

ADVANCE MECHANICS

(Co-)Teachers: Kevin Burdge, Trung Phan

Week	Class description
1	Review of some useful Math concepts (vector, derivation and differential equation)
2	Point-mass Dynamics (position, velocity, angular velocity, acceleration, angular acceleration) and Coordinate Systems (1D, 2D, 2D-polar, 3D, 3D-cylindrical, 3D-spherical)
3	Introduction to Force, Torque, Momentum, Angular Momentum and Energy
4	Conservation of Momentum, Angular Momentum and Energy
5	Effective Potential and some applications in Theoretical Physics (Relativity, Quantum Theory and Quantum Field Theory)
6	Group Problems Competition