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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** |

**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 ofNewton’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 andlinear 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 duetogravity, | TLA1 | Physics-I, D. Halliday& R. Resnick | CO3 |
| Les. 8 | Center of Gravity and center of mass, Kepler’s law of planetarymotion; | 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'sLaw, Application of Coulomb’s law, Electric field | TLA1, TLA2 | Electricity &Magnetism:K.K.Tewari | CO3 |
| 9 | Les. 17 | Calculation of electric field, adipole 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; Energydensity, 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'slaws. | 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 apoint 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 amagnetic field | TLA1, TLA2 | Electricity &Magnetism:K.K.Tewari | CO2 |
| Les. 24 | Alternating current | TLA1 | Electricity &Magnetism:K.K.Tewari | CO3 |
| (FINAL EXAM) |