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| **Course Information:**  **Course Code: PHY101**  **Course Name:  Physics I**  **Program: B.Sc in Software Engineering**  **Semester: Fall 2020**  **Credit: 3**  **Course Level: L1T2** | **Details of Instructor:**  **Name: Sakia Shabnam Kader**  **Position: Senior Lecturer**  **Department: General Educational Development**  **E-mail:**[**Ssk28.ged@daffodilvarsity.edu.bd**](mailto:Ssk28.ged@daffodilvarsity.edu.bd) |

**Course Plan**

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| **Week** | **Lesson.** | **Topic** | **Teaching and Learning Activities (TLAi)** | **Textbook & Video Reference** | **Related CO’s** |
| 1 | Les. 1 | Fundamentals of Physics | TLA1 |  | CO1,CO4 |
| Les. 2 | Basic concepts of Mechanics | TLA1 | Physics-I, D. Halliday& R.  Resnick | CO1,CO4 |
| 2 | Les. 3 | One & Two dimensional motion, Applications of  Newton’s laws of motion | TLA1, TLA2 | Physics-I, D. Halliday& R.  Resnick | CO2 |
| Les. 4 | Frictional forces, Equilibrium of forces, Free body diagrams | TLA1, TLA2 | Physics-I, D.  Halliday& R. Resnick | CO2 |
| 3 |  | (Class Test – 1, Assignment – 1) | | |  |
| Les. 5 | Conservation of energy and  linear momentum, Work-kinetic energy theorem. | TLA1, TLA2 | Physics-I, D.  Halliday& R. Resnick | CO1 |
| Les. 6 | Rotation of rigid bodies, Angular momentum, Moment of inertia,Torque. | TLA1 | Physics-I, D. Halliday& R. Resnick | CO2 |

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| 4 | Les. 7 | Work done by torque. Gravitation, Newton’s of gravitation, Acceleration dueto  gravity, | TLA1 | Physics-I, D. Halliday& R. Resnick | CO3 |
| Les. 8 | Center of Gravity and center of mass, Kepler’s law of planetary  motion; | TLA1 | Physics-I, D. Halliday& R.  Resnick | CO3 |
| 5 |  | (Class Test – 2) | | |  |
| Les. 9 | Simple harmonic motion, Spring – mass system, Force constant, , Phase, Period,  frequency, and angular frequency | TLA1 | Physics for Engineers: Prof.  GiasUddin Ahmad | CO1 |
|  | Les. 10 | Differential equation of simple harmonic oscillator. Total energy of simple harmonic oscillator, | TLA1, TLA2, | Physics for Engineers: Prof.  GiasUddin Ahmad | CO2 |
| 6 | Les. 11 | Uniform circular motion, Combination and composition of simple harmonic motions, | TLA1, TLA3 | Physics for Engineers: Prof.  GiasUddin Ahmad | CO3 |
| Les. 12 | Damped harmonic oscillations and Forced harmonic oscillation; | TLA1, TLA3 | Physics for Engineers: Prof.  GiasUddin Ahmad | CO3 |
| (MID–TERM EXAM) | | | | | |
| 7 | Les. 13 | Wave motion, Transverse and longitudinal waves, Traveling wave and standing wave | TLA1 | Physics for Engineers: Prof.  GiasUddin Ahmad | CO2 |
| Les. 14 | Wave velocity and particle velocity, Differential equation of progressivewave | TLA1 | Physics for Engineers: Prof.  GiasUddin Ahmad | CO1 |
| 8 | Les. 15 | Power and intensity of a wave, Energy of progressive and stationary waves, Group velocity and phasevelocity. | TLA1, TLA2 | Physics for Engineers: Prof.  GiasUddin Ahmad | CO2 |
| Les. 16 | Electric charge, Coulomb's  Law, Application of Coulomb’s law, Electric field | TLA1, TLA2 | Electricity &Magnetism:  K.K.Tewari | CO3 |
| 9 | Les. 17 | Calculation of electric field, a  dipole in an electric field, | TLA1 | Electricity &  Magnetism: | CO2 |

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|  |  | Electric flux, Gauss' law, |  | K.K. Tewari |  |
| Les. 18 | Electric potential and Electric potential energy; Energy  density, Dielectrics | TLA1 | Electricity &Magnetism:  K.K.Tewari | CO2 |
| 10 |  | (Class Test-3, Assignment – 2) | | |  |
| Les. 19 | Capacitor and Capacitance,  Combination of capacitors, Energy stored in a capacitor, , | TLA1 | Electricity &Magnetism:  K.K.Tewari | CO3 |
| Les. 20 | Current Electricity, Electric current. Ohm's Law, Resistance and Conductance, Superconductivity, Kirchhoff's  laws. | TLA1, TLA2 | Electricity &Magnetism:  K.K.Tewari | CO3 |
| 11 | Les. 21 | Magnetic field, Force on a moving charge and current carrying conductors in a magnetic field, Motion of a  point charge in a magnetic field, Hall effect, | TLA1 | Electricity &Magnetism:  K.K.Tewari | CO2 |
| Les. 22 | Biot-Savart law, Ampere's law, | TLA1 | Electricity &Magnetism:  K.K.Tewari | CO2 |
| 12 | Les. 23 | Faraday's law, Lenz’s law, Self- inductance and mutual inductance, Energy stored in a  magnetic field | TLA1, TLA2 | Electricity &Magnetism:  K.K.Tewari | CO2 |
| Les. 24 | Alternating current | TLA1 | Electricity &Magnetism:  K.K.Tewari | CO3 |
| (FINAL EXAM) | | | | | |