



Syllabus for ENGR130-01: Thermodynamics

Fall 2018

Instructor: Gerardo Diaz

Designation:	ENGR 130
Catalog Description:	Fundamentals of equilibrium, temperature, energy, and entropy. Equations of state and thermodynamic properties, with engineering applications.
Text Books and Other Required Materials:	Moran & Shapiro; Fundamentals of Engineering Thermodynamics. Wiley, 8th Ed.
Course Objectives/ Student Learning Outcomes:	The student should gain a thorough understanding of theoretical concepts related to conservation of mass and energy, control mass, control volume, and entropy. The student should also be completely familiar with pure substance property determination and with the analysis of applications involving vapor power cycles as well as ideal gas and psychrometrics.
Program Learning Outcomes:	
Prerequisites by Topic:	CHEM 002, MATH 023, MATH 024 and (PHYS 009 or PHYS 019).
Course Policies:	
Academic Dishonesty Statement:	<p>a. Each student in this course is expected to abide by the University of California, Merced's Academic Honesty Policy. Any work submitted by a student in this course for academic credit will be the student's own work.</p> <p>b. You are encouraged to study together and to discuss information and concepts covered in lecture and the sections with other students. You can give "consulting" help to or receive "consulting" help from such students. However, this permissible cooperation should never involve one student having possession of a copy of all or part of work done by someone else, in the form of an e mail, an e mail attachment file, a diskette, or a hard copy. Should copying occur, both the student who copied work from another student and the student who gave material to be copied will both automatically receive a zero for the assignment. Penalty for violation of this Policy can also be extended to include failure of the course and University disciplinary action.</p> <p>c. During examinations, you must do your own work. Talking or discussion is not permitted during the examinations, nor may you compare papers, copy from others, or collaborate in any way. Any collaborative behavior during the examinations will result in failure of the exam, and may lead to failure of the course and University disciplinary action.</p>
Disability Statement:	Accommodations for Students with Disabilities: The University of California Merced is committed to ensuring equal academic opportunities and inclusion for students with disabilities based on the principles of independent living, accessible universal design and diversity. I am available to discuss appropriate academic accommodations that may be required for student with disabilities. Requests for academic accommodations are to be made during the first three weeks of the semester, except for unusual circumstances. Students are encouraged to register with Disability Services Center to verify their eligibility for appropriate

Designation:	ENGR 130 accommodations.
Topics:	<ul style="list-style-type: none"> -Introductory concepts and definitions. -Work, energy, transfer of energy by heat, energy balance, first law, analysis of cycles. -Properties: p-v-T relations, tables, compressibility chart, ideal gas model, internal energy, enthalpy, specific heats, polytropic processes -Control volume analysis, conservation of mass and energy in a CV. -Transient and steady state analysis. -Second law, irreversibilities, maximum performance measures, Carnot cycle. -Entropy, entropy balance, isentropic processes, isentropic efficiencies, heat transfer and work in internally reversible processes. -Vapor power systems. -Ideal gas mixture and psychrometric applications.
Class/laboratory Schedule:	T-Th 3:00pm - 4:15pm (CLSSRM 116)
Midterm/Final Exam Schedule:	Final Exam: 6:30-9:30pm, CLSSRM 116, DEC. 10
Course Calendar:	
Professional Component:	
Assessment/Grading Policy:	HW (10%), Midterm (30%), Project (25%), Final (35%)
Coordinator:	Gerardo Diaz
Contact Information:	Office Location: SE2, Room 275 E-mail: gdiaz@ucmerced.edu
Office Hours:	