

**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:</b> Math & Science	<b>Semester:</b> 2nd	<b>Name of the Teaching faculty:</b> Dr. BISWAMBHAR MOHANTY	
<b>Subject:</b> Engg. Physics	<b>No of Days/Week class allotted:</b> 4	<b>Semester from Date:</b> 14/03/22 <b>No of weeks:</b> 15	<b>To Date:</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>2nd</b>	<b>4th</b>	i) Identification of Scalar and vector quantities	
	<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>3rd</b>	<b>4th</b>	i) concept of rest and moving body	
		ii) Equation of motion under gravity	
	<b>1st</b>	i) Solving Numericals	
	<b>2nd</b>	i) Circular motion	
<b>4th</b>	<b>3rd</b>	i) Solving numericals	
		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	
11th	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

*D. D. Inambhade Mahad.*  
Signature of Faculty