LESSON PLAN	
GOVERNMENT POLYTECHNIC SAMBALPUR (RENGALI)	
Name of the Faculty: Pritish Tripathy	Academic Year:2024-25
Course No.: Th-2	Course Name: Applied Physics-1
Programme: Diploma	Branch: Civil, Mech & ETC
Year/Sem: 1st Year / 1st Semester	Section: A, B & E

Sl. No.	Period	Time (min)	Topic to be Covered	Teaching Method
1.	1.	60	Physical quantities; fundamental and derived	Blackboard& chalk
2.	2.	60	Units and systems of units (FPS, CGS and SI units),	Blackboard& chalk
3.	3.	60	Units and systems of units (FPS, CGS and SI units),	Blackboard& chalk
4.	4.	60	Dimensions and dimensional formulae of physical quantities,	Blackboard& chalk
5.	5.	60	Dimensions and dimensional formulae of physical quantities,	Blackboard& chalk
6.	6.	60	Principle of homogeneity of dimensions,	Blackboard& chalk
7.	7.	60	Dimensional equations and their applications (conversion from one system of units to other, checking of dimensional equations and derivation of simple equations),	Blackboard& chalk
8.	8.	60	Dimensional equations and their applications (conversion from one system of units to other, checking of dimensional equations and derivation of simple equations),	Blackboard& chalk
9.	9.	60	Dimensional equations and their applications (conversion from one system of units to other, checking of dimensional equations and derivation of simple equations),	Blackboard& chalk
10	10.	60	Limitations of dimensional analysis.	Blackboard& chalk
11	11.	60	Measurements: Need, measuring instruments, least count, types of measurement (direct, indirect),	Blackboard& chalk
12	12.	60	Errors in measurements (systematic and random), absolute error, relative error, error propagation, error estimation and significant figures.	Blackboard& chalk
13	13.	60	Errors in measurements (systematic and random), absolute error, relative error, error propagation, error estimation and significant figures.	Blackboard& chalk
14	14.	60	Scalar and Vector quantities – examples, representation of vector	Blackboard& chalk
15	15.	60	Types of vectors.	Blackboard& chalk
16	16.	60	Addition and Subtraction of Vectors, Triangle and Parallelogram law (Statement only)	Blackboard& chalk
17	17.	60	Addition and Subtraction of Vectors, Triangle and Parallelogram law (Statement only)	Blackboard& chalk
18	18.	60	Scalar and Vector Product	Blackboard& chalk
19	19.	60	Scalar and Vector Product	Blackboard& chalk
20	20.	60	Resolution of a Vector and its application to inclined plane and lawn roller.	Blackboard& chalk
21	21.	60	Force, Momentum, Statement and derivation of conservation of linear momentum,	Blackboard& chalk

22	22.	60	its applications such as recoil of gun, rockets	Blackboard& chalk
23	23.	60	Impulse and its applications.	Blackboard& chalk
24	24.	60	Circular motion, definition of angular displacement, angular velocity, angular acceleration, frequency, time period	Blackboard& chalk
25	25.	60	Relation between linear and angular velocity, linear acceleration and angular acceleration (related numerical),	Blackboard& chalk
26	26.	60	Centripetal and Centrifugal forces with live examples	Blackboard& chalk
27	27.	60	Expression and applications such as banking of roads and bending of cyclist.	Blackboard& chalk
28	28.	60	Work: Concept and units, examples of zero work, positive work and negative work	Blackboard& chalk
29	29.	60	Friction: concept, types,	Blackboard& chalk
30	30.	60	Laws of limiting friction, coefficient of friction, reducing friction and its engineering applications	Blackboard& chalk
31	31.	60	Work done in moving an object on horizontal and inclined plane for rough and plane surfaces and related applications.	Blackboard& chalk
32	32.	60	Work done in moving an object on horizontal and inclined plane for rough and plane surfaces and related applications.	Blackboard& chalk
33	33.	60	Energy and its units, kinetic energy, gravitational potential energy with examples and derivations, mechanical energy	Blackboard& chalk
34	34.	60	conservation of mechanical energy for freely falling bodies, trans- formation of energy (examples).	Blackboard& chalk
35	35.	60	Power and its units, power and work relationship	Blackboard& chalk
36	36.	60	calculation of power (numerical problems).	Blackboard& chalk
37	37.	60	Translational and rotational motions with examples, Definition of torque and angular momentum and their examples,	Blackboard& chalk
38	38.	60	Conservation of angular momentum (quantitative) and its applications.	Blackboard& chalk
39	39.	60	Moment of inertia and its physical significance, radius of gyration for rigid body,	Blackboard& chalk
40	40.	60	Theorems of parallel and perpendicular axes (statements only), Moment of inertia of rod, disc, ring and sphere (hollow and solid); (Formulae only).	Blackboard& chalk
41	41.	60	Elasticity: definition of stress and strain, moduli of elasticity.	Blackboard& chalk
42	42.	60	Hooke's law, significance of stress-strain curve.	Blackboard& chalk
43	43.	60	Pressure: definition, units, atmospheric pressure, gauge pressure, absolute pressure,	Blackboard& chalk
44	44	60	Fortin's Barometer and its applications.	Blackboard& chalk
45	45	60	Surface tension: concept, units, cohesive and adhesive forces, angle of contact, Ascent Formula (No derivation),	Blackboard& chalk
46	46	60	applications of surface tension, effect of temperature and impurity on surface tension	Blackboard& chalk
47	47	60	applications of surface tension, effect of temperature and impurity on surface tension	Blackboard& chalk

48	48	60	Viscosity and coefficient of viscosity: Terminal velocity,	Blackboard& chalk
49	49	60	Stoke's law and effect of temperature on viscosity	Blackboard& chalk
50	50	60	application in hydraulic systems	Blackboard& chalk
51	51	60	Hydrodynamics: Fluid motion, stream line and turbulent flow	Blackboard& chalk
52	52	60	Equation of continuity, Reynold's number	Blackboard& chalk
53	53	60	Bernoulli's Theorem (only formula and numericals) and its applications.	Blackboard& chalk
54	54	60	Concept of heat and temperature, modes of heat transfer (conduction, convection and radiation with examples),	Blackboard& chalk
55	55	60	specific heats	Blackboard& chalk
56	56	60	scales of temperature and their relationship	Blackboard& chalk
57	57	60	Types of Thermometer (Mercury thermometer, Bimetallic thermometer, Platinum resistance thermometer, Pyrometer) and their uses.	Blackboard& chalk
58	58	60	Expansion of solids, liquids and gases, coefficient of linear, surface and cubical expansions and relation amongst them	Blackboard& chalk
59	59	60	Expansion of solids, liquids and gases, coefficient of linear, surface and cubical expansions and relation amongst them	Blackboard& chalk
60	60	60	Co-efficient of thermal conductivity, engineering applications	Blackboard& chalk

Pritish Chandra Tripathy

Pritish Tripathy
(Guest Faculty in Physics)

for **HOD**
Math & Sc

16/8/24
Principal
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