LESSON PLAN FOR ACADEMIC SESSION 2021-22		
Discipline: Physics	**Semester: 1st Branch: Mechanical**	**Name of the Teaching Faculty: Abhilash Padhy**
Subject: Engg. Physics (Th 2A)	**No. of Days/per week class allotted: 04**	**Semester From date: 25/10/2021 To Date: 31/01/2022** **No. of Weeks: 15**
Week	**Class Day/ Period**	**Topics to be covered**
1st (25-30) Oct.	**1st**	Introduction to Physics and Physical quantities, fundamental and derived units, System of Units (M.K.S. , C.G.S. , F.P.S. , S.I.), Metric Prefixes
	2nd	Dimensions and Dimensional formulae, Principle of Homogeneity and Applications of Dimensional Analysis
	3rd	Unit test- 1 and Doubt Solving
	4th	Definition and concept of scalar and vector quantities, examples and types of vector,triangle and parallelogram law of vector addition,
2nd (1-6) Nov.	**5th**	resolution of vectors, vector multiplication(scalar and vector product)
	6th	Unit test- 2 and Doubt Solving
	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
3rd (8-13) Nov.	**9th**	time of flight, maximum height, horizontal range for projectile fired at an angle, condition for maximum horizontal range
	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 acceleration
	12th	Unit test- 3 and Doubt Solving
4th (15-20) Nov.	**13th**	definition and concept of work and torque
	14th	types of friction(static and dynamic),limiting friction,laws of limiting friction,coefficient of friction
	15th	Angle of friction and Angle of repose,Methods for reducing friction,
	16th	solving simple numericals
5th (22-27) Nov.	**17th**	Unit test- 4 and Doubt Solving
	18th	explaination of Newton's laws of gravitation,universal gravitational constant
	19th	acceleration due to gravity,it's relation with G and comparison between mass and weight
	20th	variation of g with altitude and depth
6th (29 Nov. - 4 Dec.)	**21st**	kepler's laws of planetary motion
	22nd	Unit test- 5 and Doubt Solving
	23rd	Definition and example of SHM, expression for displacement, velocity and acceleration of a body in SHM
	24th	Definition and example of wave motion, transverse wave and longitudinal wave
7th (6-11) Dec.	**25th**	Definition of different wave parameters(amplitude,wavelength,frequency, timeperiod)
	26th	Derivation of relation between velocity,frequency and wavelength of a wave.
	27th	Ultrasonics- definition, properties and applications
	28th	Unit test- 6 and Doubt Solving

8th (13-18) Dec.	**29th**	Heat and Temperature- difinition,cocept,units
	30th	specific heat, change of state, latent heat
	31st	simple numericals
	32nd	Definition and concept of thermal expansion
9th (20-25) Dec.	**33rd**	expansion of solids, coefficient of linear,superficial and cubical expansion, relation between alpha, beta, gamma
	34th	cocept and relation of work and heat,joules mechanical equivalent of heat,first law of thermodynamics
	35th	Unit test- 7 and Doubt Solving
	36th	Definition and laws of reflection and refraction,definition and concept of refractive index
10th (27 Dec. -1 Jan)	**37th**	simple numericals, critical angle and total internal reflection
	38th	refraction through prism(ray diagram and formula)
	39th	Fibre optics: definition, properties and applications
	40th	Unit test- 8 and Doubt Solving
11th (3-8) Jan	**41st**	difinition and concept of Electrostatics, statement and explaination of coloumb's law, definition of unit charge, absolute and relative pemittivity
	42nd	Electric potential, potential difference, electric field,electric field intensity
	43rd	capacitance,series and parallel combination of capacitors, simple numericals
	44th	magnet, properties of magnet, coloumb's laws in magnetism,unit pole
12th (10-15) Jan	**45th**	magnetic field and magnetic field intensity,magnetic lines of force,magnetic flux and magnetic flux density, numericals
	46th	Unit test- 9 and Doubt Solving
	47th	electric current: definition, formula and SI units,
	48th	Ohm's law and it's applications
13th (17-22) Jan	**49th**	series and parallel combination of resistors
	50th	simple numericals
	51st	explaination of kirchoff's laws,application of kirchoff's law to wheatstonebridge, balanced WB and condition for balance
	52nd	Unit test- 10 and Doubt Solving
14th (24-29) Jan	**53rd**	electromagnetism: definition and concept,force acting on a current carrying conductor placed in uniform magnetic field, Fleming's left hand rule
	54th	Faraday's laws of electromagnetic induction, Lenz's law, Fleming's right hand rule and comparision with Fleming's left hand rule
	55th	Unit test- 11 and Doubt Solving
	56th	Laser and Laser beam(concept and Definition),Population inversion and Optical pumping, properties and applications of laser
15th 31st Jan	**57th**	wireless transmission: ground waves, sky waves, space waves
	58th	Unit test- 12 and Doubt Solving

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Discipline: Physics	**Semester: 1st Branch: Mechanical**	**Name of the Teaching Faculty: Abhilash Padhy**
Subject: Engg. Physics Practical (Pr 2A)	**No. of Days/per week class allotted: 04**	**Semester From date: 25/10/2021 To Date: 31/01/2022** **No. of Weeks: 15**
Week	**Class Day/ Period**	**Topics to be covered**
1st (25-30) Oct.	**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 (1-6) Nov.	**5th**	Conduction of Experiment 01 : Determination of the volume of a solid cylinder using Vernier Caliper
	6th	
	7th	Demonstration of Experiment 02 : Determination of the volume of an hollow cylinder using Vernier Caliper
	8th	
3rd (8-13) Nov.	**9th**	Conduction of Experiment 02 : Determination of the volume of an hollow cylinder using Vernier Caliper
	10th	
	11th	Make up Lab and Lab Record Verification
	12th	
4th (15-20) Nov.	**13th**	Theory of Screw Gauge and Demonstration of Experiment 03 : Determination of the crossectional area of a wire using screw gauge.
	14th	
5th (22-27) Nov.	**15th**	Conduction of Experiment 03 : Determination of the crossectional area of a wire using screw gauge.
	16th	
	17th	Demonstration of Experiment o4 : Determination of Volume of a glass lamina using screw gauge.
	18th	
6th (29 Nov. - 4 Dec.)	**19th**	Conduction of Experiment o4 : Determination of Volume of a glass lamina using screw gauge
	20th	
	21st	Make up Lab and Lab Record Verification
	22nd	
7th (6-11) Dec.	**23rd**	Theory of Spherometer and demonstration of Experiment 05 : Determination of Radius of curvature of a convex surface, using spherometer
	24th	
	25th	Conduction of Experiment 05 : Determination of Radius of curvature of a convex surface, using spherometer
	26th	
8th (13-18) Dec.	**27th**	Demonstration of Experiment 06 : Determination of Radius of curvature of a concave surface, using spherometer
	28th	
	29th	Conduction of Experiment 06 : Determination of Radius of curvature of a concave surface, using spherometer
	30th	
9th (20-25) Dec.	**31st**	Make up Lab and Lab Record Verification
	32nd	
	33rd	Theory Class on Simple pendulum and demonstration of Experiment 07 : Determination of 'g' by using simple pendulum
	34th	
10th (27 Dec. -1 Jan)	**35th**	Conduction of Experiment 07 : Determination of 'g' by using simple pendulum
	36th	
	37th	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.
	38th	

11th (3-8) Jan	**39th**	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.
	40th	
	41st	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.
	42nd	
12th (10-15) Jan	**43rd**	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.
	44th	
13th (17-22) Jan	**45th**	Theory of Refraction through Prism and demonstration of Experiment 10 : Determination of angle of minimum deviation for a prism and Demonstration of Experiment 11 : Determination of the angle of prism.
	46th	
	47th	Conduction of Experiment 10 : Determination of angle of minimum deviation for a prism and Conduction of Experiment 11 : Determination of the angle of prism.
	48th	
14th (24-29)	**49th**	Makeup Lab and Lab Record Verification
	50th	

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Discipline : Physics	**Semester: 1st Branch: Civil**	**Name of the Teaching Faculty: Abhilash Padhy**
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	4th	Definition and concept of scalar and vector quantities, examples and types of vector,triangle and parallelogram law of vector addition,
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	23rd	Definition and example of SHM, expression for displacement, velocity and acceleration of a body in SHM
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	49th	Demonstration of Experiment 11 : Determination of the angle of prism.
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14th (24-29) Jan	**51st**	Conduction of Experiment 11 : Determination of the angle of prism.
	52nd	
	53rd	Makeup Lab and Lab Record Verification
	54th	
15th 31st Jan	**57th**	Makeup Lab and Lab Record Verification
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