

MCET 229C : Thermodynamics

The fundamentals of equilibrium thermodynamics will be presented. Topics will include thermodynamic properties, processes, process diagrams, the First and Second laws, entropy, and an introduction to thermodynamic cycles. Energy analysis of both closed and open systems will be performed with considerations to overall system efficiencies. Discussions and examinations of renewable energy technologies is integrated throughout the course and their impact on society is considered.

Credits 3

Lab/Practicum/Clinical Hours 0

Lecture Hours 3

Prerequisite Courses

MATH 205C

PHYS 133C

Learning Outcomes

- Determine its properties of state using formulas, tables and charts as appropriate.
- Determine the interchange of energy as work and heat through application of the first law of thermodynamics.
- Using the Second Law, the student will be able to calculate the limiting efficiencies of simple heat engines and heat pumps.
- Differentiate the difference between open and closed system and apply appropriate analysis techniques a variety of engineering systems such as piston-cylinder devices, mixing tanks, valves, turbines, compressors, pumps, and heat exchangers.