

GOVERNMENT COLLEGE BIROHAR (JHAJJAR)

Summary of Lesson Plans of College Faculty for Academic Session 2024-25

Name of Assistant/Associate Professor: MANTI KUMAR

Class: B.Sc 2nd year

Subject: Physics Paper - I Computer programming & Thermodynamics

Semester: 2nd

Months	Topics/Chapters to be Covered
July 2024	Computer Programming - Computer organisation, Binary representations, Algorithm development, flow charts and their interpretation FORTRAN Preliminaries, Integer and floating point arithmetic expression, built in functions executable, and non-executable statements, input and output statements, formats, IF, DO and GO TO statements Dimension arrays statement function and function subprogram.
August 2024	Thermodynamics I - second law of thermodynamics, Carnot theorem, Absolute scale of temperature, Absolute zero, Entropy, show that $dQ/T = 0$, T-S diagram, Nernst heat law, Joule's free expansion, Joule Thomson (Porous plug) experiment. Joule Thomson effect. Liquefaction of gases. Air pollution due to internal combustion engine.
September 2024	Thermodynamics - II - derivation of Clausius - Clapeyron latent heat equation Phase diagram and triple point of a substance

October
2024

development of Maxwell thermodynamic relations Application of Maxwell relations is derivation of relation between entropy, specific heats and thermodynamic variable.

November
2024

Thermodynamic functions: Internal energy (U) Helmholtz function (F) Enthalpy (H) Gibbs function (G) and relations between them.

Revision & UT

Mangr
Signature of Asst/Asso. Professor

GOVERNMENT COLLEGE BIROHAR (JHAJJAR)

Summary of Lesson Plans of College Faculty for Academic Session 2024-25

Name of Assistant/Associate Professor: MANJU KUMARI

Class: B.Sc. T year, Physical Science Subject: Physics (major) Mechanics

Semester: I

Months	Topics/Chapters to be Covered
July 2024	Unit-1 Basics of Mechanics - Mechanics of single and system of particles, conservation law of linear mom Angular mom. and mechanical energy for a particle and system of particles, centre of mass and equation of motion, constrained motion, work and Kinetic energy Theorem, conservative and non-conservative forces. Potential energy, Energy diagram, stable and unstable equilibrium, Elastic potential energy, force as gradient of potential energy, work and potential energy, work done by non-conservative force, Law of conservation of energy.
August 2024	Unit-2 Generalized notation - degrees of freedom and generalized co-ordinates, Transformation equations, Generalized Displacement, velocity, Acceleration, mom, force and potential, component of velocity and acceleration in cylindrical and spherical coordinate system. Hamilton variation principle, Lagrange's equation of motion and Hamilton's principle, Linear Harmonic Oscillator, simple pendulum, Atwood's machine.
September 2024	Unit-3. Rotational Dynamics - Rotation of Rigid body moment of inertia, torque, angular mom, Kinetic energy of rotation Theorems of parallel and perpendicular axes with proof. M.O.I of solid sphere, hollow sphere, spherical shell, solid cylinder hollow cylinder and solid bar of rectangular cross-section, Acceleration of a body rolling down on an inclined plane, Flywheel, Torsion pendulum, Kinetic energy of rotation motion.

October
2024

Unit-4 Special Theory of Relativity-
Non inertial
frames and fictitious forces. Uniformly rotating
frame law of Physics In rotating coordinate system.
Centrifugal forces, coriolis force and its application
Michelson-Morley exp. and its outcome Postulates of
special Theory of Relativity Lorentz Transformation-
simultaneity and order of events Lorentz

November
2024

contraction Time dilation Relativistic transformation
of velocity, frequency and wave no. Mass-energy
equivalence. Relativistic Doppler effect. Energy
and mom. Revision & U-T

May

Signature of Asst/Asso. Professor

July
2024

GOVERNMENT COLLEGE BIROHAR (JHAJJAR)

Summary of Lesson Plans of College Faculty for Academic Session 2024-25

Name of Assistant/Associate Professor: Manju Kumari

Class: B.Sc I year (Physics) Subject: Physics (S.E.C), Physical Science

Semester: I

Months	Topics/Chapters to be Covered
July 2024	Unit-I. Basics of measurement, Instruments accuracy, precision, sensitivity, resolution range. Error in measurement and loading effect. Multimeter Principles of measurement of dc voltage and dc current, ac voltage, ac current and resistance Specification of a multimeter for voltage measurement with respect to input impedance and sensitivity Principle of voltage measurement. Specification of an electronic voltmeter/multimeter and their specification Ac milli voltmeter Type of Ac millivolt meters Amplifier rectifier and rectifier amplifier. specifications and significance
August 2024	Unit-2 CRO, Block diagram of CRO, construction of CRT, electron gun, electrostatic focusing and acceleration, screen phosphor, visual persistence & chemical composition. Time base operation, synchronization. front panel control specification of CRO. Use of CRO. special features of dual trace. introduction to digital oscilloscope probes, Digital storage Oscilloscope 1. Block diagram and principle of working
September 2024	Unit-3 Generators and transformers DC Power sources AC/DC generators. Inductance, capacitance and Impedance, operation of transformers Electric motors Single phase, three phase & DC motors Basic design, Interfacing DC or AC sources to control heaters and motors, speed & power of ac motor Unit 4:- Electrical Protection, Relay. Fuses and disconnect switches. circuit breaker. Overload devices. Ground fault protection Grounding and

October
2024

isolating phase reversal, surge protection Relay
protection device Electrical wiring Different types
of conductors and cables Basics of wiring star and
delta connection Voltage drop and losses across
cables and conductors Instruments to measure
current, voltage, power in DC and AC circuit

November
2024

Insulation Solid and stranded cable, Conduit
Cable trays splices; wirenuts crimps,
terminal blocks and solder. Preparation of
extension board

Revisions LT

Narjy

Signature of Asst/Asso. Professor

GOVERNMENT COLLEGE BIROHAR (JHAJJAR)

Summary of Lesson Plans of College Faculty for Academic Session 2024-25

Name of Assistant/Associate Professor: Manju Kumari

Class: B.Sc I year, Life Science Subject: Physics (Minor)

Semester: Ist

Months	Topics/Chapters to be Covered
July 2024	Unit- I Mechanics - Every day activities related to force weight work energy, power and centrifuge: washing machine.
August 2024	Unit- 2 Heat - variation of boiling point with pressure, pressure cooker, cooling by expansion Refrigerator, air conditioners Bernoulli principle, Bunsen burner aero-plane.
September 2024	Unit- 3 Sound and optics - Sound waves, Doppler's effect power of lens. long sight and short sight

October
2024

microscope, telescope,

binocular camera,

video camera.

Unit - 4

Electrical and electronic appliances -

Working

of the tube light and fan, kilowatt hour,

fuse and heating element.

microwave oven, electric heater

Photoelectric effect.

Revision & U.T

November
2024

Mariya
Signature of Asst/Asso. Professor