Sub-units planned and Kinetic Theory of Gases a
B.Sc. II	12	-	12	Law of equipartition of ene (qualitative) and applications to specific hea monoatomic and diatomic gases. Thermomet	thermometry Law of equipartition of ener (qualitative) and applications to specific heat monoatomic and diatomic gase Thermometry: Concept heat and temperature temperature scales, princip of thermometry.
Sc. III -	2 -		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,	construction and theory Crystal Structure Types of the solids, Amorphous, crystalline, lattice, lattice translation vectors, lattice with basis (Central , non central
101				Practicals: 1) Resonance pendulum. 2) S. T. of soap solution. 3) S. T. by Fergusson modified method.	Practicals: 1) Resonance pendulum. 2) S. T. of soap solution. 3) S. T. by Fergusson modified method.

				4) Y & η using flat sp spring.	piral 4) Y & η using flat spiral spring.
Month Ju	ıly			Module/Unit:	
Course	Lect	Practicals	T		Sub-units planned
B.Sc. II	ures 12		Total	Kinetic Theory of Gas thermometry	es and Kinetic Theory of Gases a
			12	of distribution of	ession, Mean free path, expression approximate method derivation of Maxwell's la
				momentum transport	sport verification
				(viscosity), transport thermal energy (conduct Transport of mass (diffusion)	of (viscosity), transport of thermal energy (conduction), on), Transport of mass (diffusion),
B.Sc. III	12		2	Lattice Vibration	
			1	Lattice Vibration a Thermal Properties of So	and Lattice Vibration and
Sc. III	80	80	F	Lattice vibrations, Phono normal modes of of dimensional and diaton chain, Acoustical and option phonons, Phonons spectrum olids, Dulong Petit's la Classical Theory), Einstein	Lattice vibrations, Phonons, normal modes of one dimensional and diatomic chain, Acoustical and optical phonons, Phonons spectrum
		00	1	racticals:	Practicals :
			br	Self inductance by Owen' idge.	1) Self inductance by Owen's bridge.
			- 1	yleigh's method.	Rayleigh's method
			OII	Self inductance by Maxwell dge.	3) Self inductance by Maxwell bridge
			and	Measurement of BV, BH θ using earth inductor.	4) Measurement of BV, BH and θ using earth inductor.
			5) mag	Hysteresis by metometer.	5) Hysteresis by magnetometer.



Cour				Module/Unit:	Sub wait
Course	Lect	Practicals	Total	Lowe of The	Sub-units planned
	ures			Laws of Thermodynamics	Laws of Thermodynamic
B.Sc. II	12	-	12	Thermodynamic system, thermodynamic thermodynamic equation of state,	Thermodynamic system thermodynamic strengthermodynamic strengthermodynamic strengthermodynamic strengthermodynamic strengthermodynamic strengthermodynamic strengthermodynamic strengthermodynamic system strengthermodynamic system strengthermodynamic strengthermodynamic system strengthermodynamic s
				SS / MSC IM // OI	thermodynamic equilibriu Zeroth Law thermodynamics, Internency, First law of
				of heat into work, specific heats CP& CV, Applications of First Law	thermodynamics, conversion of heat into work, specification heats CP& CV, Application of First Law
				(Isothermal process, Adiabatic process, Isochoric, Isobaric), relation between CP & CV	Isothermal process Adiabatic process, Isochoric Sobaric), relation between C
Sc. III 12	-	12	4	Magnetic Properties of M Materials	agnetic Properties of aterials
			fe cl. di. pa Cu of fen	Magnetic materials, permeability, susceptibility, nagnetization, magnetic moment, electron spin, planagnetic materials, aramagnetic materials, rromagnetic, ferromagnetic, ferromagnetism and ramagnetism, Curie law, para constant, Weiss theory ferromagnetism, and romagnetic domain, steresis loop for Hysteresis	agnetic materials, rmeability, susceptibility, gnetization, magnetic ment, electron spin, amagnetic materials, amagnetic materials, omagnetic, ferromagnetic, sical theory of nagnetism and magnetism, Curie law, e constant, Weiss theory ferromagnetism, and magnetic domain, eresis loop for magnetic materials.



	I	80	80	 Y' by Koenig's methon Y' by cornu's methon Measurement of capacity of solid. S. T. tension by drop we method. Young's modulus vibration using AFG. 	2) 'Y' by cornu's method. heat 3) Measurement of he capacity of solid. Yeight 4) S. T. tension by drop weight method.
Month Sep	tember				
B.Sc. II	Lect	Practicals	1-	Module/Unit:	Sub-units planned
	ures	racticals	Total	Laws of Thermodynamics	S Laws of Thermodynamics
	12	-	12 i	and adiabatic process reversible & irreversible brocesses, Second law of thermodynamics, Carnot deal heat engine, Carnot ycle (Working, efficiency carnot's	reversible & irreversible processes, Second law of thermodynamics, Carnot's ideal heat engine, Carnot's cycle (Working, efficiency), Carnot's
			en	stropy, Entropy changes in versible &	significance), change in entropy, Entropy changes in reversible &
			En of	tropy change in conduction heat,	law of thermodynamics, Entropy change in conduction of heat,
			2181	fusion of gases ,physical nificance of entropy, Uninability of absolute zero.	significance of entropy, Un- attainability of absolute zero
			A.	it energy.	Zero



B.Sc. III	2	12	Block Diagram of C. Applications of CRO: Study of Waveform, Measurement of Volta	(1) Applications of CRO:
B.Sc. III -	80 evember	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 Module/Unit:	Newton's method. 3) Diffraction at single slit. 4) Diffraction at cylindrical obstacle. 5) Diffraction at straight edge
Lect	Practicals	Total	Examination	Sub-units planned Examination
onth December			Mala	Lamination
Lect	Practicals	Total	Module/Unit:	Sub-units planned
ures		lotal	Thermodynamic Potentials	Thermodynamic Potentials



Ç0/,	ures		Total	Theory of Radiation	Theory of Radiation
ourse	Lect	Practicals	Total	Module/Unit:	Sub-units planned
onth Jani	ıarv			5) Hysteresis by magnetometer.	5) Hysteresis by magnetometer.
				4) Measurement of BV, BH and θ using earth inductor.	4) Measurement of BV, BH and θ using earth inductor.
				3) Self inductance by Maxwell bridge.	3) Self inductance by Maxwell bridge.
				2) Self inductance by Rayleigh's method.	Rayleigh's method.
				1) Self inductance by Owen's bridge.	1) Self inductance by Owen's bridge.
	_	80	80	Practicals:	Practicals:
B.Sc. III	-	90		Idea of superconductivit Critical temperature, Critic magnetic field. Meissne effect. Type I and type Superconductors, London' Equation and Penetratio Depth, Isotope effect	y, Idea of superconductivit al Critical temperature, Critical magnetic field. Meissne effect. Type I and type Superconductors, London
	1	-	12	Superconductivity	Superconductivity
B.Sc. II	I 12	-			
				CP/CV, TdS equations.	CP/CV, TdS equations.
				relations, Joule-Thomeffect, Clausius- Clapey equation, Expression for (-CV),	relations, Joule-Thom
			1	Enthalpy, Gibbs, Helmh Internal Energy functi Maxwell's thermodynamic	ons, Internal Energy function



B.Sc. III 12 -	Thermal radiations, Blackbody radiation and its importance, Black body in practice, its temperature dependence emissive power, absorptive power, pressure of radiation emissive, power, pressure 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. Thermal radiations, Blackbody radiation and its importance, Black body in practice, its temperature dependence emissive power, absorptive power, pressure of radiation emissive power, absorptive power, absorp
COLLE	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 of ICs IC 555, Block diagram and special functions if ICs, Astable Operation: Circuit diagram 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	racticals:	Practicals:
		1) e/m of electron Thomson's method.	Thomson's method
		2) Measurement of dielectionstant.	etric 2) Measurement of dielec constant.
		3) Resistivity semiconductor crystal w temperature by four promethod.	semiconductor crystal w temperature by four pro method.
Month E.		5) Calibration of wire usin Carey-foster key	5) Calibration of wire usin Carey-foster key
Month February		Module/Unit:	
Course Lect	Practicals Total		Sub-units planned
ures	Total	Quantum statistics	Quantum statistics
Sc. III 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.	Bose-Einstein distribution law, photon gas, Planck, s radiation law
	1	De-Morgan's theorem, NAND and NOR gates as universal gates, R-S and J-K flip flops, half and full adder, parallel binger and the	Digital Electronics Introduction to logic gates, De-Morgan's theorem, NAND and NOR gates as universal gates, R-S and J-K lip flops, half and full adder, arallel binary adder.



Mada			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.	using IC 555 timer. 3) Monostable multivibration by using IC 555 timer. 4) IV characteristics of P-1
Month M	arch			Module/Unit:	
Course	Lect	Practicals	Total	Classical statistics	Sub-units planned
B.Sc. III	12 12 12 12 12 12 12 12 12 12 12 12 12 1		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.	Classical statistics Degrees of freedom, momentum space, position space ,Phase space Microstate and Macrostate Accessible microstates, priory probability thermodynamic probability, probability probability, probability distribution, Maxwell-Boltzmann distribution law, energy or speed, evaluation of constants α and β, Entropy and Thermodynamic probability, Distribution of molecular peeds.
KIGE *				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	Fipolar Junction ransistors: -p-n and p-n-p Transistors. haracteristics of CB, CE and C Configurations. Current ins α and β. Relations tween α and β. Load Line alysis of Transistors. DC and line and Q point. Active, t-off, and Saturation gions. Voltage Divider is Circuit for CE Amplifier. parameter Equivalent

			Analysis of a single-stage Camplifier using Hybrid Mode Input and Output Impedanc Current, Voltage and Powe Gains.	el. stage CE amplifier usin
B.Sc. III	80	80	Practicals:	Practicals:
			1) Study of divergence of LASER beam.	f 1) Study of divergence of LASER beam.
			2) Measurement of wavelength of LASER using grating.	2) Measurement of wavelength of LASER using grating.
	N.		3) Lattice constant using XRD powder.	powder.
			4) To measure numerical aperture of optical fibre.	4) To measure numerical aperture of optical fibre.
Month April			5) Obtain interference fringes using Biprism.	5) Obtain interference fringes using Biprism.
			Module/Unit:	
ectures	Practicals	Total	Examination	Sub-units planned Examination

Techer Incharge

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Head 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: 2019-20

Subject: Physics

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

Course	Lect	Duranti		Module/Unit:	Sub-units planned
	ures	Practicals	Total		ectric Polarization. Local Flex
B.Sc.	12		12	Depolarization Field. Electoristics Susceptibility. Polarizability. Polarizability. Clausius Mosotti Equations Classical Theory of Electoristics. Normal Anomalous Dispersion Cauchy and Sellm relations. Langevin-Debendent Constant. Optical Phenomer Application: Plass Oscillations, Plass Frequency, Plasmons	Depolarization Field. Electric Susceptibility. Polarizability. Clausius Mosotti Equation. Classical Theory of Electric and Son. Anomalous Dispersion Cauchy and Sellme relations. Langevin-Debration. Complex Dielectric Constant. Optical Phenomen Application:
Sc. I	6 -		d T cy m in	Elasticity Bending of beam, Bending moment, Cantilever (without considering weight of cantilever), Beamsupported at both the ends (without considering weight of beam). Torsional oscillation, Work one in twisting a wire, wisting couple on a willinder, Torsional pendulum Determination of Rigidity odulus and moment of ertia, Determination of Y, η d σ by Searles method.	without



T.		64	64	Practicals:	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.	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.
Month J	ılv				
Course				Module/Unit:	Sub-units planned
Course	Lect Pr ures	acticals	Total	Introduction to Quantum	
B.Sc.	12 _		12	Mechanics Origin of quantum	Introduction to Quantum Mechanics
				principle uncertainty	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
.Sc. 16	-		16	Gravitation:	
			n c a c c c (s	Newton's Law of Gravitation, Motion of a particle in a entral force field (motion in plane, angular momentum is onserved, areal velocity is onstant), Kepler's Laws	Mewton's Law of Gravitation, Motion of a particle in a mentral force field (motion in plane, angular momentum s conserved, areal velocity is monstant), Kepler's Laws material transport of the second

B.Sc.		64			system (GPS) and its applications
II		04	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.
			1.		
Month A	Houst				
Course		T .		Module/Unit:	Sub-units planned
course	Lect ures	Practicals	Total	Operator in Quantum Mechanics	Operator in Quantum
B.Sc.	12			momentum and angular momentum operator, 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	Mechanics 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 ommutation relation between and p. Expectation value of an operator communication relation between L2 and omponents of L, Raising and wering operator L+ and L gen values of L2 and L1.



			Concept of Hern operator.	mitian Concept of Hermitian operator.
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.	of SHM and its solutions,
B.Sc. II	- 64	3 4 E	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. 2) To determine Mechanical equivalent of Heat, J, by callender and Barne's constant flow	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.	method.
Month Septemb	Practicals	Total 12	Module/Unit: 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.	Sub-units planned 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.



B.Sc. II		16	Introduction – DC varying currents, LR Circ RC circuit and LC circ Growth and decay of curre Theory of B.G. and consta of B.G., time constants T	cuit, RC circuit and LC circu
3.50. II	64	64	Practicals: 1) Measurement of rise, fall	Practicals:
			and delay time using a CRO	1) Measurement of rise, fall and delay time using a CRO
			distortion of a RF signal generator using distortion factor meter.	The complete of the complete o
-			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.
Ionth October/			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
Lect			Module/Unit:	counter/frequency counter Sub-units planned
ures	Practicals	Total	Examination	Examination
onth Decembe	r		Module/Unit:	Sub units at
Lect ures	Practicals	Total	Physical interpretation of wave function, Schrodinger's	Sub-units planned Physical interpretation of wave function, Schrodinger's



B.Sc. 12	- 12	independent equation and three dimensional Requirements of value, E function, Eigen value, E function, Normal orthogonal and orthonor wave functions, Probable current density (Contine equation). Examples	wave Requirements of wave function, Eigen value, Eigen function, Normalized orthogonal and orthonorma
B.Sc. II - 64	10	Electricity Introduction — DC and varying currents, LR Circuit RC circuit and LC circuit Growth and decay of current Theory of B.G. and constants of B.G., time constants T	it, RC circuit and LC circuit.
B.Sc. II - 64	64	Practicals: 1) Ic 555 timer.	Practicals: 1) Ic 555 timer.
		2) Electronic switch using transistor.	2) Electronic switch using transistor.
Month January		3) Characteristics of FET.4) FET as VVR.	3) Characteristics of FET.4) FET as VVR.
		Module/Unit:	Sub-units planned
ures	ticals Total	Surface Tension	Surface Tension
ESTD. JUNE 1964	-		

B.Sc.	12 -	12	Surface Tension, Angle contact and wettability, relation between surface tension, excess of pressu and radius of curvature, Experimental determination of surface tension by Jaeg method, Factors affecting surface tension, Application of surface tension.	contact and wettability, relation between surface tension, excess of pressure and radius of curvature, Experimental determination of surface tension by Jaeger's
B.Sc. I 16		16	Magnetism	Magnetism
B.Sc. II			Introduction to magnetizate and intensity Magnetization, Biot-Sava law & its applications straight conductor, circu coil, solenoid carryi current, Divergence and coof magnetic field, Magnet vector potential, Ampere circuital lawat earth's surface	of and intensity of Magnetization, Biot-Savart's law & its applications straight conductor, circular coil, solenoid carrying current, Divergence and curl of magnetic field, Magnetic
D.SC. II	64	64	Practicals:	Practicals :
			To determine the wavelength of sodium light using Fresenel Biprism. To determine the	1) To determine the wavelength of sodium light using Fresenel Biprism.
			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.
onth February			To determine wavelength of Laser light using diffraction of single slit.	4) To determine wavelength of Laser light using diffraction of single slit.
SAND CO.			Module/Unit:	Sub-units planned
ESTD. TO JUNE 1964 */				

Course	Lect	Practicals	Total	X-Ray Diffraction	X-Ray Diffraction
B.Sc.	12		12	proposti	Reciprocal lattice and properties, concept Brillouin zone, diffraction X-rays by crystals, Ew. construction, Bragg's law reciprocal lattice, X-ray diffraction methods: 1) La method. 2) Rotating crystal Powder method - Princip
3.Sc. I 1	6 -		1	- Owen's Paid	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.	11 =	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.	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.
Month M	March			Measurement of voltage, frequency, time period and phase angle using CRO	4) Measurement of voltage, frequency, time period and phase angle using CRO
Course	Lect	Practicals	Total	Module/Unit:	Sub-units planned
	ures	- Tuestours	Total	Magnetic Materials and their Properties:	Magnetic Materials and their Properties:
3.Sc.	12	-	12	paramagnetic, ferromagnetic, ferrimagnetic and	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 A	pril	1		Module/Unit:	Sub-units planned
Lectures		Practicals	Total	Examination	Examination

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Department of Physics
Vivekanand College, Kolhapur

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Shri Swami Vivekanand Shikshan Sanstha's

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

Academic Year: 2019-20

Subject: Physics

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

Month Ju				Module/Unit:	Sub units of
	lectures	Practicals	Total	Practicals:	Sub-units planned
				1)Measurements of length (c	Practicals:
B.Sc. I	-	36	26		I I I I I I I I I I I I I I I I I I I
		1 30	36	and the second	er diameter) using Verr
				55	e, calliper, screw gain
				spherometer and travellin microscope.	g spherometer and travelli
		1		2) To determine the	microscope.
1				2) To determine the Momen	
1				of Inertia of a Flywheel.	of Inertia of a Flywheel
				3) To determine the Momen	t 3) To determine the Mome
1				of inertia of a disc using	of inertia of a disc using
.1				auxiliary annular ring.	auxiliary annular ring.
				4) Young's modulus of	4) Young's modulus of
Month July	,			material of Bar by vibration	material of Bar by vibration
B.Sc		36	36	Module/Unit:	Sub-units planned
		20	20	Practicals:	Drootical
				1)Measurements of length (or	1)Measurements of length (
				diameter) using Vernier	diameter) using Vernic
		- 1		calliper, screw gauge,	a allia
	1	1		spherometer and travelling	spherometer and travellin
				microscope.	microscope.
		1		2) To determine the Moment	2) To determine the Momen
		1		of Inertia of a Flywheel.	of Inertia of a Flywheel.
		1		3) To determine the Moment	3) To determine the Momen
1		1		of mertia of a disc using	of inertia of a disc using
				auxiliary annular ring.	auxiliary annular ring.
	1	4		4) Young's modulus of	4) Young's modulus of
onth Augu	st			material of Bar by vibration	material of Bar by vibration
Sc. I		6	26	Module/Unit:	Sub-units planned
	3	10	36	Practicals:	Practicals:
			1	1)Modulus of rigidity of	1)Modulus of rigidity of
				material of wire by torsional	material of wire by torsional
				oscillations.	oscillations.
		- [2) Y/η of Wire by Searle's	2) Y/η of Wire by Searle's
			1	method.	method.
			3)To determine g by Bar	3)To determine g by Bar	
				Pendulum.	Pendulum.
		1		4) To determine g by Kater's	4) To determine g by Kater's
		1	1	Don d. J.	Pendulum.
					- vicentum.
nth Septem	L				
				Module/Unit:	Sub units plane
NAND	COL				Sub-units planned

Month (B.Sc. I	October/No	vember	36	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' Pendulum. Module/Unit:	oscillations. 2) Y/η of Wire by Searle's method. 3) To determine g by Bar
			-	Examination	Examination
Month D	ecember				
Month Jan B.Sc. I		36	- 1	Module/Unit: 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), 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
nth Febru	ıary		1	Module/Unit:	
			,	duic/Oint.	Sub-units planned



B.Sc. I		36	36	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 M B.Sc. I	.=	36	36	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 Apr Lectures	11	D C		Module/Unit:	Sub-units planned
octures.		Practicals	Total	Examination	Examination Examination

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Shri Swami Vivekanand Shikshan Sanstha's

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

Academic Year: 2019-20

Subject: Physics

Name of the teacher: Miss T. U. Urunkar

D.C.	lectures	Practicals			
D.C.		ructicals	Total	Practicals: 1) Measurements of length (Sub-units planned Practicals:
B.Sc. I		16	16	diameter) using Vernicalliper, screw gaug spherometer and travellin microscope. 2) To determine the Momer of Inertia of a Flywheel. 3) To determine the Momen of inertia of a disc using auxiliary annular ring. 4) Young's modulus of	diameter) using Vern calliper, screw gau spherometer and travellimicroscope. 2) To determine the Mome of Inertia of a Flywheel. 3) To determine the Mome of inertia of a disc using auxiliary annular ring. 4) Young's modulus of
Month July 3.Sc. -	y.			material of Bar by vibration Module/Unit:	material of Bar by vibration
		16	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 D. Length and	diameter) using Vernie calliper, screw gauge spherometer and travellin microscope. 2) To determine the Momen of Inertia of a Flywheel. 3) To determine the Momen of inertia of a disc using auxiliary annular ring. 4) Young's modulus of
onth Augu	ıst			material of Bar by vibration Module/Unit:	material of Bar by vibration
Sc. I	1	6		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	Sub-units planned 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.
nth Septen	nber			Module/Unit:	Sub-units planned



		16	16	 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. 	oscillations. 2) Y/η of Wire by Searle's method. 3) To determine g by Bar
Month (October/N	Vovember		Module/Unit:	
B.Sc. I	-		-	Examination	Sub-units planned
		1			Examination
Month D	December			Module/Unit:	
B.Sc. I	-	16	16	Practicals:	Sub-units planned Practicals:
Month Jar				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.	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.
3.Sc. I	nuary			Module/Unit:	Sub-units planned
3.50.1		16	16	1) 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.
onth Febi	TIATY			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	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 M	larch			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		Practicals	Total	Examination	Examination

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Head MODIE
Department of Physics
Vivekanand College, Kolhapur

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

Academic Year: 2019-20

Subject: Physics

Name of the teacher: Miss S. M. Kumbhar

Month Jui	lectures	D 1		Module/Unit:	Sub-unita nla 1
	rectures	Practicals	Total	Practicals:	Sub-units planned Practicals:
			1	1)Measurements of length (c	or DMeasurement Ct
B.Sc. I		16	16	diameter) using Vernic calliper, screw gauge spherometer and travellin microscope. 2) To determine the Momen of Inertia of a Flywheel. 3) To determine the Momen of inertia of a disc using auxiliary annular ring.	diameter) using Vernicalliper, screw gaug spherometer and travellin microscope. 2) To determine the Mome of Inertia of a Flywheel. 3) To determine the Momer of inertia of a disc using the series.
1				4) Young's modulus of	auxiliary annular ring.
Month July				material of Bar by vibration	4) Young's modulus of
B.Sc	-	1.0		Module/Unit:	material of Bar by vibration
J.SC. =	1	16	16	Practicals:	Sub-units planned Practicals:
onth Augu	ot .			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	1)Measurements of length (o
Sc. I -				Module/Unit:	Sub-units planned
nth Septem		6	16	3)To determine g by Bar Pendulum. 4) To determine g by Kater's	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.
nth Sontana	har			Module/Unit:	(I)



B.Sc. I		16	16	 Practicals: 1) Modulus of rigidity of material of wire by torsiona 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 Oct	ober/Nov	ember		Module/Unit:	
B.Sc. I			(e)	Examination	Sub-units planned
					Examination
Month Dec	ember			Module/II	
B.Sc. I		16	16	Module/Unit: Practicals:	Sub-units planned
Month Janua B.Sc. I	ry 1	6	16	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:	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
				ories I CD	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.
		1	- 1		
onth Februar				Iodule/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	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 Lectures	Practicals	T	Module/Unit:	Sub-units planned
	Tacticals	Total	Examination	Examination

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Vivekanand College, Kolhapu

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

Academic Year: 2019-20

Subject: Physics

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

	lectures	Practicals	70 . 1	Module/Unit:	Sub-units planned
B.0	- Source	Tracticals	Total	Practicals: 1) Measurements of length (Practicals:
B.Sc. I Month Jul		36	36	diameter) using Verni calliper, screw gaug spherometer and travelling microscope. 2) To determine the Momer of Inertia of a Flywheel. 3) To determine the Momen of inertia of a disc using auxiliary annular ring. 4) Young's modulus of material of Bar by vibration	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 disc using auxiliary annular ring. 4) Young's modulus of
B.Sc.		36		Module/Unit:	material of Bar by vibration Sub-units planned
Ionth Augu Sc. I	ast 30	5	1	method.	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 Sub-units planned Practicals: 1) Modulus of rigidity of material of wire by torsional oscillations. 2) Y/η of Wire by Searle's method.
nth Septem	ıber			Pendulum. 4) To determine g by Kater's	3)To determine g by Bar Pendulum. 4) To determine g by Kater's Pendulum.



B.Sc. I	36	36	36	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.	oscillations. 2) Y/η of Wire by Searle's method. 3) To determine g by Bar
Month Oct	ober/Nov	ember		Module/Unit:	
B.Sc. I		*	-	Examination	Sub-units planned
					Examination
Month Dec	ember			Module/Unit:	
B.Sc. I		36	36	Practicals:	Sub-units planned Practicals:
Month Janua 3.Sc. I		6		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:	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
	3	0	36	Practicals:	Practicals:
			() () () () () () () () () ()	price I CD	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 Februar	У		M	odule/Unit:	
			IVI	odule/Unit:	Sub-units planned



B.Sc. I	36	36	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 March B.Sc. I	36	36	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
			1/1	
Month April ectures	Practicals		Module/Unit:	Sub-units planned

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Head of the Department of Physics Vivekanand College, Kolhapur