ROMA THMO 203: Thermodynamics

Instructor
Biagio Di Micco

Credits
4

Textbook
- Reader and notes provided by professor

Objectives
For students to develop an understanding of the first and second laws of thermodynamics, particularly when applied to open and closed steady-state systems and to real physical processes. To learn how to evaluate thermodynamic properties using equations, and thermodynamic data, in both tabular and in chart form. To appreciate the role of thermodynamics in engineering and society.

Topics
- P-V-T behavior of pure substances. Equations of state for non-ideal gases.
- The Second Law of Thermodynamics. The concept of entropy: entropy as a state function; entropy changes for reversible processes; entropy changes in a reversible cycle. Second law limitations and real processes. Irreversibility and entropy changes for real processes.
- Vapor Cycles: The Basic Rankine Cycle (Steam Power Plant), the Vapor Compression Cycle (Refrigeration) and air-standard power cycles.
- The ideal Gas-Turbine cycle: The Otto cycle. The Diesel cycle.
- Isentropic efficiencies of turbines, nozzles, compressors, and pumps.

**Assessment**
- 20% class participation
- 30% mid-term exam
- 50% final exam