**لمادة الدراسية:**

[١١٠ فيز (مقرر سابق)](http://fac.ksu.edu.sa/bkurtass/course/150639)

**Physics for Scientists and Engineers, by J. W. Jewett and R. A. Serway, 8th Ed.**

**Chapter 1:**Physics and Measurement
o 1.1: Standards of Length, Mass, and Time
o 1.3: Dimensional Analysis
o 1.4: Conversion of Units
o 1.5: Estimates and Order-of-Magnitude Calculations
**Chapter 3:**Vectors
o 3.1: Coordinate Systems
o 3.2: Vector and Scalar Quantities
o 3.3: Some Properties of Vectors
o 3.4: Components of a Vector and Unit Vectors
o 7.3: The Scalar Product of Two Vectors
o 11.1: The Vector Product
**Chapter 2:**Motion in One Dimension
o 2.1: Position, Velocity, and Speed
o 2.2: Instantaneous Velocity and Speed
o 2.3: Analysis Models: The Particle Under Constant Velocity
o 2.4: Acceleration
o 2.5: Motion Diagrams
o 2.6: The Particle Under Constant Acceleration
o 2.7: Freely Falling Objects
**Chapter 5:**The Laws of Motion
o 5.1 The Concept of Force
o 5.2 Newton’s First Law and Inertial Frames
o 5.3 Mass
o 5.4 Newton’s Second Law
o 5.5 The Gravitational Force and Weight
o 5.6 Newton’s Third Law

o 5.7: Some Applications of Newton's Laws (**Analysis Models Using Newton’s Second Law)**
o 5.8: Forces of Friction
**Chapter 13:**Universal Gravitation
o 13.1: Newton's Law of Universal Gravitation
o 13.3: Free-Fall Acceleration and the Gravitational Force
**Chapter 7:**Energy of a System
o 7.1: Systems and Environments
o 7.2: Work Done by a Constant Force
o 7.4: Work Done by a Varying Force
o 7.5: Kinetic Energy and the Work-Kinetic Energy Theorem
o 7.6: Potential Energy of a System
o 7.7: Conservative and Nonconservative Forces
o 7.8: Relationship Between Conservative Forces and Potential Energy
o 7.9: Energy Diagrams and Equilibrium of a System
**Chapter 8:**Conservation of Energy
o 8.1: Analysis Model: Nonisolated System (Energy)
o 8.2: Analysis Model: Isolated System (Energy)
o 8.3: Situations Involving Kinetic Friction
o 8.4: Changes in Mechanical Energy for Nonconservative Forces
o 8.5: Power
**Chapter 9:**Linear Momentum and Collisions
o 9.1: Linear Momentum
o 9.2: Analysis Model: Isolated System (Momentum)
o 9.3: Analysis Model: Nonisolated System (Momentum)
o 9.4: Collisions in One Dimension

**Chapter 12:**Static Equilibrium and Elasticity
o 12.4: Elastic Properties of Solids
**Chapter 14:**Fluid Mechanics
o 14.1: Pressure

o 14.2: Variation of Pressure with Depth
o 14.3: Pressure Measurements
o 14.5: Fluid Dynamics
o 14.6: Bernoulli's Equation

o 14.7: Other Applications of Fluid Dynamics
**Chapter 19:**Temperature
o 19.1: Temperature and the Zeroth Law of Thermodynamics
o 19.2: Thermometers and the Celsius Temperature Scale
o 19.3: The Constant-Volume Gas Thermometer and the Absolute Temperature Scale.
**Chapter 20:**The First Law of Thermodynamics
o 20.1: Heat and Internal Energy
o 20.2: Specific Heat
o 20.7: Energy Transfer Mechanisms in Thermal Processes.