

BARGAON INSTITUTE OF TECHNOLOGY

Diploma Polytechnic Department

Discipline: All Branches (1st Year)

Subject: Physics

Total Periods: 128 (4 Periods/Week)

Lesson Plan (Unit 1–12 only)

UNIT–1 (PHYSICAL WORLD, UNITS AND MEASUREMENTS)

Sl. No.	Topic as per Syllabus	Periods	Cumulative	Signature
1	Physical quantities, fundamental and derived (Definition)	2	2	
2	Units and systems of units (FPS, CGS and SI units)	2	4	
3	Dimensions (Definition) and dimensional formulae of physical quantities	2	6	
4	Principle of homogeneity of dimensions	2	8	
5	Dimensional equation and applications (conversion, checking, derivation)	2	10	
6	Limitation of dimensional analysis	2	12	
7	Measurement, least count, direct & indirect measurement	2	14	
8	Errors: systematic & random, absolute, relative, error	2	16	

	propagation and significant figures			
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Total Periods for UNIT-1 (PHYSICAL WORLD, UNITS AND MEASUREMENTS): 16

UNIT-2 (FORCE AND MOTION)

Sl. No.	Topic as per Syllabus	Periods	Cumulative	Signature
9	Scalar and vector quantities, representation and types of vectors	2	2	
10	Addition and subtraction of vectors	2	4	
11	Triangle and parallelogram law (statement), resolution of vectors	2	6	
12	Applications to inclined plane and lawn roller	2	8	
13	Force, momentum and conservation of linear momentum	2	10	
14	Recoil of gun, rockets, impulse and applications	2	12	
15	Circular motion, angular velocity, acceleration, frequency & time period	2	14	
16	Centripetal & centrifugal force and engineering applications	2	16	

Total Periods for UNIT-2 (FORCE AND MOTION): 16

UNIT-3 (WORK POWER AND ENERGY)

Sl. No.	Topic as per Syllabus	Periods	Cumulative	Signature
17	Work concept, unit, positive/negative/zero work	2	2	

18	Friction, coefficient and engineering applications	2	4	
19	Work on horizontal and inclined plane	2	6	
20	Kinetic, potential and mechanical energy	2	8	
21	Conservation and transformation of energy	2	10	
22	Power, unit and numerical problems	2	12	

Total Periods for UNIT–3 (WORK POWER AND ENERGY): 12

UNIT–4 (ROTATIONAL MOTION)

Sl. No.	Topic as per Syllabus	Periods	Cumulative	Signature
23	Translational and rotational motion	1	1	
24	Torque and angular momentum	1	2	
25	Conservation of angular momentum	1	3	
26	Moment of inertia and radius of gyration	1	4	
27	Parallel & perpendicular axis theorem	1	5	
28	MOI of rod, disc, ring and sphere (formulae)	5	10	

Total Periods for UNIT–4 (ROTATIONAL MOTION): 10

UNIT–5 (PROPERTIES OF MATTER)

Sl. No.	Topic as per Syllabus	Periods	Cumulative	Signature
29	Elasticity, stress, strain, Hooke's law	2	2	
30	Pressure, atmospheric, gauge & absolute	2	4	

	pressure			
31	Barometer and applications	2	6	
32	Surface tension, cohesive & adhesive force	2	8	
33	Viscosity, Stokes law, terminal velocity	2	10	
34	Hydrodynamics, continuity equation, Bernoulli theorem	6	16	

Total Periods for UNIT-5 (PROPERTIES OF MATTER): 16

UNIT-6 (HEAT AND THERMOMETRY)

Sl. No.	Topic as per Syllabus	Periods	Cumulative	Signature
35	Heat & temperature, modes of heat transfer	2	2	
36	Specific heat and temperature scales	2	4	
37	Types of thermometers and uses	2	6	
38	Expansion of solids, liquids and gases	2	8	
39	Thermal conductivity and engineering applications	2	10	

Total Periods for UNIT-6 (HEAT AND THERMOMETRY): 10

UNIT-7 (WAVE MOTION AND ITS APPLICATION)

Sl. No.	Topic as per Syllabus	Periods	Cumulative	Signature
40	Wave motion, transverse & longitudinal waves	2	2	
41	Wave equation, phase difference, superposition	2	4	
42	Simple harmonic	2	6	

	motion			
43	Free, forced and resonant vibration	2	8	
44	Acoustics, reverberation and echo	2	10	
45	Ultrasonic waves and applications	6	16	

Total Periods for UNIT-7 (WAVE MOTION AND ITS APPLICATION): 16

UNIT-8 (OPTICS)

Sl. No.	Topic as per Syllabus	Periods	Cumulative	Signature
46	Reflection and refraction	2	2	
47	Mirrors and lenses, lens formula	2	4	
48	Power of lens and defects of vision	2	6	
49	Total internal reflection and optical fibre	2	8	
50	Microscope and telescope	2	10	

Total Periods for UNIT-8 (OPTICS): 10

UNIT-9 (ELECTROSTATICS)

Sl. No.	Topic as per Syllabus	Periods	Cumulative	Signature
51	Coulomb's law, electric field and potential	2	2	
52	Gauss law and applications	2	4	
53	Capacitors, capacitance and dielectrics	2	6	
54	Series & parallel capacitor numericals	2	8	

Total Periods for UNIT-9 (ELECTROSTATICS): 8

UNIT-10 (CURRENT ELECTRICITY)

Sl. No.	Topic as per Syllabus	Periods	Cumulative	Signature
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55	Electric current, resistance and conductance	2	2	
56	Ohm's law and Kirchhoff's law	2	4	
57	Wheatstone bridge and EMF	2	6	
58	Heating effect of current and numericals	2	8	

Total Periods for UNIT-10 (CURRENT ELECTRICITY): 8

UNIT-11 (ELECTROMAGNETISM)

Sl. No.	Topic as per Syllabus	Periods	Cumulative	Signature
59	Magnetic materials and magnetic field	2	2	
60	Electromagnetic induction and Faraday's law	2	4	
61	Lorentz force and current carrying conductor	2	6	
62	Moving coil galvanometer, ammeter & voltmeter	2	8	

Total Periods for UNIT-11 (ELECTROMAGNETISM): 8

UNIT-12 (SEMICONDUCTOR PHYSICS)

Sl. No.	Topic as per Syllabus	Periods	Cumulative	Signature
63	Energy bands and semiconductor types	2	2	
64	PN junction diode and rectifiers	2	4	
65	Transistors (PNP & NPN)	2	6	
66	Photocells and solar cells	2	8	

Total Periods for UNIT-12 (SEMICONDUCTOR PHYSICS): 8