Recommended Textbook:

"Physics"

Douglas C. Giancoli, "**Physics**", sixth edition, Pearson, 2014

Recommended References:

1. Joseph W. Kane and Morton M. Sternheim, "**Physics**", 3rd edition, (John Wiley & Sons, 1988).
2. Raymond A. Serway and John W. Jewett Jr., "**Physics For Scientists and Engineers with Modern Physics"** 7th edition, (Thomson Learning, Belmont, CA, USA, 2007).
3. David Halliday, Robert Resnick, and Jearl Walker, **"Fundamentals Of Physics",** 5th edition, (Wiley, 1997).

Course Content:

Chapter no.	Sections	Suggested Problems
2	**Describing Motion: Kinematics in One Dimension** 2.1 Reference Frames and Displacement 2.2 Average Velocity 2.3 Instantaneous Velocity 2.4 Acceleration 2.5 Motion at Constant Acceleration 2.6 Solving Problems 2.7 Falling Objects	5, 13, 18, 19, 26, 27, 37, 42, 44, 47
3	**Kinematics in Two Dimensions: Vectors** 3.1 Vectors and Scalars 3.2 Addition of Vectors–Graphical Methods 3.3 Subtraction of Vectors, and Multiplication of a Vector by a Scalar 3.4 Adding Vectors by Components	1, 3, 4, 6, 9, 13, 16
4	**Dynamics: Newton's Laws of Motion** 4.1 Force 4.2 Newton's First Law of Motion 4.3 Mass 4.4 Newton's Second Law of Motion 4.5 Newton's Third Law of Motion 4.6 Weight–the Force of Gravity; and the Normal Force 4.7 Solving Problems with Newton's Laws: Free-Body Diagrams 4.8 Problems Involving Friction, Inclines	3, 5, 15, 24, 28, 31, 37, 38, 46, 48, 51, 63, 64
6	**Work and Energy** 6.1 Work Done by a Constant Force 6.2 Work Done by a Varying Force 6.3 Kinetic Energy, and the Work-Energy Principle 6.4 Potential Energy 6.5 Conservative and Nonconservative Forces 6.6 Mechanical Energy and its Conservation 6.7 Problem Solving Using Conservation of Mechanical Energy 6.8 Other Forms of Energy; 6.9 Energy Conservation with Dissipative Forces: Solving Problems	5, 8, 9, 12, 14,18, 22, 25, 30, 43, 48, 51, 54, 62, 64, 67

	6.10 Power	
8	**Rotational Motion** 8.4 Torque	22 – 26.
9	**Static Equilibrium: Elasticity and Fracture** 9.1 The Conditions for Equilibrium 9.2 Solving Statics Problem 9.3 Application to Muscles and Joints	1, 2, 6, 7, 15, 16, 20, 27, 32, 34
10	**Fluids** 10.1 Phases of Matter 10.2 Density and Specific Gravity 10.3 Pressure in Fluids 10.4 Atmospheric Pressure and Gauge Pressure 10.5 Pascal's Principle 10.6 Measurements of Pressure; Gauges and the Barometer 10.7 Buoyancy and Archimedes' Principle 10.8 Fluids in Motion; Flow Rate and the Equation of Continuity 10.9 Bernoulli's Equation 10.10 Applications of Bernoulli's Principle: from Torricelli to Airplanes, Baseballs, and TIA	5, 8, 9, 16, 18, 23, 25, 27, 35, 39, 39, 46
13	**Temperature and Kinetic Theory** 13.2 Temperature and Thermometers 13.3 Thermal Equilibrium and the Zeroth Law of Thermodynamics 13.4 Thermal Expansion 13.6 The Gas Laws and Absolute Temperature 13.7 The Ideal Gas Law 13.8 Problem Solving with the ideal Gas Law 13.9 Ideal Gas Law in Terms of Molecules: Avogadro's Number 13.10 Kinetic Theory and the Molecular Interpretation of Temperature 13.12 Real Gases and Changes of Phases	3, 7, 12 26, 30, 34, 42, 46, 52, 55, 61, 63, 67, 71
14	**Heat** 14.1 Heat as Energy Transfer 14.2 Internal Energy 14.3 Specific Heat 14.4 Calorimetry- Solving problems 14.5 Latent Heat	1, 5, 9, 10, 13, 17, 22, 25
15	**The Laws of Thermodynamics** 15.1 The First Law of Thermodynamics 15.2 Thermodynamic Processes and the First Law	1, 6, 10, 12
29	**Nuclear Physics and Radioactivity** 29.1 Structure and Properties of Nucleus 29.3 Radioactivity 29.8 Half-Life and Rate of Decay 29.9 Calculations Involving Decay Rates and Half-Life	2, 37, 43, 44, 47, 49
30	**Nuclear Energy; Effects and Uses of Radiation** 30.4 Passage of Radiation Through Matter; Radiation Damage 30.5 Measurement of Radiation–Dosimetry 30.6 Radiation Therapy	37, 38, 40, 42, 43, 45