Course Title	Course Code	Credit Hours
Thermodynamics-II	ME-228	2 – 1

Text Books

- Yunus A. Cengel and Michael A. Boles, Thermodynamics, An Engineering Approach, McGraw-Hill.

Reference Books:

- M. J. Moran and H. O. Shapiro, Fundamentals of Engineering Thermodynamics, John Wiley& Sons.
- Sonntang, Borgnakke, and Van Wylen, Fundamentals of Thermodynamics, John Wiley & Sons.
- T.D. Eastop and A. McConkey, Applied Thermodynamics and Engineering, Pearson.

Course Objective:

To equip engineers with advanced principles in Thermodynamics-II, focusing on applications in energy systems and engineering processes

Course Outline:

- Review of Thermodynamics I: Energetics & Efficiencies
- Exergy: Exergy balance, Exergetic efficiency
- Gas Power Cycles: Air-Standard-Otto cycle: Diesel cycle, Dual and Brayton cycle, Regenerative gas turbines with reheat & inter cooling, Combined cycles.
- Vapor and Combined Power Cycles: Modeling and analyzing, Superheat and Reheat vapor power cycles, Regenerative vapor power cycles, other vapor cycle aspects.
- Refrigeration Cycles: Vapor compression refrigeration systems, Cascade and Multistage systems &Absorption refrigeration, Heat pump, and Gas refrigeration systems
- Thermodynamic Property Relations and Gas Mixtures: Mixture composition, P-v-T relations for gas mixtures & U, H, S and specific heats for gas mixtures.
- Chemical Reactions: Combustion process and conservation of energy in reacting systems & Importance of mathematical relations
- Chemical and Phase Equilibrium: Combustion process and conservation of energy in reacting systems & Importance of mathematical relations

Experiments related to Thermodynamics-I & II will be covered.

Description	Percentage Weightage (%)
Assignments	05-10%
Quizzes	10-15%
Mid Semester Exams	30-40%
End Semester **ASSESSMENTS** Exam	40-50%