

MECH2310 Thermodynamics

Course Code: MECH2310	Course Title: Thermodynamics
Required Course Or Elective Course: Required	Terms Offered (Credits): Fall (3 credits)
Faculty In Charge: Baoling Huang/ Jianbo Xu	Pre/Co-Requisites: MATH 1012 OR MATH 1013 OR MATH 1020 OR MATH 1023
Course Structure: Lecture: 2 day per week, 3 hours	
Textbook/Required Material: (1) Class notes (2) Thermodynamics: An Engineering approach by Yunus A. Cengel and Michael A. Boles	
Bulletin Course Description: This is a required course for the BEng in Mechanical Engineering.	
Course Topics: 1. Fundamental thermodynamics concepts: system, control volume, control mass, energy 2. Unit systems, dimensional analysis 3. Pure substance, phases and phase change 4. Energy forms: work and heat 5. Ideal and real gases 6. First and second laws of thermodynamics. 7. Entropy and energy.	
Course Objectives:	<ol style="list-style-type: none">1. To introduce fundamental thermodynamics concepts and terminology.2. To introduce fundamental thermodynamic laws and common thermodynamic devices.3. To train students to perform basic energy analysis on a thermodynamic system.
Course Outcomes:	On successful completion of this course, students are expected to be able to: <ol style="list-style-type: none">A. Explain fundamental thermodynamic concepts and describe the first and second laws of thermodynamics.B. Perform basic thermodynamic analysis on a given system or device using the first or second law of thermodynamics.C. Evaluate the performance of common energy systems.D. Evaluate the influence of energy technologies on the environment and human society.
Assessment Tools:	<ul style="list-style-type: none">• Regular homework problems (10%)• In-class Quizzes (10%)• Mid-term and Final exams (30% for Mid-term, and 50% for Final)