

LESSON PLAN FOR ACADEMIC SESSION 2021-22

Discipline: Physics	Semester: 2nd Branch: Electrical and E&TC	Name of the Teaching Faculty: Abhilash Padhy
Subject: Engg. Physics (Th 2A)	No. of Days/per week class allotted: 04	Semester From date: 14/03/2022 To Date: 18/06/2022 No. of Weeks: 14
Week	Class Day/ Period	Topics to be covered
1st (14-19) March	1st	Introduction to Physics and Physical quantities, fundamental and derived units,
	2nd	Dimensions and Dimensional formulae, Principle of Homogeneity and Applications of Dimensional Analysis
2nd (20-26) March	3rd	Discussion of Assignment 1
	4th	Definition and concept of scalar and vector quantities, examples and types of vector, triangle and
	5th	resolution of vectors, vector multiplication (scalar and vector product)
	6th	Discussion of Assignment 2
3rd (26-28) March	7th	concept of rest and motion, definition and concept of displacement, speed, velocity, acceleration, force
	8th	equations of motion under gravity, definition and example of projectile
4th (03-09) April	9th	time of flight, maximum height, horizontal range for projectile fired at an angle, condition for maximum
	10th	Problem Practice and Doubt Solving
	11th	circular motion (angular displacement, velocity, acceleration), relation between linear velocity and angular velocity, relation between linear and angular
	12th	Discussion of Assignment 3
5th (10-16) April	13th	definition and concept of work and torque
	14th	types of friction (static and dynamic), limiting friction, laws of limiting friction,
6th (17-23) April	15th	Angle of friction and Angle of repose, Methods for reducing friction,
	16th	Class Test 1
	17th	solving simple numericals and Discussion of Assignment 4
	18th	explanation of Newton's laws of gravitation, universal gravitational constant
7th (24 -30) April	19th	acceleration due to gravity, its relation with G and comparison between mass and weight
	20th	variation of g with altitude and depth
	21st	kepler's laws of planetary motion
	22nd	Class Test 2

8th (1-7) May	23rd	Definition and example of SHM, expression for displacement, velocity and acceleration of a body
	24th	Definition and example of wave motion, transverse wave and longitudinal wave
	25th	Definition of different wave parameters(amplitude, wavelength,frequency, timeperiod)
	26th	Derivation of relation between velocity,frequency and wavelength of a wave.
9th (8-14) May	27th	Ultrasonics- definition, properties and applications
	28th	Discussion of Assignment 5
	29th	Heat and Temperature- difinition,cocept,units
	30th	specific heat, change of state, latent heat
10th (15-21) May	31st	simple numericals
	32nd	Definition and concept of thermal expansion, expansion of solids, coefficient of linear,superficial and
11th (22-28) May	33rd	cocept and relation of work and heat, joules mechanical equivalent of heat,first law of thermodynamics
	34th	Discussion of Assignment 6
	35th	Definition and laws of reflection and refraction, definition and concept of refractive index, simple numericals, critical angle and total internal reflection,
	36th	Fibre optics: definition, properties and applications, Discussion of Assignment 7
12th (29 May- 04 June)	37th	difinition and concept of Electrostatics, statement and explanation of coloumb's law, definition of unit charge, absolute and relative pemittivity,
	38th	capacitance,series and parallel combination of capacitors, simple numericals
13th (5-11) June	39th	magnet, properties of magnet, coloumb's laws in magnetism,unit pole, magnetic field and magnetic field intensity, magnetic lines of force, magnetic
	40th	electric current: definition, formula and SI units, Ohm's law and it's applications, series and parallel combination of resistors, simple numericals
	41st	explanation of kirchoff's laws,application of kirchoff's law to wheatstonebridge, balanced WB and condition for balance
	42nd	electromagnetism: definition and concept,force acting on a current carrying conductor placed in
14th (12-18) June	43rd	Faraday's laws of electromagnetic induction, Lenz's law, Fleming's right hand rule and comparision with
	44th	Laser and Laser beam(concept and Definition),Population inversion and Optical pumping, properties and
	45th	Discussion of Assignment 9 and 10
	46th	Class Test 3

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Discipline: Physics	Semester: 2 nd Branch: Electrical and E&TC Group: 1	Name of the Teaching Faculty: Abhilash Padhy
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Week	Class Day/Period	Topics to be covered
1st (14-19) March	1st	Introductory Remarks on Course Structure, Laboratory Criteria, Identification of Various Lab Equipment
	2nd	
	3rd	Theory of Vernier calliper and demonstration of of Experiment 01: Determination of the volume of a solid cylinder using Vernier Caliper
	4th	
2nd (21-26) March	5th	Conduction of Experiment 01 : Determination of the volume of a solid cylinder using Vernier Caliper Demonstration of Experiment 02 : Determination of the volume of an hollow cylinder using Vernier Caliper
	6th	
	7th	
	8th	
3rd (28 March- 02 April)	9th	Conduction of Experiment 02 : Determination of the volume of an hollow cylinder using Vernier Caliper Theory of Screw Gauge and Demonstration of Experiment 03 : Determination of the crossectional area of a wire using screw gauge.
	10th	
	11th	
	12th	
4th (04-09) April	13th	Conduction of Experiment 03 : Determination of the crossectional area of a wire using screw gauge. Demonstration of Experiment o4 : Determination of Volume of a glass lamina using screw gauge.
	14th	
	15th	
	16th	
5th (11-16) April	17th	Conduction of Experiment o4 : Determination of Volume of a glass lamina using screw gauge Theory of Spherometer and demonstration of Experiment 05 : Determination of Radius of curvature of a convex surface, using spherometer
	18th	
	19th	
	20th	
6th (18-23) April	21st	Conduction of Experiment 05 : Determination of Radius of curvature of a convex surface, using spherometer
	22nd	
	23rd	Demonstration of Experiment 06 : Determination of Radius of curvature of a concave surface, using spherometer
	24th	
7th (25-30) April	25th	Conduction of Experiment 06 : Determination of Radius of curvature of a concave surface, using spherometer
	26th	
	27th	Makeup Lab
	28th	
8th (02-07) May	29th	Theory Class on Simple pendulum and demonstration of Experiment 07 : Determination of 'g' by using simple pendulum
	30th	
	31st	Conduction of Experiment 07 : Determination of 'g' by using simple pendulum
	32nd	
9th (09-14) May	33rd	Theory Class on Magnetic field and lines of forces and demonstration of Experiment 08 : Determination of the neutral point and drawing magnetic lines of force due to a bar magnet when its north pole is facing north.
	34th	
	35th	Conduction of Experiment 08 : Determination of the neutral point and drawing magnetic lines of force due to a bar magnet when its north pole is facing north.
	36th	
10th (17-21) May	37th	Demonstration of Experiment 09 : Determination of the neutral point and drawing magnetic lines of force due to a bar magnet when its north pole is facing south.
	38th	

11th (23-28) May	39th	Conduction of Experiment 09 : Determination of the neutral point and drawing magnetic lines of force due to a bar magnet when its north pole is facing south.
	40th	
	41st	Theory of Refraction through Prism and demonstration of Experiment 10 : Determination of angle of minimum deviation for a prism
	42nd	
12th (31 May-04)	43rd	Conduction of Experiment 10 : Determination of angle of minimum deviation for a prism
	44th	
13th (06-11) June	45th	Demonstration of Experiment 11 : Determination of the angle of prism.
	46th	
	47th	Conduction of Experiment 11 : Determination of the angle of prism.
48th		
14th (13-18)	49th	Makeup Lab
	50th	

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Discipline: Physics	Semester: 2nd Branch: Electrical and E&TC Group: 2	Name of the Teaching Faculty: Abhilash Padhy
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1st (14-19) March	1st	Introductory Remarks on Course Structure, Laboratory Criteria, Identification of Various Lab Equipment
	2nd	
2nd (21-26) March	3rd	Theory of Vernier calliper and demonstration of of Experiment 01: Determination of the volume of a solid cylinder using Vernier Caliper Conduction of Experiment 01 : Determination of the volume of a solid cylinder using Vernier Caliper
	4th	
	5th	
	6th	
(28 March-02 April)	7th	Demonstration of Experiment 02 : Determination of the volume of an hollow cylinder using Vernier Caliper
	8th	
4th (04-09) April	9th	Conduction of Experiment 02 : Determination of the volume of an hollow cylinder using Vernier Caliper Theory of Screw Gauge and Demonstration of Experiment 03 : Determination of the crosssectional area of a wire using screw gauge.
	10th	
	11th	
	12th	
5th (11-16) April	13th	Conduction of Experiment 03 : Determination of the crosssectional area of a wire using screw gauge.
	14th	
6th (18-23) April	15th	Demonstration of Experiment o4 : Determination of Volume of a glass lamina using screw gauge. Conduction of Experiment o4 : Determination of Volume of a glass lamina using screw gauge
	16th	
	17th	
	18th	
7th (25-30) April	19th	Theory of Spherometer and demonstration of Experiment 05 : Determination of Radius of curvature of a convex surface, using spherometer Conduction of Experiment 05 : Determination of Radius of curvature of a convex surface, using spherometer
	20th	
	21st	
	22nd	
8th (02-07) May	23rd	Demonstration of Experiment 06 : Determination of Radius of curvature of a concave surface, using spherometer
	24th	
9th (09-14) May	25th	Conduction of Experiment 06 : Determination of Radius of curvature of a concave surface, using spherometer Theory Class on Simple pendulum and demonstration of Experiment 07 : Determination of 'g' by using simple pendulum
	26th	
	27th	
	28th	
10th (17-21) May	29th	Conduction of Experiment 07 : Determination of 'g' by using simple pendulum Theory Class on Magnetic field and lines of forces and demonstration of Experiment 08 : Determination of the neutral point and drawing magnetic lines of force due to a bar magnet when its north pole is facing north.
	30th	
	31st	
	32nd	

11th (23-28) May	33rd	Conduction of Experiment 08 : Determination of the neutral point and drawing magnetic lines of force due to a bar magnet when its north pole is facing north.
	34th	
	35th	Demonstration of Experiment 09 : Determination of the neutral point and drawing magnetic lines of force due to a bar magnet when its north pole is facing south.
	36th	
12th (31 May- 04 June)	37th	Conduction of Experiment 09 : Determination of the neutral point and drawing magnetic lines of force due to a bar magnet when its north pole is facing south.
	38th	
	39th	Theory of Refraction through Prism and demonstration of Experiment 10 : Determination of angle of minimum deviation for a prism
	40th	
13th (06-11) June	41st	Conduction of Experiment 10 : Determination of angle of minimum deviation for a prism
	42nd	
	43rd	Demonstration and Conduction of Experiment 11 : Determination of the angle of prism.
	44th	
14th (13-18) June	45th	Makeup Lab
	46th	