	Dot product, cross product, cartesian coordinates, rotations in the 2D plane. • Chapter 4: Kinematics: motion in two dimensions Polar coordinates, Angular velocity, Uniform circular motion. • Chapter 5: Dynamics: Newton's law of motion Free body diagram, forces, torques, linear and angular momentum, rolling on an inclined plane, gyroscope physics. • Chapter 6: Newton's third principle application - Drag Drag coefficient, terminal velocity, lift, rocket science. • Chapter 7: Work-energy theorem Potential and kinetic energy, energy conservation, dissipation • Chapter 8: Simple harmonic motions: Simple pendulum, spring, swing resonance, damping II) **Electricity and magnetism** - Chapter 9: Electric charge and electric field Fields, Static electricity, electrical charge, Coulomb's law, electric field, electrical potential energy - Chapter 10: Magnetism Compass physics, magnets, Lorentz force, cyclotron physics, cyclotron resonance (work-energy theorem)
Inline resources	Complementary notes related to each course are communicated online each week.
Bibliography	• Urone, P. P., & Hinrichs, R. (2012). College Physics (OpenStax). (**Reference book)** • Hewitt, Paul G. *Conceptual physics*. Pearson Education, 2002.