

JAWAHAR ARTS SCIENCE AND COMMERCE COLLEGE

Anadur Ta. Tuljapur Dist. Osmanabad

Department of Physics

Teaching Paper Distribution Plane
2017-2018

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-301	XV	Classical & Quantum Mechanics	Dr. S. V. Rajmane
	PHY-302	XVI	Electrodynamics	Dr. A. B. Kadam
	PHY-303	XVII	Practical	Dr. S. V. Rajmane
	PHY-304	XVIII	Practical	Dr. S. V. Rajmane

Sign of Assist.Prof.

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

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Annual Teaching Plan

2017 - 2018

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

Department : - Physics

Class : - B. Sc. IIIrd Semester VIth

Paper No. : - XIX

Name of Paper : - Atomic and Molecular Physics & Laser.

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 important 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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Annual Teaching Plan

2017 - 2018

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

Department : - Physics

Class : - B. Sc. IIIrd Semester Vth

Paper No. : - XVth

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	Revision of B.Sc. I, II syllabus	05	05		
July	Basic concept of classical Mechanics: Mechanics of particle, Mechanics of system of particles, Classification of constraints, virtual work, D'Alemberts Principle, Lagranges equations Simple Application of Lagranges formulation- Simple pendulum, Particle in space, Linear Harmonic oscillator Atwood's machine.	11	12	Lecture	
August	Quantum theory: Introduction, Failure of classical mechanics, Black body Radiations (Distribution of energy), Plank's quantum theory- plank's quantum postulates, linear momentum of photon in terms of wave vector, Plank's radiation law- wein's law and Rayleigh's law, Einstein's equation: Quantum theory of photoelectric effect, Quantum effect.	13	14	Lecture	
September	Wave particle duality: de-Broglie's hypothesis for matter waves, de-Broglie's wavelength in term of energy and temperature, de-Broglie phase velocity and partial velocity (relation between them). Group velocity, Relation between group velocity and phase velocity, Devission - Germer experiment, Heisenberg uncertainty Principle. Application of Uncertainty principle- (1) Nonexistence of electron in nucleus (2) Binding energy of an electron in an atom.	12	13	Lecture	
October	Schrodinger Equation and its Application: Wave function (ψ) of moving particle, Time dependent form Schrodinger Equation Expectation value, Operators, Time Independent Schrodinger equation (steady state form) Particle in one dimensional box, energy Quantization wave function.	11	11	Lecture	
November	Solution of question paper	03	05	Lecture	

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2017 - 2018

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	Revision - of last years syllabus	06	06	Lecture	
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 cells.	11	12	Lecture & Model	
August	X-rays :Introduction, The absorption of X-ray's, Laue's experiment, Bragg's Law, The Bragg's X-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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2017 - 2018

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
December	Geometrical Optics and Optical Instruments : - Cardinal points of optical system - focal points , Principal points, nodal points and corresponding planes , coaxial lens system - equivalent focal length and cardinal points . Huygens's Eyepiece ,Ransden eyepiece and their cardinal points , spectrometer - adjustment and Schuster's method	14	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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Class : - B. Sc. Ist Semester IInd

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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
VI	PHY-305	XIX	Atomic, Molecular Physics & Laser	Dr. S. V. Rajmane
	PHY-306	XX	Non-Conventional energy sources and Optical fiber	Dr. A. B. Kadam
	PHY-307	XXI	Practical	Dr. S. V. Rajmane
	PHY-308	XXII	Practical	Dr. S. V. Rajmane

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