



NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY
SERGARH-756060, BALASORE (ODISHA)
(Approved by AICTE& affiliated to SCTE&VT, Odisha)



LESSON PLAN

SUBJECT: Th-2 (APPLIED PHYSICS - II)

NAME OF THE FACULTY :- MISS BASUMATI BEHERA

MR. SAUMYARANJAN PANDA

BRANCH :- AE/CE/ME/EE/EEE

SEMESTER :- 2nd

SESSION :- 2024-25

EXAMINATION :- 2025 (S)

CHAPTER WISE DISTRIBUTION OF PERIODS

serial no.	Name of the unit	Distribution of period per unit needed
1	Wave motion and its applications	12
2	Optics	8
3	Electrostatics	10
4	Current Electricity	8
5	Electromagnetism	7
6	Semiconductor Physics	7
7	Modern Physics	10
Total		62

Basumati Behera
31-01-2025

Sign of Faculty

Speed
31.01.2025

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31.01.25

Sign of H.O.D.

Discipline AE/CE/ME /EE/EEE	Semester: 2nd	NAME OF THE TEACHING FACULTY : MISS BASUMATI BEHERA MR. SAUMYARANJAN PANDA	
		SESSION : 2024-25	EXAMINATION : 2025 (S)
Week	Class Day	Topics to be Covered	
1 st	1 st	UNIT - 1: Wave motion and its applications Wave motion, transverse and longitudinal waves with examples	
	2 nd	Definitions of wave velocity, frequency and wave length and their relationship	
	3 rd	Sound and light waves and their properties, wave equation ($y = r \sin \omega t$)	
	4 th	Amplitude, phase, phase difference, principle of superposition of waves and beat formation.	
2 nd	1 st	Simple Harmonic Motion (SHM): definition, expression for displacement, velocity, acceleration	
	2 nd	time period, frequency etc. Simple harmonic progressive wave and energy transfer,	
	3 rd	study of vibration of cantilever and determination of its time period,	
	4 th	Free, forced and resonant vibrations with examples.	
3 rd	1 st	Acoustics of buildings – reverberation, reverberation time, echo,	
	2 nd	noise, coefficient of absorption of sound	
	3 rd	methods to control reverberation time and their applications,	
	4 th	Ultrasonic waves – Introduction and properties, engineering and medical applications of ultrasonic.	
4 th	1 st	UNIT - 2: Optics: Basic optical laws; reflection and refraction	
	2 nd	Refractive index, Images and image formation by mirrors, lens and thin lenses	
	3 rd	Lens formula, power of lens, magnification and defects	
	4 th	Total internal reflection, Critical angle and conditions for total internal reflection,	
5 th	1 st	Applications of total internal reflection in optical fiber	
	2 nd	Optical Instruments; simple and compound microscope	
	3 rd	Astronomical telescope in normal adjustment, magnifying power,	
	4 th	Resolving power, uses of microscope and telescope, optical projection systems.	
6 th	1 st	UNIT - 3: Electrostatics: Coulombs law, unit of charge, Electric field	
	2 nd	Electric lines of force and their properties, Electric flux,	
	3 rd	Electric potential and potential difference, Gauss law:	

Week	Class Day	Topics to be Covered
	4 th	Application of Gauss law to find electric field intensity of straight charged conductor, plane charged sheet
7 th	1 st	1st internal assessment
	2 nd	Application of Gauss law to find electric field intensity of plane charged sheet and charged sphere
	3 rd	Capacitor and its working, Types of capacitors
	4 th	Capacitance and its units. Capacitance of a parallel plate capacitor,
8 th	1 st	Series and parallel combination of capacitors (related numerical),
	2 nd	dielectric and its effect on capacitance, dielectric break down.
	3 rd	UNIT - 4: Current Electricity Electric Current and its units, Direct and alternating current
	4 th	Resistance and its units, Specific resistance, Conductance, Specific conductance,
9 th	1 st	Series and parallel combination of resistances.
	2 nd	Factors affecting resistance of a wire, carbon resistances and colour coding
	3 rd	Ohm's law and its verification, Kirchhoff's laws
	4 th	Wheatstone bridge and its applications (slide wire bridge only)
10 th	1 st	Concept of terminal potential difference and Electromotive force (EMF), Heating effect of current
	2 nd	Electric power, Electric energy and its units (related numerical problems) Advantages of Electric Energy over other forms of energy.
	3 rd	UNIT - 5: Electromagnetism Types of magnetic materials; dia, para and ferromagnetic with their properties
	4 th	Magnetic field and its units, magnetic intensity, magnetic lines of force,
11 th	1 st	magnetic flux and units, magnetization.
	2 nd	Concept of electromagnetic induction, Faraday's Laws, Lorentz force (force on moving charge in magnetic field).
	3 rd	Force on current carrying conductor, force on rectangular coil placed in magnetic field
	4 th	Moving coil galvanometer; principle, construction and working,
12 th	1 st	Conversion of a galvanometer into ammeter and voltmeter.
	2 nd	UNIT - 6: Semiconductor Physics Energy bands in solids, Types of materials (insulator, semi-conductor, conductor)
	3 rd	Intrinsic and extrinsic semiconductors, p-n junction,

Week	Class Day	Topics to be Covered
	4 th	junction diode and V-I characteristics, types of junction diodes
13 th	1 st	2nd internal assessment
	2 nd	Diode as rectifier – half wave and full wave rectifier (centre taped).
	3 rd	Transistor; description and three terminals, Types- pnp and npn, some electronic applications (list only).
	4 th	Photocells, Solar cells; working principle and engineering applications.
14 th	1 st	UNIT - 7: Modern Physics Lasers: Energy levels, ionization and excitation potentials
	2 nd	spontaneous and stimulated emission; population inversion, pumping methods optical feedback
	3 rd	Types of lasers; Ruby, He Ne and semiconductor laser
	4 th	characteristics, engineering and medical applications of lasers
15 th	1 st	Fiber Optics: Introduction to optical fibers,
	2 nd	Light propagation, acceptance angle and numerical aperture
	3 rd	Fiber types, applications in; telecommunication, medical and sensors.
	4 th	Nanoscience and Nanotechnology: Introduction,
16 th	1 st	nanoparticles and nanomaterials, properties at nanoscale
	2 nd	nanotechnology, nanotechnology based devices and applications.

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