JAWAHAR ARTS SCIENCE AND COMMERCE COLLEGE
Anadur Ta. Tuljapur Dist. Osmanabad
Annual Teaching Plan
2019- 2020

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

Class : - B. Sc. IInd Semester IIIrd Paper No. : - VIII

Namer of Paper : - Modern physics and Lasers.

Month	Name of Chapter and Unit	Chapter wise Periods Allotted	Total Periods in Month	Teaching Methods to be Used	Sign of Principal
June			06		
July	**Photoelectric Effect :** Introduction, Lenards method to determine e/m for photoelectron, Richardson and Compton experiment (i) Relation between photoelectric current and retarding potential (ii) Relation between velocity of photoelectrons and the frequency of light photoelectric cells (i) photo emissive cell (ii) photovoltaic cell (iii) Photo-conductive cell, applications of photoelectric cells.	11	12	**Lecture Model**	
August	**X-rays :** introduction the absorption of X-rays, diffraction of X-ray Laues experiment Braggs law Bragg X-ray spectrometer, X-ray spectra Main feature of continuous X-ray spectrum, characteristic X-ray spectrum.	12	14	**PPT**	
September	**Basic Principal of Lasers:** Induced absorption, Spontaneous emission, stimulated emission population inversion properties of laser beam, laser pumping two level and three level systems	13	13	**Lecture**	
October	**Types of Lasers:** Ruby laser, He-Ne laser, Carbon dioxide (CO_2) laser and applications of laser- Biological, Medical and industrial.	10	11	**Lecture**	

Sign of Assist. Prof.

Sign of Head

Sign of Principal

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Name of the Teacher : - Dr. S. V. Rajmane
Class : - B. Sc. IInd Semester IVth
Department : - Physics
Paper No. : - XIIIth
Namer of Paper : - Geometrical Optics 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:** Introduction Cardinals points, Cardinals points of two thin lenses separated by a distance, Nodal points and Nodal planes,	05	05	Lecture	
December	Ramsdens and Huygens eyepiece. **Resolving power of optical Instrument:** Defination of resolving power, Distinction between magnification and resolution limit of resolution Rayleigh criterion R.P of Prism, Grating and Telescope.	04 12	16	Model	
January	**Interference:** interference in thin film due to reflected and transmitted light Newton's ring by reflected lingt, determination of wavelength of light by Newton's rings experiment, Michelson interferometer- construction, measurement of wavelength.	10	11	Experimental	
February	**Diffraction:** introduction Fresnel's half period zones and rectilinear propagation of light, zone plates, diffraction due to straight edge.	12	12	Lecture	
March	Exam	02	05		

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

Class :- B. Sc. IIIrd　　**Semester Vth**　　　**Paper No. :- XVIIth**

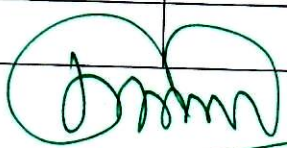**Namer of Paper :- Classical and Quantum Mechanics.**

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 oscillatior simple pendulum.	11	12	Lecture	
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 ratition	13	14	Lecture	
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 velicity and group belocity, 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	Lecture	
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	Lecture.	
November			05		

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

Class : - B. Sc. IIIrd Semester VIth Paper No. : - XXIst

Namer 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 an fusion, magic nuclear shell models Liquid drop modelMolecular 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 constant of alkali spectra for s, p, d and f states, selection rules singlet, yriplet fine structure in alkaline earth spectra L-S and J-J coupling	05	05	Lecture	

Sign of Assist. Prof.

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