

INSTRUCTIONAL LESSON PLAN

Ref No: LP-2024-001

Subject: Advanced Physics

Date: October 24, 2024

Grade Level: 12th Grade

Duration: 90 Minutes

Learning Objectives:

- Identify the core principles of thermodynamic equilibrium.
- Calculate energy transfer using the First Law of Thermodynamics.
- Demonstrate practical application through laboratory simulation.

TIME	LESSON PHASE	INSTRUCTIONAL ACTIVITIES	MATERIALS/TOOLS
08:00 - 08:10	Introduction & Hook	Interactive demonstration: Thermal expansion of metals. Review of previous lecture concepts.	<i>Propane torch, metal ring/ball set</i>
08:10 - 08:35	Direct Instruction	Lecture on Enthalpy and Entropy. Visualizing molecular motion via digital simulation.	<i>Projector, Slide Deck, PhET Simulation</i>
08:35 - 09:05	Guided Practice	Small group problem-solving session. Teacher circulates to provide scaffolding for complex equations.	<i>Worksheet A, Scientific Calculators</i>
09:05 - 09:20	Independent Task	Individual analysis of a real-world thermodynamic system (Heat engines).	<i>Student Notebooks</i>
09:20 - 09:30	Closure & Exit	Summary "3-2-1" reflection: 3 things learned, 2 interesting facts, 1 remaining question.	<i>Exit Slip Cards</i>