



TRADE MARK

LIONTM

Teacher's Lesson Note

SSTT - POLYTECHNIC

ENGG PHYSICS
MECHANICAL ENGINEER

S.S.I.T. POLYTECHNIC

2nd Sem (2023-24)
Pitho Marcandi

TEACHERS

Date	Class	Subject	Topic (Concept)	Sub-Topic (Sub-Concept)	Learning Activities to be taken up	TLM to be used
1	2	3	4	5	6	7
07/10/24	1st week	Eng physics	unit and measurement	units and measurement	Need of measurement and units Types of measurement Definition of unit Requirements of standard units.	
14/10/24	2nd week		System of units	Systems of units	classification of physical quantity and units. fundamental quantities and its units	
15/10/24	3rd week				Drawbacks (Limitation) of dimensional Analysis	

LESSON NOTE

Evaluative Questions	Expected learning outcome	Project work to be assigned	Signature of the Teacher	Signature of the Headmaster	Remarks
9	10	11	12	13	14
What is meant by a unit?	Definition of units Derived quantities Derived units		<i>Asim</i> 07/10/24	<i>Deepti</i> 07/10/24	
Write down the fundamental quantities and its unit	Fundamental units System of units (a) c.g.s system (b) m.k.s system (c) S.I system.		<i>Asim</i> 07/10/24	<i>Deepti</i> 07/10/24	
	Limitation of dimensional Analysis.		<i>Asim</i> 14/10/24	<i>Deepti</i> 15/10/24	

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1	2	3	4	5	6	7
14/02/24	2nd	Physics	units measurement	Dimensions Dimensional formula	Dimension Dimensional	
17/02/24	3rd	"	"	Dimensional Equation	Dimensional Equation uses of dimensional analysis	
21/02/24	3rd	"	"	"	checking the dimensional correctness of physical relation.	

LESSON NOTE

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9	10	11	12	13	14
What is the definition of Dimension?	Definition of Dimensions with examples. Definition of Dimensional formula with example volume = length × breadth × depth		<i>[Signature]</i> 16/02/24	<i>[Signature]</i> 16/02/24	
What is the definition of Dimensional Equation?	Definition of Dimensional equation with example.		<i>[Signature]</i> 17/02/24	<i>[Signature]</i> 17/02/24	
	To check the correctness of given relation $s = ut + \frac{1}{2}at^2$		<i>[Signature]</i> 21/02/24	<i>[Signature]</i> 21/02/24	

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1	2	3	4	5	6	7
22/02/24	3 rd	Physics	Scalar and vector quantities	Scalar and vector quantities	Scalar quantities vector quantities Representation of a vector	
27/02/24	1 st		Scalar vector quantities	Scalar and vector quantities	Scalar multiplication of vector Addition of vectors composition of vectors triangle's law of vector	
28/02/24	2 nd		"	Scalar and vector quantities	Parallelogram's Law of vector Resolution of vector in a Plane	

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9	10	11	12	13	14
(1) What is the Scalar and vector quantities	Details explanation of scalar & vector quantities Representation of a vector → Types of vector		<i>Asim</i> 23/02/24	<i>Devlina</i> 22/02/24	
	Triangle Law of vector addition Addition of vector, - vector multiplication,		<i>Asim</i> 27/02/24	<i>Devlina</i> 27/02/24	
Formula of Resultant vector is $R = \sqrt{A^2 + B^2 + 2AB \cos \theta}$ $\theta = \tan^{-1} \left(\frac{B \sin \theta}{A + R \cos \theta} \right)$	Details explanation of Parallelogram's Law of vector, $R = \sqrt{A^2 + B^2 + 2AB \cos \theta}$ Details explanation of Resolution of vectors in a Plane $\vec{R} = R \cos \theta + j R \sin \theta$		<i>Asim</i> 28/02/24	<i>Devlina</i> 28/02/24	

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1	2	3	4	5	6	7
13/03/24	5th	1st	physics	Scalar vector quantities	Product of two vector	Dot Product of scalar quantities and cross Product vector Product
14/03/24		2nd				

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9	10	11	12	13	14
① Find the dot product between $\vec{A} = 3\hat{i} + 2\hat{j} + 5\hat{k}$ and $\vec{B} = 1\hat{i} + 3\hat{j} + 7\hat{k}$	Details explanation of Dot Product of scalar quantities		<i>Asim</i> 12/03/24	<i>Date</i> 13/03/24	
② Find the cross product between $\vec{A} = 2\hat{i} + 4\hat{j} + 6\hat{k}$ and $\vec{B} = 3\hat{i} - 6\hat{j} + 2\hat{k}$	Details explanation of cross product of vector quantities		<i>Asim</i> 14/03/24	<i>Date</i> 14/03/24	

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1	2	3	4	5	6	7
15/03/24	5th	3rd	Physics	Curvilinear motion and Kinematics	Introduction about curvilinear motion Particle. Rest and motion Displacement speed velocity	
17/03/24	5th	5th		Accelerated motion	Uniform Acceleration non-uniform acceleration and Problem Practices	
18/03/24	6th	3rd		motion under gravity	Equation of motion Under gravity and Problem Practices	

LESSON NOTE

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9	10	11	12	13	14
What is the rest of motion?	Definition of rest motion & displacement speed velocity Acceleration force etc.		<i>Asst</i> 15/03/24	<i>Asst</i> 15/03/24	
A body starts from rest and acquires a velocity of 12ms ⁻¹ in 5 second. Calculate the acceleration and the distance travelled?	Definition of unit from acceleration non-uniform acceleration and Problem Practices		<i>Asst</i> 16/03/24	<i>Asst</i> 24/03/24	
Write down the Equation of following (i) velocity time relation (ii) Displacement time relation (iii) velocity by displacement relation. (iv) Displacement time second.	Detailed explanation of equation of motion under gravity (downward motion) and also upward motion explain.		<i>Asst</i> 18/03/24	<i>Asst</i> 18/03/24	

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Date	Day	Class	Subject	Topic (Concept)	Sub-Topic (Sub-Concept)	Learning Activities to be taken up	TLM to be used
1	2	3	4	5	6	7	8
19/03/24	Mon	2nd	Physics	"	Projectile motion	Projectile fired vertically up - ward motion under gravity Projectile fired horizontally and Problem Practices	
20/03/24	Tue	3rd			Projectile motion	Projectile fired at an Angle θ with the Horizontal Projectile fired at angle θ with the Vertical	
21/03/24	Wed	4th					

LESSON NOTE

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9	10	11	12	13	14
A body is thrown vertically upwards with velocity of 19.6 ms^{-1} calculate (i) Time of ascent (ii) Time of descent (iii) speed on reaching the ground	Detailed explanation on of vertically UP ward motion under gravity Equation of projectile $S = ut + \frac{1}{2}at^2$ $y = x \tan \theta - \frac{g x^2}{2u^2 \cos^2 \theta}$		Asst 19/03/24	Head 19/03/24	
A ball thrown UP by a player is caught by him up after the throw. (i) What was the speed when the ball was thrown? (ii) How high did it go? (iii) Where was the ball after (a) 1.5s (b) 3s after the start?	maximum height (H) $v^2 - u^2 = 2as$ $H = \frac{u^2 \sin^2 \theta}{2g}$ time of Ascent (t) $v = u + at$ $t = \frac{u \sin \theta}{g}$ total time of flight (T) $T = \frac{u \sin \theta}{g} + \frac{u \sin \theta}{g}$ $\Rightarrow T = \frac{2u \sin \theta}{g}$ Horizontal Range (R) $R = \frac{u^2 \sin \theta \cos \theta}{g}$		Asst 20/03/24	Head 20/03/24	
			Asst 21/03/24	Head 21/03/24	

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1	2	3	4	5	6	7	8
23/10/24	7th	1st	physics	Friction	Friction	Type of Friction	
24/10/24	2nd				Friction	Laws of Limiting Friction Angle of Friction Angle of repose	
24/10/24	3rd				Friction	methods of Reducing Friction and Problem Practices	

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9	10	11	12	13	14
what is Frictional	define explanation of types of friction		ASR 27/10/24	Devi 27/10/24	
	define explanation of laws of limiting friction		ASR 27/10/24	Devi 27/10/24	
	define explanation of methods of Reducing friction		ASR 27/10/24	Devi 27/10/24	

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Date	Period	Class	Subject	Topic (Concept)	Sub-Topic (Sub-Concept)	Learning Activities to be taken up	TLM to be used
1	2	3	4	5	6	7	8
30/3/24				Optics	Refraction	Introduction about refraction	
31/3/24	5th	1st			Refraction	Critical angle and total internal reflection, condition for total internal reflection, Relation b/w critical angle and refractive index in dens.	
03/4/24		2nd			Refraction	Law of Refraction, Refractive index and Problem Practices	

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9	10	11	12	13	14
	Introduction about refraction		<i>Asan</i> 31/3/24	<i>Dr. H. S.</i> 30/3/24	
A ray of light travelling in water is incident at an angle of 30° as a water glass interface. Calculate the angle of refraction in glass. If refractive index of water is $3/2$	Detail explanation of critical angle and total internal reflection.		<i>Asan</i> 31/3/24	<i>Dr. H. S.</i> 31/3/24	
	Detail explanation of condition for total internal reflection		<i>Asan</i> 04/4/24	<i>Dr. H. S.</i> 03/4/24	

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1	2	3	4	5	6	7
01/04/24	9th	3rd	Physics	Optics	Refraction through a prism $\mu = \frac{\sin(A + D_m)}{\sin A/2}$ with Diagram	
05/04/24	4th	"	"	optical fiber	Definition of optical fiber → Properties → Application of optical fiber	
08/04/24	9th	1st	"	"	Problem practices of optical fiber and optics	

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			<i>[Signature]</i>	<i>[Signature]</i>	
			<i>[Signature]</i>	<i>[Signature]</i>	
			<i>[Signature]</i>	<i>[Signature]</i>	

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11/04/24	9th	2nd	Eng & Physics	Gravitation	Gravitation	Newton's Laws of gravitation Universal gravitational constant (G) Acceleration due to gravitation (g)	
10/04/24	3rd				Gravitational force of earth	Gravitational force of earth, limit and max dimension unit and max dimension max and weight Relation b/w g and G	
11/04/24	4th				variation of g with at altitude and depth	→ variation with altitude. → variation with Depth with example.	

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			<i>[Signature]</i> 11/04/24	<i>[Signature]</i> 11/04/24	
State the Unit of g and elements is dimension			<i>[Signature]</i> 11/04/24	<i>[Signature]</i> 11/04/24	
What is the Relation between g and G ?					
How does the g vary with altitude and depth?			<i>[Signature]</i> 11/04/24	<i>[Signature]</i> 11/04/24	

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15/04/24	1st	Engg	Physics	Gravitation	Kepler's Law of Planetary motion	1st Law 2nd Law 3rd Law	
16/04/24	2nd	Engg	Physics	Oscillation and waves	Harmonic motion (SHM)	Simple Harmonic motion (SHM) → Definition Expression for Displacement velocity, Acceleration Executing SHM.	
18/04/24	3rd	"	"	"	"	Equation of Displacement. → Equation of velocity → Equation of Acceleration.	

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9	10	11	12	13	14
State and Explain three Laws of planetary motion			As per 15/04/24	As per 15/04/24	
			As per 16/04/24	As per 16/04/24	
			As per 18/04/24	As per 18/04/24	

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21/07/24	12th	1st	Engg Physics	Heat & Thermodynamics	Heat & Temperature	Definition of heat & Temperature Difference b/w temperature	
23/07/24	2nd			"	Specific Heat	limits of specific heat Dimension of specific heat detail elaboration	
24/07/24	3rd				Change of state	Definition of Latent heat + = S/W units dimension of latent heat Principle of calorimetry.	
					Thermal expansion of solids	Thermal expansion of solids coefficients of linear expansion ① coefficient of superficial expansion	

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			Asst 21/07/24	Prin 24/07/24	
			Asst 23/07/24	Prin 23/07/24	
			Asst 24/07/24	Prin 24/07/24	