Session:- 2023-24 LESSON PLAN

SMSD GOVT COLLEGE, NANGAL CHOUDHARY (M|GARH)

DR. HEMANT KUMAR SHARMA
DEPARTMENT OF PHYSICS

B.Sc. 1st year (1st Semester)
PAPER - IInd [ELECTRICITY, MAGNETISM & ELECTROMAGNETIC THEORY]

=> JULY - 2023 (WEEK-4th) FROM :- (24 JULY to 31 JULY)
UNIT - I
* SCALARS AND VECTORS, DOT & CROSS PRODUCT.
* TRIPPLE VECTOR PRODUCT, SCALAR AND VECTOR FIEL
* DIFFERNTITATION OF A VECTOR.

=> AUG - 2023 (WEEK-1st) (31 JULY TO 05 AUG)
* GRADIENT OF A SCALAR AND ITS PHYSICAL SIGNI
* INTEGRATION OF A VECTOR.

=> WEEK - 2nd (07 AUG TO 12 AUG)
* Gauss's DIVERGENCE THEOREM.
* STOCK's THEOREM.

=> WEEK - 3rd [14 AUG TO 19 AUG]
* DERIVATION OF FIELD E FROM POTENTIAL AS GRADIENT.

=> WEEK - 4th [21 AUG TO 26 AUG]
* DERIVATION OF LAPLACE AND POISSON EQUATIONS -
* ELECTRIC FLUX, GAUSS'S LAW & ITS APPLICA TO SPHERICAL SHELL.

=> WEEK - 5th [28 AUG TO 2 SEP.]
* UNIFORMLY CHARGED INFINITE PLANE & UNIFOR CHARGED STRAIGHT WIRE.
* MECHANICAL FORCE OF CHARGED SURFACE
* ENERGY PER UNIT VOLUME

[P.T.O

SEPT-2023 (WEEK-1st) FROM:- (4 sept to 9 Sept)
UNIT-2nd

* MAGNETIC INDUCTION.
* MAGNETIC FLUX
* SOLENOIDAL NATURE OF VECTOR FIELD OF INDU

=> WEEK-2nd [From: 11 sept to 16 Sept.]

* PROPERTIES OF $\vec{B}$ (i) $\nabla \cdot B = 0$ (ii) $\nabla \times B = \mu_0 J$.
* ELECTRONIC THEORY OF DIA AND PARA MAGNET (LANGEVIN's THEORY)

=> WEEK-3rd [FROM:- 18 Sept. to 23 Sept.]

* DOMAIN THEORY OF FERROMAGNETISM
* CYCLE OF MAGNETISATION

=> WEEK-4th [FROM:- 25 Sept. to 30 Sept.]

* HYSTERESIS:- ENERGY OF DISSIPATION
* HYSTERESIS LOSS
* IMPORTANCE OF HYSTERESIS CURVE.

-> Oct-2023 (WEEK-1st) FROM:- (02 oct to 07 oct.)
UNIT-IIIRD

* MAXWELL'S EQUATION AND THEIR DERIVATION
* DISPLACEMENT CURRENT

=> WEEK-2nd (FROM:- 08 oct to 14 oct.)

* VECTOR AND SCALAR POTENTIALS
* BOUNDARY CONDITIONS

=> WEEK-3rd (FROM:- 16 oct to 21 oct)

* BOUNDARY CONDITIONS AT INTERFACE BETWEEN TWO DIFFERENT MEDIA

* WEEK-4th (FROM:- 23 oct to 28 oct)

* PROPAGATION OF ELECTROMAGNETIC WAVE.

[P.T.O

Nov-2023 (WEEK-1st)

FROM :- [30 Oct to 04 Nov]

BASIC IDEA OF E.M. WAVE.

NO DERIVATION OF E.M. WAVE.

WEEK-2nd [From :- 06 Nov. to 11 Nov.]

* POYNTING VECTOR

* POYNTING THEOREM.

WEEK-3rd [From 17 Nov TO 24 Nov]

* REVISION & TEST *

Hemant.

Lesson plan 2023-24
Physics Paper -1 B.Sc.I
Amar Singh (Extension Lecturer)
SMSD GOVT COLLEGE NANGAL CHAUDHARY

4rth week of Month July
Mechanics of single
Mechanics of system of particles

1st week of Month August
conservation of laws of linear momentum for a particle,
conservation of laws of angular momentum for a particle,
conservation of laws of mechanical energy for a particle,

2nd week of Month August
conservation of laws of linear momentum for system of particle,
conservation of laws of angular momentum for system of particle,
conservation of laws of mechanical energy for system of particle,

3rd week of Month August
Centre of mass
Equation of motion,

4rht week of Month August
constrained motion,
degrees of freedom.

1st week of Month September
Generalised coordinates,
Generalised displacement,

2nd week of Month September
Generalised velocity,
Generalised acceleration,
Generalised momentum

3rd week of Month September
Generalised force
Generalised potential.
Hamilton’s variational principle

4rth week of Month September
Lagrange's equation of motion
from Hamilton's Principle.

1st week of Month October
Linear Harmonic oscillator,
Simple pendulum

2nd week of Month October
Atwood's machine.
Numerical problems

3rd week of Month October
Rotation of Rigid body,
Moment of inertia,

4rth week of Month October
torque,
angular momentum,
kinetic energy of rotation.

1st week of Month November
Theorems of perpendicular axes with proof.
Theorems of parallel axes with proof.

2nd week of Month November
Moment of inertia of solid sphere,
hollow sphere

3rd week of Month November
spherical shell,
solid cylinder,

4rth week of Month November
solid bar of rectangular cross-section.
Acceleration of a body rolling down on an inclined plane.