DEPARTMENT OF PHYSICS

HONOURS (CBCS Syllabus)	NUMBER OF LECTURES	JULY-SEPTEMBER 7 weeks	OCTOBER – DECEMBER 5 weeks	**HONOURS (CBCS Syllabus)**	NUMBER OF LECTURES	JANUARY-MARCH 5.5 weeks		APRIL-JUNE 7.5 weeks	
Semester-I C -I	THEORY 12 weeks Credit: 4	MATHEMATICAL PHYSICS – I Calculus, Vector Calculus NO. OF CLASSES= 28	MATHEMATICAL PHYSICS – I Calculus, Vector Calculus, Probability NO. OF CLASSES= 20	Semester-II C -3	THEORY 13 weeks Credit: 4	ELECTRICITY AND MAGNETISM NO. OF CLASSES= 22		ELECTRICITY AND MAGNETISM NO. OF CLASSES= 30	
Semester – I C-2	THEORY 12 weeks Credit: 4	MECHANICS NO. OF CLASSES=28	MECHANICS NO. OF CLASSES=20	Semester-II C -4	THEORY 13 weeks Credit: 4	WAVES AND OPTICS NO. OF CLASSES= 22		WAVES AND OPTICS NO. OF CLASSES= 30	
Semester – I P-I	PRACTICAL Credit:2	MATHEMETICAL PHYSICS LAB using **PYTHON** NO. OF. CLASSES= 28 **(subject to the arrival of new computer with given specifications)**	MATHEMETICAL PHYSICS LAB using **PYTHON** NO. OF. CLASSES= 20 **(subject to the arrival of new computer with given specifications)**	Semester – II P-3	PRACTICAL 13 weeks Credit: 2	1.To determine an unknown Low Resistance using Carey Foster's Bridge**.** 2. To verify the Thevenin and Norton theorems. 3. To verify the Superposition and Maximum power transfer theorems. 4. To determine self-inductance of a coil by Anderson's bridge. 5. To study response curve of a Series LCR circuit and determine its (a) Resonant frequency, (b) Impedance at resonance, (c) Quality		6.To study the response curve of a parallel LCR circuit and determine its (a) Anti- resonant frequency and (b) Quality factor Q. 7.To study the characteristics of a series RC Circuit. 8**.**To determine an unknown Low Resistance using Potentiometer. 9.**To determine the resistance of a**	

						factor Q, and (d) Band width**.**		**galvanometer using Thomson's method**. **(subject to arrival of the instrument)** **10.Measurement of field strength B and its variation in a solenoid (determine dB/dx) (subject to arrival of the instrument)**	
Semester – I P-II	PRACTICAL Credit: 2	1. YOUNG'S MODULUS 2. MOMENT OF INERTIA 3. COEFFICIENT OF VISCOSITY 4. MODULUS OF RIGIDITY 5. TO STUDY RANDOM ERROR 6. TO DETERMINE 'g'AND VELOCITY OF A FREELY FALLING BODY BY DIGITAL TIME	8. To determine the elastic Constants of a wire by Searle's method 9. To determine the value of g using Bar Pendulum. 10. To determine the	Semester – I P-4	PRACTICAL 13 weeks Credit: 2	**To determine the frequency of an electric tuning fork by Melde's experiment** and verify λ2 –T law. **(Subject to arrival of the instrument**) 2. To determine refractive index of the Material of a prism using sodium source. 3. To determine the dispersive power and Cauchy constants of the material of a prism using mercury source. **(subject to the arrival of Hg source)** 4. To determine wavelength of sodium		To study Lissajous Figures to derermine the phase difference between two harmonic oscillatiions. **8. To determine the thickness of a thin paper by measuring the width of the interference fringes produced by a wedge-shaped** Film. **(Subject to arrival of theInstrument)** 9. Familiarization	

		TECHNIQUE 7. TO DETERMINE HEIGHT OF A BUILDING USING SEXTANT NO. OF CLASSES=28	value of g using Kater's Pendulum 11. To study the Motion of Spring and calculate, (a) Spring constant, (b) g and (c) Modulus of rigidity. NO. OF CLASSES=20			light using Fresnel Biprism. 5. To determine wavelength of sodium light using Newton's Rings. 6. To determine dispersive power and resolving power of a plane diffraction grating. NO. OF CLASSES = 22		with: Schuster`s focusing; determination of angle of prism. 10. To determine wavelength of (1) Na source and (2) spectral lines of Hg source using plane diffraction grating. **(subject to arrival of the Hg. source)** 11.To investigate the motion of coupled oscillators. **(Subject to arrival of theInstrument)** 12.To determine the wavelength of sodium source using Michelson's interferometer. **(Subject to arrival of theInstrument)** NO. OF. CLASSES = 30	
Semester-III C -5	THEORY 12 weeks	**Mathematical Physics II**	**Mathematical Physics II**	Semester-IV C -8	THEORY 13 weeks	**Mathematical Physics III**		**Mathematical Physics III**	

	Credit: 4	Fourier Series, Frobenues Methods and Special functions No. of Classes:28 **(Subject to the arrival of New computers)**	Some Special integrals, Variational Calculus in Physics, Analytical Dynamics, Partial Differential equations No. of Classes:20		Credit: 4	Complex analysis, Integral transform No. of Classes:22 **(Subject to the arrival of New Computers)**		Boundary value problems, matrices, Eigen value and Eigen vectors No. of Classes:30	
Semester-III C -6	THEORY 12 weeks Credit: 4	**Thermal Physics** Introduction to thermodynamics, Thermodynamic potentials No. of Classes:28	**Thermal Physics** Thermodynamic potentials, Kinetic theory of gases No. of Classes:20	Semester-IV C -9	THEORY 13 weeks Credit: 4	**Elements of Modern Physics** Relativistic dynamics, Collection of identical entities No. of Classes:22		**Elements of Modern Physics** Emergence of Quantum Mechanics**, Lasers, Nuclear Physics** No. of Classes:30	
Semester-III C -7	THEORY 12 weeks Credit: 4	**Digital Systems and Applications** Introduction,Integrated Circiuts, Digital Circuits, Arithmatic circuits, Data processing circuits No. of Classes:28	**Digital Systems and Applications** Sequential circuits, Timers, Registers,Counters, Computer Organization No. of Classes:20	Semester-IV C -10	THEORY 13 weeks Credit: 4	**Analog Systems and Applications** History of the development of Electronics,Semiconductor diodes, Two terminal devices, BJT No. of Classes:22		**Analog Systems and Applications** FET, Amplifiers, Oscillators, OPAMP. Application of OPAMP, Conversion No. of Classes:30	
Semester-III	Theory + lab (Mixed) 12 weeks	**Basic Instrumentation Skills** Basic of Instruments,	**Basic Instrumentation Skills**	Semester-IV	Theory + lab (Mixed) 13 weeks	**Computational Physics**		**Computational Physics**	

Skilled Enhancement Course - I	Credit: 2	Electronic Voltmeter, Cathode Ray Oscilloscope, Signal generators and analysis instruments No. of Classes:14	Impedance bridges and Q meters. Digital Instruments, Digital multimeters No. of Classes:10	Skilled Enhancement Course - II	Credit: 2	Introduction, Scientific programming, Control Statements No. of Classes:12		Programming No. of Classes:16	
Semester III P5	Practical Credit: 2	**Mathematical Physics II Lab** General topics, Sorting, statistical Calculation, Interpolation, Numerical Differentiation No. of Classes: 28	**Mathematical Physics II Lab** Numerical integration, Integration by Stochastic method,Solution of ODE first order differential equation No. of Classes: 20	Semester IV P8	Practical Credit:2	**Mathematical Physics III Lab** ODE initial value problem, Solution of Linear System of equations,Inverse of a matrix, Orthogonalization method,Eigenvalue calculation,Eigen Vectors No. of Classes: 22		**Mathematical Physics III Lab** Boundary value problems, Newton Raphson method, Integral transform, Dirac Delta function, Introduction of OCTAVE and its use No. of Classes: 32	
Semester III P6	Practical Credit: 2	**Thermal Physics Lab** 1. Stefan's law 2. Thermal Conductivity of Bad conductor by Lee's method 3. Temperature coefficient of resistance of PRT using constant current source **(subject to the arrival of the instrument)**	Thermal Physics Lab 6.To calibrate a thermocouple to measure temperature in a specified range using OPAMP (subject to the arrival of the instrument) 7.Measuring Unknown temperature using Diode	Semester IV P9	Practical Credit:2	Elements of Modern Physics lab 1. Wavelenth of Hα emission of Hydrogen atom 2. Absorption ines of Iodine vapour 3. Value of e/m by bar magnet 4. Wavelength of laser source by diffraction of double slits 5. Wavelenth and		**Elements of Modern Physics lab** 8. Planck's Constant using blackbody radiation and photo detector 9. Photoelectric Effect 10. Planck's constant using 4 LEDs of different colours 11. Ionization	

		4. To study thermo emf of a thermocouple 5. To calibrate a thermocouple to measure temperature in a specified range using potentiometer No. of Classes: 28 **(subject to the arrival of the Instrument)**	Sensor 8.To determine mechanical equivalent of heat (subject to the arrival of the Instrument) 9. Coefficient of thermal conductivity by Searle's apparatus (subject to the arrival of the Instrument) 10. Coefficient of thermal conductivity by Angstorm's method No. of Classes: 20 **(subject to the arrival of the Instrument)**			anguar spread of solid state laser by plane diffraction grating 6. Work function of the material of filament by directly heated diode 7. Tunneling effect in tunnel diode by IV characteristics No. of Classes: 22 **(subject to the arrival of the instruments)**		potential of mercury 12. Millican's Oil drop experiment 13. Wavelengt oflaser source using diffraction of single slit No. of Clases: 30 **(subject to the arrival of the instruments)**	
Semester III P7	Practical Credit:2	**Digital System and Applications lab** 1. Use of CRO 2. Use of Multimeter	**Digital System and Applications lab** 6.Different types of Adders 7 FlipFlop	Semester IV P10	Practical Credit: 2	**Analog Systems and Applications lab** 1. I-V characteristics of PN junction		**Analog Systems and Applications lab** 10. To add DC voltage using OPAMP in	

		3. NOT gate using transistor 4. Use of Universal gate 5. For a given truth table find the equation and develop the circuit No. of Classes: 28	8. Astable Multivibrator and Monostable Multivibrator using 555 timer 9. Subtractor 10. JK Master Slave flipflops 11. Counters 12. Shift Registors No. of Classes: 20			diode and Light emitting diode using both votage and current source 2. To study Zener diode 3. V-I and power curves of Solar Cell 4. Characteristics of BJT in CE configuration 5. To Study RC coupled Oscillator 6. Inverting, Noninvering and buffer amplifier using OPAMP 7. Wien bridge oscillator 8. To deign a circuit to simulate 1st and 2nd order differential equation 9. To study inverting and non inverting amplifier using OPAMP and study its frequency response No. of Classes: 22		inverting and in noninverting mode 11. OPAP as integrator and differentiator 12. To Study CE transistor amplifier 13. Various biasing configuration of BJT for normal Class A operation 14. To study Phase shift Oscillator and Colpitt's Oscillator 15. To design DAC and ADC 16. Precision differential amplifier 17. To Study zero crossing detector and comparator 18. To study Schmitt trigger and associated circuits No. of Classes:30	

DEPARTMENT OF PHYSICS

HONOURS	NUMBER OF LECTURES	JULY-SEPTEMBER	OCTOBER -DECEMBER	JANUARY-MARCH	TEST EXAMINATION	APRIL-JUNE	TUTORIAL AND UNIVERSITY FINAL EXAMINATION
PART -III PAPER -V	THEORY	UNIT VB, GROUP D QUANTUM MECHANICS NO. OF CLASSES= 21	UNIT VB, GROUP D QUANTUM MECHANICS NO. OF CLASSES= 18	UNIT VB, GROUP E SPECTROSCOPY NO. OF CLASSES= 6 UNIT VA, GROUP A CLASSICAL MECHANICS NO. OF CLASSES= 20			
		UNIT VA, GROUP B SPECIAL THEORY OF RELATIVITY NO. OF CLASSES= 14	UNIT VB, GROUP E SPECTROSCOPY NO. OF CLASSES= 10				
		UNIT VA, GROUP C STATISTICAL PHYSICS NO. OF CLASSES= 14					
			UNIT VB, GROUP E X-Ray= 5				
PART -III PAPER -VI	THEORY	UNIT VIA, GROUP A NUCLEAR PHYSICS NO. OF CLASSES=28	UNIT VIA, GROUP A NUCLEAR PHYSICS NO. OF CLASSES=20	UNIT VIB, GROUP C SOLID STATE PHYSICS NO. OF CLASSES= 18			
		UNIT VIA, GROUP D LASER AND FIBRE OPTICS NO. OF CLASSES= 7	UNIT VIA, GROUP B INSTRUMENTAL METHOD NO. OF CLASSES=5				
PART -III PAPER - VIIA	THEORY		UNIT VIIA ELECTRONICS NO. OF CLASSES= 12	UNIT VIIA ELECTRONICS NO. OF CLASSES= 12			
PART -III PAPER - VIIB	Practical	COMPUTER PROGRAMMING NO. OF CLASSES= 14	COMPUTER PROGRAMMING NO. OF CLASSES= 16	COMPUTER PROGRAMMING NO. OF CLASSES= 10			

DEPARTMENT OF PHYSICS

HONOURS	NUMBER OF LECTURES	JULY-SEPTEMBER	OCTOBER -DECEMBER	JANUARY-MARCH	TEST EXAMINATION	APRIL-JUNE	UNIVERSITY FINAL EXAMINATION
PART -III PAPER - VIIIA	Practical	BIPRISM POLAROID GRATING NO. OF CLASSES=14	B-H LOOP(**SUBJECT TO ARRIVAL OF THE INSTRUENT)** ANDERSON BRIDGE FOURIER SPECTRUM NO. OF CLASSES=14	BAND GAP CROSSED GRATING NO. OF CLASSES= 10			
PART -III PAPER - VIIIB		VOLTAGE AMPLIFIER WIEN BRIDGE OSCILLATOR TEMPERATURE CONTROLLER NO. OF CLASSES=14	TRANSISTOR CHARACTERISTICS OP-AMP BOOLEAN EXPRESSION NO. OF CLASSES=14	REGULATED POWER SUPPLY H Parameters NO. OF CLASSES =10			

DEPARTMENT OF PHYSICS (GENERAL)

Semester I	Theory Credit: 4	JULY-SEPTEMBER 7 weeks Particle Dynamics STR Mathematical methods Elasticity NO. OF Classes = 28	OCTOBER –DECEMBER 5 weeks Particle Dynamics STR Oscillations Gravitation NO. OF Classes = 20	Semester II	Theory Credit: 4	JANUARY-MARCH 5.5 weeks Vector Analysis Electrostatics Electromegnetic Induction NO. OF CLASS = 30	APRIL-JUNE 7.5 weeks Linear Network Maxwells Equations Wave Propagation Magnetic Induction NO. OF CLASSES= 22

Semester I	**PRACTICAL** **Credit: 2**	1Modulus of rigidity 2.Moment of Inertia 3.Coefficient of Viscosity 4.Young's Modulus 5.To study the random error in observations of time period of some oscillation using chronometer**.** NO. OF CLASSES=28	6.To determine the height of a building using a Sextant. 7. To determine the elastic Constants of a wire by Searle's method. 8.To determine the value of g using Bar Pendulum. 9. To determine the value of g using Kater's Pendulum**.** 10. To study the Motion of Spring and calculate, (a) Spring constant, (b) g and (c) Modulus of rigidity NO. OF CLASSES=20	Semester II Practical Credit: 2		1. To determine an unknown Low Resistance using Carey Foster's Bridge. **2.** To verify the Thevenin and Norton theorems. 3. To verify the Superposition and Maximum power transfer theorems. 4. To determine self-inductance of a coil by Anderson's bridge. 5. To study response curve of a Series LCR circuit and determine its (a) Resonant frequency, (b) Impedance at resonance , (c) Quality factor Q, and (d) Band width. **No. of Classes = 22**	6.To study the response curve of a parallel LCR circuit and determine its (a) Anti-resonant frequency and (b) Quality factor Q. 7. To study the characteristics of a series RC Circuit. 8. To determine an unknown Low Resistance using Potentiometer. 9. To determine the resistance of a galvanometer using Thomson's method.

							10. Measurement of field strength B and its variation in a solenoid (determine dB/dx) **NO. OF CLASS = 30**
Semester III	**THEORY Credit: 4**	**Thermal Physics and Statistical Mechanics** Laws of Thermodynamics, Thermodynamic potentials, Kinetic theory of gases No. of Classes: 28	**Thermal Physics and Statistical Mechanics** Theory of Radiation Statistical Mechanics No. of Classes: 20	**Semester IV**	**THEORY** **Credit: 4**	**Waves and Optics** Superposition of two collinear harmonic oscillations, Superposition of two perpendicular harmonic oscillations, Interference Michelson Interferometer No. of Classes: 22	**Waves and Optics** Wave motion general, Fluids, Sounds, Wave Optics, Diffraction, Polarization
Semester III	**PRACTICAL Credit: 2**	**Thermal Physics and Statistical Lab** 1. Verification of Stefan's Law using a torch bulb 2. To determine the Coefficient of Thermal Conductivity of a bad conductor by Lee and	**Thermal Physics and Statistical Lab** 7. Measurement of un temperature using Diode sensor. 8. To determine Mech Equivalent of Heat, J, by Callender and Barne's constant flow method. 9. To determine the Coefficient of Thermal Conductivity of Cu by	**Semester IV**	**PRACTICAL** **Credit: 2**	**Waves and Optics Lab** 1.To determine the frequency of an electric tuning fork by Melde's experiment and verify $\lambda 2$ –T law. **2.** To determine oefficient of Viscosity of water by Capillary Flow Method (Poiseuille's method). 3. To determine refractive index of the Material of a	**Waves and Optics Lab** 7.To determine dispersive power and resolving power of a plane diffraction grating. **8.** To determine the thickness

		Charlton's disc method. 3. To determine the Temperature Coefficient of Resistance by Platinum Resistance Thermometer (PRT).using constant current source (**Subject to the arrival of the instrument**) 4.To study the variation of Thermo-Emf of a Thermocouple with Difference of Temperature of its Two Junctions. 6. To calibrate a thermocouple to measure temperature in a specified Range by Null Method using a potentiometer. No. of Classes: 28	Searle's Apparatus. **10.** To determine the Coefficient of Thermal Conductivity of Cu by Angstrom's Method. No. of Classes: 20			prism using sodium source. 4.To determine the dispersive power and Cauchy constants of the material of a prism using mercury source. 5.To determine wavelength of sodium light using Fresnel Biprism. 6.To determine wavelength of sodium light using Newton's Rings. No. of Classes: 22	of a thin paper by measuring the width of the interference fringes produced by a wedge-shaped Film. **9.** Familiarization with: Schuster`s focusing; determination of angle of prism. **10.** To determine wavelength of (1) Na source and (2) spectral lines of Hg source using plane diffraction grating. **11.** To investigate the motion of coupled oscillators. **12.** To determine the wavelength of sodium source using

							Michelson's interferometer. (**Subject to the arrival of the Instruments**) No. of Classes: 30

DEPARTMENT OF PHYSICS

GENERAL	NUMBER OF LECTURES	JULY-SEPTEMBER	OCTOBER - DECEMBER	JANUARY-MARCH	TEST EXAMINATION	APRIL-JUNE	UNIVERSITY FINAL EXAMINATION
PART -III PAPER – IV 70 MARKS	**THEORY**	PRODUCTION AND MEASUREMENT OF HIGH VACUUM ENERGY SOURCES NO. OF CLASSES=14	ELECTRONICS NO. OF CLASSES=14	COMMUNICATIONS AND TRANSMISSION OF E-M WAVE NO. OF CLASSES=14		COMPUTER PROGRAMMING TUTORIAL CLASSES ON PROGRAMMING NO. OF CLASSES=14	
PAPER – IV 30 MARKS	**PRACTICAL**	1. CONVERSION OF AMMETER TO VOLTMETER AND VICE VERSA 2. TO CONSTRUCT AN ADJUSTABLE VOLTAGE POWER SOURCE NO. OF CLASSES=28	3. INCREASE OF INTERNAL RESISTANCE OF AN ANALOG VOLTMETER BY USING OPAMP 4. USE OF OPAMP AS INVERTING, NON INVERTING, DIFFERENTIAL AMPLIFIER AND ADDER NO. OF CLASSES=20	TO CALIBRATE A GIVEN TEMPERATURE SENSOR AND USE THE SENSOR TO DEVELOP A PHOTOSENSOR AND USE OF IT NO. OF CLASSES=24		TO FAMILIARISE WITH THE OPERATING SYSTEM AND TO SOLVE SIMPLE PROBLEMS BY PROGRAMMING IN C OR FORTRAN NO. OF CLASSES=32	