

**Department of Physics & Astronomical Sciences
Central University of Jammu**

**Courses: 1) Mechanics and Thermodynamics
2) Waves & Oscillations**

Credits: 4

Instructor: Dr. Jehova Jire L. Hmar

Lecture Plan

Sr. No.	Broad Topics	Number of Lectures	Syllabus Unit
Mechanics and Thermodynamics			
1	Zeroth Law of Thermodynamics; concept of Temperature, Work, Heat Energy, State Functions. First Law of Thermodynamics; First Law and Various Processes, Applications of First Law.	9	III
2	Second Law of Thermodynamics; Applications of Second Law of Thermodynamics; Entropy ;	10	IV
3	Thermodynamic potential; Extensive and Intensive Thermodynamic Variables, Properties and Applications. Thermodynamics Relations; Derivations of Maxwell's Relations, Applications of Maxwell's Relations.	9	V
Waves & Oscillations			
4	Wave Motion; Plane and Spherical Waves, Longitudinal, Transverse Waves, Water Waves Ripple and Gravity Waves. Velocity of Waves ;	9	IV
5	Superposition of Two Harmonic Waves; Standing (Stationary) Waves in a String;	8	V

References:

- 1) Heat and Thermodynamics : An Intermediate Textbook By Mark Waldo Zemansky, Richard Dittman (McGraw- Hill, 1981).
- 2) Thermodynamics, Kinetic Theory and Statistical Thermodynamics by Francis W. Sears & Gerhard L. Salinger. (Narosa, 1986).
- 3) The Physics of Waves and Oscillations by N. K. Bajaj (Tata McGraw-Hill, 1988)
- 4) Fundamentals of Waves & Oscillations by Uno Ingard (Cambridge University Press, 1988).

Note: An assignment will be provided for each unit.