

	<p>Dot product, cross product, cartesian coordinates, rotations in the 2D plane.</p> <ul style="list-style-type: none"> • Chapter 4: Kinematics: motion in two dimensions <p>Polar coordinates, Angular velocity, Uniform circular motion.</p> <ul style="list-style-type: none"> • Chapter 5: Dynamics: Newton's law of motion <p>Free body diagram, forces, torques, linear and angular momentum, rolling on an inclined plane, gyroscope physics.</p> <ul style="list-style-type: none"> • Chapter 6: Newton's third principle application - Drag <p>Drag coefficient, terminal velocity, lift, rocket science.</p> <ul style="list-style-type: none"> • Chapter 7: Work-energy theorem <p>Potential and kinetic energy, energy conservation, dissipation</p> <ul style="list-style-type: none"> • Chapter 8: Simple harmonic motions: <p>Simple pendulum, spring, swing resonance, damping</p> <p>II) Electricity and magnetism</p> <ul style="list-style-type: none"> - Chapter 9: Electric charge and electric field <p>Fields, Static electricity, electrical charge, Coulomb's law, electric field, electrical potential energy</p> <ul style="list-style-type: none"> - Chapter 10: Magnetism <p>Compass physics, magnets, Lorentz force, cyclotron physics, cyclotron resonance (work-energy theorem)</p>
<p>Inline resources</p>	<p>Complementary notes related to each course are communicated online each week.</p>
<p>Bibliography</p>	<ul style="list-style-type: none"> • Urone, P. P., & Hinrichs, R. (2012). College Physics (OpenStax). (Reference book) • Hewitt, Paul G. <i>Conceptual physics</i>. Pearson Education, 2002.

