

JAWAHAR ARTS SCIENCE AND COMMERCE COLLEGE

Anadur Ta. Tuljapur Dist. Osmanabad

Department of Physics

Teaching Paper Distribution Plane

2018-2019

Semester	Course Code	Paper Number	Title of Paper	Name of Teacher
I	PHY- 101	I	Mechanics and properties of matter sound	Dr. S. V. Rajmane
	PHY-102	II	Heat and Thermodynamics	Dr. A. B. Kadam
	PHY-103	III	Practical- III	Dr. A. B. Kadam
III	PHY-201	VII	Mathematical and Statistical Physics and Relativity	Dr. A. B. Kadam
	PHY-202	VIII	Modern Physics and Nuclear Physics.	Dr. S. V. Rajmane
	PHY-203	IX	Practical	Dr. A. B. Kadam
	PHY-204	X	Practical	Dr. A. B. Kadam
V	PHY-501	XVII	Classical and Quantum Mechanics	Dr. S. V. Rajmane
	PHY-502	XVIII	Solid State Physics and Semiconductor Devices.	Dr. A. B. Kadam
	PHY-503	XIX	Practical-XIX	Dr. S. V. Rajmane
	PHY-504	XX	Practical-XX	Dr. S. V. Rajmane

Sign of Assist.Prof.

Sign of Head

Department of Physics

Jawahar Arts Science & Commerce College
Anadur, Dist. Osmanabad - 413 603.

Sign of Principal

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Jawahar Arts, Science & Commerce
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Tuljapur, Dist. Osmanabad.

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Department of Physics**Teaching Paper Distribution Plane
2018-2019**

Semester	Course Code	Paper Number	Title of Paper	Name of Teacher
II	PHY- 104	IV	Geometrical and Physical Optics	Dr. S. V. Rajmane
	PHY-105	V	Electricity and Magnetism.	Dr. A. B. Kadam
	PHY-106	VI	Practical	Dr. S. V. Rajmane
VI	PHY-205	XI	General Electronics	Dr. A. B. Kadam
	PHY-206	XII	Solid State Physics	Dr. S. V. Rajmane
	PHY-207	XIII	Practical	Dr. A. B. Kadam
	PHY-208	XIV	Practical	Dr. A. B. Kadam
V	PHY-601	XXI	Atomic and Molecular Spectra, Nuclear Physics	Dr. S. V. Rajmane
	PHY-602	XXII	Solid State and Nano Physics, Electronics	Dr. A. B. Kadam
	PHY-603	XXIII	Practical-XXIII	Dr. S. V. Rajmane
	PHY-604	XXIV	Practical-XXIV	Dr. S. V. Rajmane

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Annual Teaching Plan

2018 - 2019

Name of the Teacher : - Dr. S. V. Rajmane

Department : - Physics

Class : - B. Sc. Ist Semester Ist

Paper No. : - Ist

Name of Paper : - Mechanics, Properties of matter and sound

Month	Name of Chapter and Unit	Chapter wise Periods Allotted	Total Periods in Month	Teaching Methods to be Used	Sign of Principal
June		----	07		
July	Mechanics :-Compound Pendulum-expression of time period , Interchangeability of centre of suspension and oscillation , Kater's Pendulum , computed time – Bessel's contribution. Newton's law of Gravitation (Statement only) , Gravitational Field , Gravitational Potential, Gravitational Potential of mass m , Gravitational potential and field due to spherical shell and solid sphere (at a point outside , inside and on the surface) .	10	12	Lecture	
August	Elasticity :- Introduction , Moduli of Elasticity (Elastic constants) , Twisting couple on a cylinder, Bending of Beams – Bending moment. cantilever loaded at free end – (a) When weight of beam is ineffective, (b) When weight of beam is effective, Transverse vibrations of a loaded Cantilever (determination of Y) , Depression of Beam supported at centre, Determination of Y by bending of Beam.	12	14	Models	
September	Viscosity and Surface Tension : Introduction, stream line motion and rate of flow , equation of continuity , energy of liquid in motion , Bernoulli's Theorem, practical applications : (i) Venturimeter (ii) Filter pump , Viscosity, Poiseuille's formula. Surface Tension , explanation of S.T. , examples of S.T. . Difference of pressure across a curved surface , Determination of S.T. by Jaeger's method.	11	13	-----	
October	Ultrasonic and Acoustics Ultrasonic ,Piezo – electric effect, Piezo – electric Generator , Magnetostriction effect , Magnetostriction oscillator, Acoustic Grating , Applications of ultrasonic – Depth of sea , chemical effects, medical applications. Reverberation , Acoustical demands of an auditorium , Sabine's Law – Derivation of Reverberation time, conditions of good acoustical designs of rooms.	11	11	Models	

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Annual Teaching Plan

2018 - 2019

Name of the Teacher : - Dr. S. V. Rajmane

Department : - Physics

Class : - B. Sc. Ist Semester IInd

Paper No. : - IVth

Name of Paper : - Geometrical and physical optics

Month	Name of Chapter and Unit	Chapter wise Periods Allotted	Total Periods in Month	Teaching Methods to be Used	Sign of Principal
November	Geometrical Optics and Optical Instruments : - Cardinal points of optical system - focal points , Principal points, nodal points and corresponding planes	03	03	Lecture	
December	coaxial lens system - equivalent focal length and cardinal points Huygens's Eyepiece ,Ransden eyepiece and their cardinal points , spectrometer - adjustment and Schuster's method	11	16	Lecture	
January	Interference:-Interference in thin film due to reflected and transmitted light, wedge shaped thin film, Newton's rings by reflected light, determination of wavelength, Michelson's Interferometer, types fringes, determination of wavelength and difference in wavelength.	10	11	Lecture	
February	Diffraction Introduction, Fresnel's explanation of Rectilinear Propagation of Light , Diffraction at a thin wire , Fraunhofer diffraction at double slit (Interference and diffraction maxima, minima) , Intensity distribution , Plane Transmission diffraction grating, Determination of wavelength (Normal incidence) , Resolving power of optical instruments (Rayleigh's criterion) , R. P. of prism and grating.	11	12	Lecture	
March	Polarisation : - Introduction , law of Malus. Double refraction , Huygen's theory of double refraction , Nicol prism. Optical activity, Fresnel's theory of optical rotation, specific Rotation Laurentz's half - shade polarimeter, Determination of specific rotation of sugar solution.	15	15	Lecture	

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2018 - 2019

Name of the Teacher : - Dr. S. V. Rajmane

Department : - Physics

Class : - B. Sc. IInd

Semester IIIrd

Paper No. : - VIIIth

Name of Paper : - Modern physics and Nuclear Physics.

Month	Name of Chapter and Unit	Chapter wise Periods Allotted	Total Periods in Month	Teaching Methods to be Used	Sign of Principal
June			07		
July	Photoelectric Effect :Introduction, Lenard's method to determine e/m for photoelectrons, Richardson and Compton experiment, Relation between photoelectric current and retarding potential, Relation between velocity of photoelectrons and frequency of light, photoelectric cells- (1) Photo- emissive cell (2) Photo- voltaic cell (3) Photoconductive cell, Applications of photoelectric celis.	11	12	Lecture & Model	
August	X-rays :Introduction, The absorption of X-ray's, Laue's experiment, Bragg's Law, The Bragg'sX-ray spectrometer, powder crystal method, The Laue method, x-ray spectra , Main features of continuous x-ray spectrum, Characteristics x-ray spectrum.	12	14	Lecture	
September	Nuclear forces and models :Introduction, Binding energy, Nuclear stability, Nuclear forces , Meson theory of nuclear forces, liquid drop model, shell model, Energy released in Fission , Chain reaction, Atom bomb, Nuclear Reactors, Nuclear fusion, Source of stellar energy.	13	13	Lecture	
October	Particle Accelerators and Detectors : Linear accelerator, Cyclotron, Synchrocyclotron, Betatron, Ionisation chamber, proportional counter, Geiger - Muller counter.	10	11	Lecture	

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Annual Teaching Plan

2018 - 2019

Name of the Teacher : - Dr. S. V. Rajmane Department : - Physics


Class : - B. Sc. IInd Semester IVth


Paper No. : - XIIth

Name of Paper : - Solid State Physics.

Month	Name of Chapter and Unit	Chapter wise Periods Allotted	Total Periods in Month	Teaching Methods to be Used	Sign of Principal
November		05	05		
December	Crystal structure	04	16		
		12			
January	Bonding & Band theory of solids	10	11		
February	Thermal properties of solids. Free electron theory of metals.	12	12		
March	Piezoelectric properties	02	05		


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Annual Teaching Plan

2018- 2019

Name of the Teacher : - Dr. S. V. Rajmane

Department : - Physics

Class : - B. Sc. IIIrd Semester Vth

Paper No. : - XVIIth

Name of Paper : - Classical and Quantum Mechanics.

Month	Name of Chapter and Unit	Chapter wise Periods Allotted	Total Periods in Month	Teaching Methods to be Used	Sign of Principal
June			05		
July	Basic concept of classical Mechanics: Mechanics of particle, Mechanics of system of particles, constraints, Holonomic and Non Holonomic constraints, virtual work Alemberts Principle, Lagranges equations Simple Application of Lagranges formulation Linear Harmonic oscillator simple pendulum.	11	12		
August	Quantum theory: Origin of Quantum theory, Black body Radiations, Distribution of energy in the Spectrum of black body Radiation, Photoelectric effect, Laws of photoelectric emission, Raitz combination principle Plancks radiation	13	14		
September	De Broglie's wave and Uncertainty Principle: Inadequacy of classical mechanics, two slit experiment, superposition Principle wave particle dualism for light and matter De Broglies wave, De Broglie's model of the atom, wave velocity and group velocity, Heisenberg uncertainty Principle. Application of Uncertainty principle- (1) Energy and radius of Bohr First Orbit (2) Why electron cannot present in the nucleus.	12	13		
October	Schrodinger Equation and its Application: Concept of wave function "Y" Schrodinger Equation Time dependent form Expectation value, Operators, Time Independent Schrodinger equation (steady state form) Particle in one dimensional box, energy Quantization wave function.	11	11		
November			05		

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2018 - 2019

Name of the Teacher : - Dr. S. V. Rajmane

Department : - Physics

Class : - B. Sc. IIIrd Semester VIthPaper No. : - XXIst

Name of Paper : - Atomic and Molecular spectra, Nuclear Physics.

Month	Name of Chapter and Unit	Chapter wise Periods Allotted	Total Periods in Month	Teaching Methods to be Used	Sign of Principal
November	Particle Accelerations introduction	04	05		
December	Particle Accelerations: Particle accelerator, Linear resonance accelerator, cyclotron, synchro cyclotron, vande-graff generator. Nuclear forces and Models: Introduction of nuclear forces, nuclear binding energy, theoretical and practical estimate of dependence of binding energy,	15	16	Lecture	
January	saturation, short range type nuclear fission and fusion, magic nuclear shell models Liquid drop model Molecular Physics: Molecular spectra, experimental study, Rotational spectra, Intensities of rotational lines, vibrational bands and their theoretical explanations	10	11	Lecture	
February	Raman effect, results of Raman effect, Practical importance of Raman effect Atomic Physics: Spectra of hydrogen, deuteron, alkali atoms, spectral terms, doublet fine structure,	12	12	Lecture	
March	screening constants of alkali spectra for s, p, d and f states, selection rules singlet, triplet fine structure in alkaline earth spectra L-S and J-J coupling.	05	05	Lecture	

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