Lesson Plan

Physics- PH-101

Paper – I: Classical Mechanics and Theory of Relativity

Teacher name: Dr. Niyti

October 2020

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| Mechanics of single and system of particles, Conversion law of linear momentum, Angular momentum and mechanical energy for a particle and a system of particles, Centre of Mass and equation of motion, Constrained Motion. Generalized Notations Degrees of freedom and Generalized coordinates, Transformation equations,  |

November 2020

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| Generalized Displacement, Velocity, Acceleration, Momentum, Force and Potential, Hamilton’s variational principle, Lagrange’s equation of motion from Hamilton’s principle, Linear Harmonic oscillator, Simple pendulum, Atwood’s machine. Unit 3: Theory of relativity Frame of reference, limitation of Newton’s law of motion, Inertial frame of reference, Galilean transformation, Frame of reference with linear acceleration, |

December 2020

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| Classical relativityGalilean invariance, Transformation equation for a frame of reference- inclined to an inertial frame and Rotating frame of reference, Non-inertial frames-The accelerated frame of reference and rotating frame of reference , Effect of centrifugal and coriolis forces due to Earth’s rotation, Fundamental frame of reference, Michelson- Morley’s experiment, concept of Einstein’s relativity. |

January2021

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| Applications of theory of relativity Special theory of relativity, Lorentz co-ordinate and physical significance of Lorentz invariance, Length Contraction, Time Dilation, Twin Paradox, Velocity addition theorem, Variation of mass with velocity, Mass energy equivalence, |

February 2021

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| Transformation of relativistic momentum and energy, relation between relativistic momentum and energy, Mass, velocity, momentum and energy of zero rest mass. |