

# SEMESTER 1 TOPIC LIST

## Topic 1 Measurement and Uncertainties

### Metric System

- Fundamental and Derived Units
- Metric Conversions and Prefixes
- Scientific notation

### Orders of Magnitude

- Powers of 10
- Ratios to compare
- Ranges and Common terms

### Sig Figs

- Counting
- Calculating

### Random and Systematic Errors

#### Uncertainties

- Absolute
- Relative/fractional
- Percentage

Error Propagation rules

Errors in graphs

Accuracy vs Precision

### Vectors and scalars

- Adding vectors graphically (drawing)
- Adding vectors – components method

## Topic 2 Mechanics

### Motion

- Graphing motion
- Displacement vs distance
- Velocity vs speed
- Acceleration
- Relative velocity
- Free fall
- Kinematic equations
- Projectile motion
- Air resistance and terminal velocity

### Forces

- Free body diagrams
- Newton's Laws
- Net force
- Equilibrium
- Friction
- Weight vs mass

### Momentum and Impulse

- Change in momentum
- Impulse Momentum Theorem
- Interpreting graphs (F, t)