

<b>Government Polytechnic Dehri-on-sona</b>		
<b><u>Tentative Lecture Plan</u></b>		
<b>Course: Diploma</b>		
<b>Subject</b>	<b>Applied Physics B</b>	<b>Subject Code:S2400102B</b>
<b>Semester</b>	<b>I</b>	
<b>Name of Faculty:</b>	<b>Dr. Rajesh Niranjan</b>	<b>Branches: Electrical Engg/Electronics Engg./Computer Science &amp;</b>
<b>Assignments</b>		
	1. Convert the units of given physical quantity from one system of units to another.	
	2. Find the different terms related to SHM/ wave from given equation of SHM/ wave.	
	3. Determine the change in the parameters related to rotational motion, when a regular shaped body rolls down on an inclined plane and give comparison for different bodies/ parameters.	
	4. Measure room temperature of hot bath/ bodies by using mercury thermometer and convert it into different temperature scales (lab- based).	
	5. Use online tool to determine S/V ratio of a given shape and size. (online assignment)	
<b>Micro Projects</b>		
	1. Make prototype Vernier calipers and screw gauge of desired Least Count,	
	2. Collect wires of different materials and find the fracture point for required applications	
	3. Design prototype model to find thermal conductivity of different metals.	
	4. Prepare model for determining moment of inertia of bodies with different shapes	
	5. Fiber optics: Demonstrate the phenomenon of total internal reflection.	
	6. LASER: Prepare model to demonstrate the properties and applications of LASER.	
	7. Viscosity: Collect 3 to 5 liquids and prepare a working model to differentiate liquids based on viscosity and demonstrate their applications.	
	8. Motion: Prepare model of ball rolling down on inclined plane to demonstrate the conservation of energy and motion of an object in inclined plane.	
	9. Waves in string: standing waves in string using woofer loudspeaker	
	10. Use smartphone to measure the different physical quantity with the sensor applications	
<b>Other Activities</b>		
	<b>1. Seminar Topics:</b>	
	<input type="checkbox"/> Needs of measurements in engineering and science.	
	<input type="checkbox"/> Applications of circular motions in daily life.	
	<input type="checkbox"/> LASER: Production & applications in science, industry, medical and defense, holography.	

	<input type="checkbox"/> Optical fibers: Construction and application in communication systems.
	<input type="checkbox"/> Synthesis and applications of nanomaterials.
	<input type="checkbox"/> CNT, Graphene and fullerene(C60)
	<input type="checkbox"/> Application of modes of different heat transmission in daily life.
	<b>2. Visits:</b>
	<input type="checkbox"/> Visit nearby industry with Instrumentation, production and Laser/optical fibers facilities. Prepare report of
	<input type="checkbox"/> Visit planetarium, Science city and research institutions for exploring the experimental and research
	<b>3. Self-learning topics:</b>
	<input type="checkbox"/> Vectors and its properties with applications
	<input type="checkbox"/> Types of fundamental units, system of units
	<input type="checkbox"/> Newton's Laws of motion, momentum, inertia, impulse
	<input type="checkbox"/> Inertial and non-inertial frame of reference
	<input type="checkbox"/> Derivation of formula for moment of inertia
	<input type="checkbox"/> Force, work, energy, power, work-energy theorem, law of conservation of energy
	<input type="checkbox"/> Frictions and its types
	<input type="checkbox"/> Pressure, density, Pascal's law, atmospheric and gauge pressure
	<input type="checkbox"/> Work done in various Processes, Adiabatic constant ( $C_p/C_v = \gamma$ ), Mayer's formula ( $C_p - C_v = R$ )
	<input type="checkbox"/> CO2 Laser, Semiconductor LASER.
	<input type="checkbox"/> Interference and Diffraction of light
Sd/-	Sd/-
Signature of Faculty (Dr. Rajesh Niranjana)	Signature of HOD ( Dr. Rajesh Niranjana)