



GOVERNMENT POLYTECHNIC DARLIPALI, SUNDARGARH

ସରକାରୀ ବହୁବୃତ୍ତି ଅନୁଷ୍ଠାନ ଦଲିପାଲି, ସୁନ୍ଦରଗଡ଼

GOVERNMENT OF ODISHA | ଓଡ଼ିଶା ସରକାର

A/ P: Darlipali , NTPC Darlipali ,Dist.: Sundargarh, Odisha- 758001

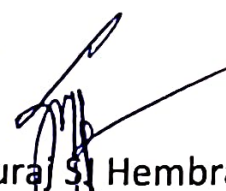
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DEPARTMENT OF HUMANITIES & SCIENCES

LESSON PLAN (ACADEMIC SESSION 25-26)

Discipline: Physics	Semester: 2nd	Branch-All	Name of the teaching faculty: Suraj SJ Hembram
Subject: Applied Physics II	No of Days/Week class allotted: 4	Semester from Date: 09/01/2026 to 08/05/2026 No of weeks: 17 No. of Period Available: 60	
Month	Week	No of periods available	Class Day Theory topics to be covered
JANUARY	1st	3P	Wave motion, transverse and longitudinal waves with examples, definitions of wave velocity, frequency and wave length and their relationship
			Sound and light waves and their properties, wave equation ($y = r \sin t$) amplitude, phase, phase difference
			Principle of superposition of waves and beat formation
	2nd	3P	Simple Harmonic Motion (SHM): definition, expression for displacement, velocity, acceleration, time period, frequency etc
			Simple harmonic progressive wave and energy transfer
			Study of vibration of cantilever and determination of its time period
	3rd	4p	Free, forced and resonant vibrations with examples
			Acoustics of buildings – reverberation, reverberation time, echo, noise
			Coefficient of absorption of sound, methods to control reverberation time and their applications
	4th	4p	Ultrasonic waves – Introduction and properties, engineering and medical applications of ultrasonic.
			Basic optical laws; reflection and refraction, refractive index, Images and image formation by mirrors
			Lens and thin lenses, lens formula
FEBRUARY	5th	3P	Power of lens, magnification and defects
			Total internal reflection, Critical angle and conditions for total internal reflection, applications of total internal reflection in optical fiber
			Optical Instruments; simple microscope
	6th	4P	Compound microscope
			Astronomical telescope in normal adjustment, magnifying power,
			Coulombs law, unit of charge, Electric field
			Electric lines of force and their properties

	7th	4P	Electric flux, Electric potential and potential difference
			Gauss law: Application of Gauss law to find electric field intensity of
			Application of Gauss law to find electric field intensity of plane
			Capacitor and its working, Types of capacitors, Capacitance and its
MARCH	8th	4P	Series and parallel combination of capacitors (related numerical)
			Dielectric and its effect on capacitance, dielectric break down
			Electric Current and its units, Direct and alternating current
			Resistance and its units, Specific resistance, Conductance, Specific
	9th	3P	Series and parallel combination of resistances
			Numerical
			Factors affecting resistance of a wire, carbon resistances and colour coding
	10th	4P	Ohm's law and its verification
			Kirchhoff's laws
			Wheatstone bridge and its applications (slide wire bridge only)
			Concept of terminal potential difference and Electromotive force (EMF)
	11th	3P	Heating effect of current, Electric power
			Electric energy and its units (related numerical problems), Advantages of
			Types of magnetic materials; dia, para and ferromagnetic with their
	12th	4P	Magnetic field and its units, magnetic intensity
			Magnetic lines of force, magnetic flux and units, magnetization
			Concept of electromagnetic induction, Faraday's Laws, Lorentz force
			Force on current carrying conductor
APRIL	13th	3P	Force on rectangular coil placed in magnetic field
			Moving coil galvanometer; principle, construction and working
			Conversion of a galvanometer into ammeter and voltmeter
			Numerical
	14th	4P	Energy bands in solids, Types of materials (insulator, semi-
			Intrinsic and extrinsic semiconductors, p-n junction
			Junction diode and V-I characteristics, types of junction diodes
			Diode as rectifier – half wave and full wave rectifier (centre taped).
	15th	4P	Transistor; description and three terminals, Types- pnp and npn,
			Photocells, Solar cells; working principle and engineering
			Lasers: Energy levels, ionization and excitation potentials;
			Types of lasers; Ruby, He-Ne
	16th	4P	Semiconductor Laser, Laser characteristics, engineering and medical
			Fiber Optics: Introduction to optical fibers, light propagation,
			Fiber types, applications in; telecommunication, medical and sensors
			Nanoscience and Nanotechnology: Introduction, nanoparticles and
MAY	17th	4P	Nanotechnology, nanotechnology based devices and applications.
			Revision of important topics and previous year question papers
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			Revision of important topics and previous year question papers discussion


 Suraj S. Hembram
 Lect. Stg. II (Physics)