**Lesson Plan** Name- Nikita

Discipline- Applied Science

Semester – 1st Year

Subject – Applied Physics

Duration – 33 weeks

Week Theory Practical

Lect. day

Topic Practical day

Topic

1st

1st Introduction about physics Physical quantities Units - fundamental and

derived units

2nd Physical quantities Units - fundamental and derived units FPS, CGS and SI

units

3rd Dimensions and dimensional formulae of physical quantities

4th Tutorial: Doubt session and problem solving

1st Introduction about lab

2nd To find the diameter of solid cylinder using vernier calliper

2nd 1st Dimensional formulae Distance, area, volume, velocity, acceleration,

momentum, force etc.

2nd Dim. Formula of work, power, energy, surface tension, stress, strain, moment

of inertia

3rd Principle of homogeneity of dimensions conversion from one system of units to

other

4th Tutorial: Doubt session and problem solving

1st Revision & Checked practical note book

2nd Revision & Checked practical note book

3rd 1st Limitations of dimensional analysis 1st To find internal diameter and

2nd Revision of unit- 1 (Complete) and 1st

assignment

3rd Scalar and vector quantities – examples Addition of Vectors, Triangle and Parallelogram law

4th Tutorial: Doubt session and problem solving

4th 1st Scalar

and Vector Product, Definition of

Distance , Displacement, Speed, Velocity, Acceleration, Force and Resolution of force

2nd Newton’s laws of motion and

Conservation of linear momentum

3rd Impulse and its examples and introduction to Circular motion,

4th Tutorial: Doubt session and problem solving

5th 1st Angular displacement, angular velocity, angular Acceleration and relation between linear and angular system.

2nd Centripetal and centrifugal forces

3rd Banking of roads (application of centrifugal force)

4th Tutorial: Doubt session and problem

depth of a beaker using vernier caliper and hence find its volume.

2nd To find internal diameter and depth of a beaker using vernier caliper and hence find its volume.

1st Revision & Checked practical note book

2nd Revision & Checked practical note book

1st To find the diameter of wire using screw gauge.

2nd To find the diameter of wire using screw gauge.

solving

6th 1st class test of unit 1 and 2 1st Revision & Checked practical note book

2nd Work, its units and types

3rd Energy and its units: Kinetic energy and potential energy, Transformation of energy.

4th Energy conservation law in case of freely falling body

2nd Revision & Checked practical note book

7th 1st Power (definition, formula and units), Simple numerical problem on power

2nd Rotational motion with examples

3rd Definition of torque and angular momentum and their example

4th Tutorial: Doubt session and problem solving

1st To determine the thickness of glass strip using a spherometer

2nd To determine the thickness of glass strip using a spherometer

8th 1st Conservation of angular momentum 1st Revision & Checked practical

2nd Moment of inertia and its physical significance

3rd Radius of gyration (definition, Derivation and formula).

4th Tutorial: Doubt session and problem solving

note book

2nd Revision & Checked practical note book

9th 1st Re-revision of unit 3 and 4. 1st To determine radius of curvature of a given spherical surface by a

2nd 2nd class test of unit 3 and 4

3rd Definition of deforming force restoring force, elastic body & plastic body and types of stress and strain

4th Hooke’s law, Different types of module of elasticity.

spherometer.

2nd To determine radius of curvature of a given spherical surface by a spherometer.

10th 1st Pressure, Pascal’s law 1st Revision & Checked practical

2nd Surface tension: definition, its units, surface tension, effect of

temperature on Surface tension

3rd Viscosity: definition, units and effect of temp.

4th Tutorial: Doubt session and problem solving

11th 1st Fluid motion, stream line and turbulent flow.

2nd Revision of 5th unit

note book

2nd Revision & Checked practical note book

1st To verify parallelogram law of forces

3rd 3rd class test 2nd To verify parallelogram law of forces

4th Tutorial: Doubt session and problem solving

12th 1st Definition of heat and temperature, Difference between heat and temperature

2nd Principles of measurement of temperature, Modes of transfer of heat

3rd Conduction, convection and radiation

Properties of heat radiation

4th Tutorial: Doubt session and problem solving

13th 1st Different scales of temperature and their relationship

2nd Principles of measurement of temperature.

1st Revision & Checked practical note book

2nd Revision & Checked practical note book

1st To determine the atmospheric pressure at a place using Fortin’s Barometer

3rd Revision of 6th unit 2nd To determine the atmospheric pressure at a place using Fortin’s

4th Tutorial: Doubt session and problem solving

Barometer

14th 1st 4th Class test 1st Revision & Checked practical

2nd Revision of 1st and 2nd unit

note book

3rd Class test 2nd Revision & Checked practical note book

4th Revision of 3rd and 4th unit

15th 1st Class test 1st Re revision of experiments

2nd Re revision of 5 units

3rd Re revision of 6 units 2nd Re revision of experiments

4th Tutorial: Doubt session and problem solving

16th

1st Wave motion**:** Introduction to periodic motion, Transverse and longitudinal

wave motion with examples

2nd Term used in S.H.M like displacement, amplitude, time

period, frequency, wavelength

3rd Wave velocity, relationship among wave velocity, frequency and wave

length

4th Tutorial: Doubt session and problem solving

1st To determine force constant of spring using Hooke’s law

1st To determine force constant of spring using Hooke’s law

2nd To determine force constant of spring using Hooke’s law

17th 1st Simple Harmonic Motion (SHM):

definition and examples

2nd Cantilever: definition and formula of time period

3rd Free, forced and resonant vibrations

4th Tutorial: Doubt session and problem solving

18th 1st Acoustics of buildings – reverberation, reverberation time

2nd Echo, noise,

coefficient of absorption of sound

3rd Methods to control reverberation time

4th Tutorial: Doubt session and problem solving

19th 1st Ultrasonic (production methods)Applications to cold welding, drilling and SONAR

2nd Optics: Reflection, refraction of light and refractive index

3rd Lens formula(no derivation), power of lens and related numerical problems

4th Tutorial: Doubt session and problem solving

20th 1st Total internal reflection (TIR), critical angle and conditions for total internal reflection

2nd Applications of TIR

3rd Microscope and Telescope (definition) Uses of microscope and telescope

1st Revision & Checking of practical note books

2nd Revision & Checking of practical note books

1st Measuring room temperature with the help of thermometer and its conversion in different scale.

2nd Measuring room temperature with the help of thermometer and its conversion in different scale.

1st Revision & Checking of practical note books

2nd Revision & Checking of practical note books

1st To find the time period of a simple pendulum

4th class test 2nd To find the time period of a simple pendulum

21st 1st Electrostatics**:** Coulomb’s law and electric charge and unit charge

2nd Electric field and Electric lines of force

(definition and properties)

3rd Electric

Flux and Electric

intensity due to a point charge

4th Tutorial: Doubt session and problem solving

22nd 1st Electric potential (definition and formula)

2nd Gauss’ law (Statement and derivation) Series and parallel

combination of capacitors

3rd Capacitor and Capacitance (with formula and units) Numerical problems

4th Tutorial: Doubt session and problem solving

1st Revision & Checking of practical note books

2nd Revision & Checking of practical note books

1st To determine and verify the time period of Cantilever

2nd To determine and verify the time period of Cantilever

23rd 1st Revision of 7th and 8th units 1st Revision & Checking of practical

2nd Current Electricity: Electric current and its units

3rd Direct and alternating current

4th Tutorial: Doubt session and problem solving

note books

2nd Revision & Checking of practical note books

24th 1st Class test 1st To verify ohm’s laws by plotting a

2nd Ohm’s law and resistance

3rd Specific resistance (definition and units)

and Conductance

4th Tutorial: Doubt session and problem solving,

Kirchhoff’s laws (statement and formula)

25th 1st Series and parallel combination of resistances Numerical problems

2nd Electric power, Electric energy and its units

3rd Heating effect of current Kirchhoff’s law

4th Tutorial: Doubt session and problem solving

graph between voltage and current

2nd To verify ohm’s laws by plotting a graph between voltage and current

1st Revision & Checking of practical note books

2nd

To verify laws of resistances in series combination.

To verify laws of resistance in parallel combination

26th 1st Revision of 9th and 10th units 1st

2nd class test

3rd Electromagnetism: Introduction to magnetism

4th Tutorial: Doubt session and problem solving

27th 1st Magnetic field and magnetic intensity 2nd

2nd Magnetic lines of force, magnetic flux and their units

3rd Types of magnetic materials, Dia, para and ferromagnetic

materials with examples

To find resistance of galvanometer by half deflection method

To verify laws of reflection of light using mirror.

4th Tutorial: Doubt session and problem solving

28th 1st Semiconductor physics: Definition of energy level and Energy bands and types of materials (insulator,

semiconductor, conductor)

2nd Intrinsic and extrinsic semiconductors

3rd p-n junction diode and its V-I

characteristics

4th Tutorial: Doubt session and problem solving

1st Revision & Checking of practical note books

2nd To verify laws of refraction using glass slab.

29th 1st Diode as half wave rectifier Diode as full wave rectifier

2nd Semiconductor transistor: pnp and npn

(Introduction only)

3rd class test Applications of lasers

4th Tutorial: Doubt session and problem solving

30th 1st Modern Physics: Lasers: full form, characteristics

2nd Introduction to nanotechnology

3rd Definition of nanomaterial’s with examples, Applications of nanotechnology

4th Tutorial: Doubt session and problem solving Revision of 6th and 7th units

1st Revision & Checking of practical note books

2nd To find the focal length of a concave lens, using a convex lens

1st To study colour coding scheme of resistance.

2nd Revision of experiments

31th 1st Fiber optics: Introduction to optical fibers(definition and parts)

2nd Applications of

optical fibers in different fields

3rd Class test

4th Tutorial: Doubt session and problem solving

1st Revision of experiments

2nd Revision & Checking of practical note books

32nd 1st Revision of 11th unit 1st Revision of experiments

2nd Revision of 12th unit

3rd Tutorial: Doubt session and problem solving

4th Class Test 2nd Revision & Checking of practical note books

33rd 1st Revision of 13th unit 1st Revision of experiments

2nd Revision of 13th unit

3rd Tutorial: Doubt session and problem solving

4th Class Test 2nd Revision & Checking of practical note books