

**GOVERNMENT POLYTECHNIC JAJPUR**

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**LESSON PLAN**

**2<sup>nd</sup> SEMESTER**

No. of classes available per week-4

Total period available-60

Class duration-55 minutes

Teaching Method: Online meeting app, Lecture note, ppt, PDF

Learning Method- Daily Assignment, Unit test, quiz.

**DEPARTMENT OF MATH & SCIENCE**

**LESSON PLAN**

<b>Discipline: Math &amp; Science</b>	<b>Semester: 2nd</b>	<b>Name of the Teaching faculty: Sunita Sahoo</b>
<b>Subject: Engg. Physics</b>	<b>No of Days/Week class allotted: 4</b>	<b>Semester from Date:14/03/22 To Date: No of weeks: 15</b>
<b>Week</b>	<b>Class Day</b>	<b>Topics</b>
<b>1st</b>	<b>1st</b>	i) introduction to Units ii) System of units
	<b>2nd</b>	Dimensions and Dimensional formula
	<b>3rd</b>	Application to dimensional Analysis
	<b>4th</b>	i) Identification of Scalar and vector quantities
<b>2nd</b>	<b>1st</b>	i) Types of vectors ii) Vector addition
	<b>2nd</b>	i) Multiplication of Two vectors( Dot product)
	<b>3rd</b>	i) Cross Product
	<b>4th</b>	i) concept of rest and moving body ii) Equation of motion under gravity
<b>3rd</b>	<b>1st</b>	i) Solving Numericals
	<b>2nd</b>	i) Circular motion
	<b>3rd</b>	i) Solving numericals
	<b>4th</b>	i) Projectile motion. ii) Facts about Projectile.
<b>4th</b>	<b>1st</b>	i) Projectile fired horizontally by making an angle
	<b>2nd</b>	i) Work
	<b>3rd</b>	i) Friction

		ii) Types of Friction
	4th	i) Laws of limiting Friction
5th	1st	i) coefficient of friction
		ii) Methods of reducing Friction
	2nd	i) Numericals
		ii) Class test 1 conducted
	3rd	i) Gravitation
ii) Newtons laws of Gravitation		
4th	i) Relation between g and G	
	ii) Universal gravitational constant	
6th	1st	i) Variation of g with altitude and depth
	2nd	i) Keplers laws of Planetary motion
	3rd	i) Numericals
	4th	i) Oscillations (Simple Harmonic Motion)
7th	1st	i) Characteristics of SHM
	2nd	i) Numericals
	3rd	i) Waves
		ii) Types of wave motion
4th	i) Properties of wave motion	
8th	1st	i) Ultrasonics
	2nd	i) Heat
		ii) Specific heat
	3rd	i) Latent heat
ii) Numericals on heat		
4th	i) Thermal expansion (Examples)	
	ii) Expansion coefficients	
9th	1st	i) Derivation of expansion coefficients
	2nd	i) Relation between expansion coefficients
	3rd	i) Work and heat
		ii) First law of Thermodynamics.
4th	i) Numericals	
10th	1st	i) Optics
		ii) Reflection & Refraction
	2nd	i) Refractive index
		ii) Numericals
3rd	i) Critical angle & Total Internal Reflection	
4th	i) Refraction through Prism	
	ii) Fiber optics	
1st	1st	i) Electrostatics
		ii) Coulombs laws
		i) Electric potential

11th	2nd	ii) Electric field
		iii) Electric capacitance
	3rd	i) Grouping of capacitors
		ii) Numericals
	4th	i) Magnetostatics
		ii) Coulombs laws
12th	1st	i) Magnetic field
		ii) Magnetic field intensity
	2nd	i) Magnetic lines of force
	3rd	i) Magnetic flux
4th	CLASS Test 2 conducted	
13th	1st	i) Concept of electric current
		ii) Ohm's law and its application
	2nd	i) Grouping of resistors
		ii) Numericals on series and parallel combination of resistors
3rd	Kirchhoff's law	
4th	i) Numericals	
14th	1st	i) Application of Kirchhoff's law
		ii) Balanced condition of wheatstone bridge
	2nd	i) Electromagnetism
		ii) Force on a conductor in a uniform magnetic field
	3rd	i) Fleming's left hand rule
		ii) Electro magnetic Induction
iii) Comparison between Electromagnetism and Electromagnetic Induction		
4th	i) Faraday's laws of Electromagnetic Induction	
15th	1st	i) Fleming's right hand rule
		ii) Lenz's law , Simple numericals
		iii) Comparison between Fleming's left hand and right hand rule
	2nd	i) LASER( Spontaneous and stimulated emission)
	3rd	i) Principle,properties and application of LASER
	4th	i) Wireless Transmission

Extra one week will be required to complete the syllabus

*Senita Sahoo*  
Signature of Faculty