



Objectives

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The Objectives of this Lab are to Measure, Calculate and then Predict how Matter Behaves under certain conditions. The Basic Natural Laws studied in this Course include:

- 1) Law of Gravity
- 2) Force-Mass-Acceleration Law
- 3) Conservation of Energy Law
- 4) Conservation of Mass Law
- 6) Kinetic Energy Law
- 7) Potential Energy Law
- 8) Work / Friction

Measurable Outcomes

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Upon Completion of this Course, the Student will:

1. Be able to understand Units, Accuracy and Precision of Instruments.
2. Be able to make Measurements, read Gauges, & Utilize Instruments to Measure Physical Properties
3. Be able to calculate variables using equations and to Express answers with reasonable accuracy.
4. Be able to calculate the Resultant of several Vectors And to relate Resultant to Equilibrium requirements.
5. Be able to Graph distance vs time and relate slope to the instantaneous velocity.
6. Be able to Graph Velocity vs time and relate slope to the Instantaneous acceleration
7. Be able to use derived equations of constant acceleration to determine distance, time, velocity and acceleration relationships.
8. Be able to analyze free body diagrams to determine resultant Force, and its relationship to the mass and acceleration.
9. Be able to analyze objects in projectile flight to understand how horizontal velocity relates to vertical velocity.
10. Be able to understand friction and how it relates to the normal force acting on the body.
11. Be able to understand "g" and how it relates to the planet & the Universe.
12. Be able to use energy in practical terms with units of Joules.