

Boise State University

COURSE TITLE:	THERMODYNAMICS I
TIME/ROOM:	Tu, Th 10:30 am - 11:45 am in ENGR 103
INSTRUCTOR:	Dr. Krishna Pakala
OFFICE/EMAIL/PHONE:	ENGR 225 krishnapakala@boisestate.edu 208-426-4005 (<i>Do not call during office hours</i>)
OFFICE HOURS:	M, W 2:30 pm – 4 pm (<i>Outside the office hours: send an email to make an appointment</i>)
TEACHING ASSISTANT:	Brooke Ward brookeward@u.boisestate.edu
OFFICE HOURS:	10 hours a week (see pg. 4 for details) ENGR Atrium 3 rd Floor
EXAM DATES:	Thursday, September 26 th (Exam 1) Thursday, October 24 th (Exam 2) Thursday, December 5 th (Exam 3) Thursday, December 19 th (Final Exam – 9:30 am to 11:30 am)
REQUIRED MATERIALS:	Textbook, Property tables booklet and Connect access Calculator (not your cell phone)

TEXTBOOK: Thermodynamics – An Engineering Approach 7th Edition by Yunus A. Çengel & Michael A. Boles, McGraw –Hill.

SUPPLEMENTAL REFERENCES: Fundamentals of Engineering Thermodynamics by Michael J. Moran and Howard N. Shapiro, John Wiley & Sons and Schaum's Outline of Thermodynamics for Engineers.

PREREQUISITES: The material in ME 302 is based on an understanding of: (1) MATH 175, including calculus differentiation and integration, (2) PHYS 211, including Newton's Laws, concepts of work and energy, and (3) CHEM 111, including concepts of moles, molecular weight and the ideal gas law.

COURSE DESCRIPTION: This course is an introduction to the concept of energy. It provides the basic tools necessary for the analysis of any engineering system in which energy transfer or energy transformations occur; thus, thermodynamics is an important part of the training of almost all engineering disciplines.

COURSE OBJECTIVES: Upon successfully completing this course, students should be able to:

- Determine properties of real substances, such as steam and refrigerant 134-a, and ideal gases from either tabular data or equations of state.
- Compute heat and work transfer by performing energy balances using the first law of thermodynamics for processes involving ideal gases and real substances as working fluids in both closed systems and open systems or control volumes to determine process diagrams.
- Solve engineering problems using systems and control volumes through the application of the second law of thermodynamics.
- Compute efficiency, work, heat input/rejection, temperatures, pressures, etc., in various cycles via the application of thermodynamics laws and principles applicable to engineering problems.

ATTENDANCE POLICY: Regular class attendance as well as outside work is necessary to learn thermodynamics.

GRADING: Grades will be determined using the following breakdown.

Exams (45%) Final Exam (25%) In-Class Quizzes (20%) Homework (10%)

Letter grades (LG) will be determined using the following scale.

LG	%	Quality Points
A+	97+	4.0
A	90-97	4.0
A-	89-87	3.7
B+	86-83	3.3
B	82-80	3.0
B-	79-77	2.7
C+	76-73	2.3
C	72-70	2.0
C-	69-68	1.7
D	67-58	1.0
F	57-	0.0

EXAMS: All exams will be closed book, closed notes. Exam 1 will cover chapters 1, 2 and 3, Exam 2 will cover chapters 4, 5 and 6 and Exam 3 will cover chapters 7 and 9. Formulae will be provided on the exam. Each student needs to bring their property tables booklet and they will be collected along with your exams. Exams may contain concept based (multiple choice) and typical problem solving questions. Cell phones must be turned off during exams and may not be used as a calculator. Calculators may not be shared during exams. If you will be gone on the day of the exam, please notify me immediately. Email me to schedule a day and time to take the exam.

FINAL EXAM: The final exam will be comprehensive. Formulae will be provided on the exam. Final exam will contain concept based (multiple choice) and typical problem solving questions. If you will be gone on the day of the exam, please notify me immediately. Email me to schedule a day and time to take the exam.

MAKE-UP POLICY: You are eligible for a make-up exam if you miss a scheduled exam because of a death in the immediate family, serious illness or military service, *Students are responsible to inform the instructor of their excused absence as soon as possible and your excused absence must be officially verified and documented in writing to the instructor.* Make-up exams cannot be given to accommodate travel plans, job interviews, weddings etc. **If your excuse is acceptable, then you'll be given a comprehensive make-up exam, which will be delivered in the last week of the classes.**

IN – CLASS QUIZZES: Quiz dates will be announced in the class. Quizzes will be given at the beginning of the lecture typically last for 15-25 min. There will be **no** make-up for in-class quizzes.

HOMEWORK: Homework problems are computerized (Connect). Homework will be due as indicated on Blackboard.

CALCULATOR: Any device that can be used as “crib sheet” is prohibited during exams and quizzes. A simple calculator is desirable (e.g. Casio all fx-115 models; Hewlett Packard **HP 33s** and **HP 35s** models; Texas Instruments **TI-30X** and **TI-36X** models). **NO** sharing of calculators on exams/quizzes.

RECITATION/PROBLEM-SOLVING VIDEOS: For all the chapters in the course pre-recorded step-by-step problem solving videos will be posted on YouTube and the links will be provided. These videos should help with homework. This is an additional support provided to all students, so make most of this opportunity to excel in this course.

NOTE: All **exams** and in-class **quizzes** will be **closed book, closed notes**, only property tables' booklet and a calculator are allowed. All **class related materials** will be posted on **Blackboard site**. Please check the course website regularly for class updates, grades etc. *The instructor reserves the right to revise the syllabus during the semester.*

DISABILITY SUPPORT SERVICES: Any student who feels s/he may need accommodations based on the impact of a disability should contact the instructor privately to discuss their specific needs. The student also need to contact the Disability

Resource Center at 208-426-1583 located in the Administration Building, room 114 to meet with a specialist and coordinate reasonable accommodations for any documented disability.

For more information on BSU Disability Resource Center (DRC) see the web site at <http://drc.boisestate.edu/>
To schedule an appointment, contact the DRC at (208) 426-1583 or send your e-mail request to ElyseTaylor@boisestate.edu.

STUDENT ETIQUETTE: Please be courteous to your classmates, silence your cellular phones and minimize disruption. If you arrive late, please enter quietly and take the first available seat. Do not leave classroom during the lecture or within the last 10 minutes of the exams/quizzes, unless it is truly an emergency.

E-MAIL COMMUNICATION: All communication via e-mail should be professional in form, content, and tone. That means that the message should have a subject indicating it is for ME 302 and begin with a salutation and the body should explain the purpose of the message in formal English. The message should be signed with your full name and noting the section in which you are enrolled. Messages not conforming to this requirement will not be answered. E-mails received after 5 PM on Mon-Fri and anytime on Sat/Sun will be answered the following business day.

CELL PHONES /IPAD/IPODS/TABLETS/LAPTOPS: The use of all these devices is prohibited during exams and quizzes. All these devices must be powered off during class, exams, quizzes and they may not be used as a calculator. The instructor will indicate when the use of these devices is allowed during certain instances.

STUDENT IDs: Please bring student identification cards during exams and quizzes. The instructor will randomly check IDs while collecting exams and quizzes.

PLAGIARISM AND INTELLECTUAL HONESTY: The faculty of Boise State University rigorously enforce the student code of conduct and all students are encouraged to familiarize themselves with the code, which can be found in its entirety at the following web site: <http://osrr.boisestate.edu/scp-codeofconduct/>

In particular, Article 4, Section 1 of the code defines academic dishonesty as follows:

Article 4, Section 1—Academic Dishonesty

A violation may include cheating, plagiarism, or other forms of academic dishonesty. All assignments submitted by a student must represent her/his own ideas, concepts, and current understanding or must cite the original source. Academic dishonesty includes assisting a student to cheat, plagiarize, or commit any act of academic dishonesty. Attempts to violate academic integrity do not have to be successful to be considered academic dishonesty. Academic dishonesty includes turning in substantial portions of the same academic work to more than one course without the prior permission of the faculty members.

Plagiarism occurs when a person passes off another person's work as his or her own or borrows directly from another's work without documentation. It doesn't matter if the work is that of a published author, an unpublished co-worker, or another student. You are encouraged to work with your classmates on practice problems and homework. However, it is assumed that the work you pass to me to be graded reflects work that is your own. If you're unsure whether you are in compliance, apply the following test: Can you explain every step of every solution on the homework you are handing in? If the answer is no, then you are not in compliance with the student code of conduct.

Solution Manuals: Student access to solutions manuals represents unethical behavior for a number of reasons. Either the student obtained the manual from a source other than the textbook publisher or authorized agent, in which case the student has participated in a violation of the US copyright laws; or the student obtained the manual from the publisher or authorized agent by misrepresenting himself/herself as an instructor, which is a substantial ethical breach as well. As such, use of solutions manuals represents a form of academic dishonesty punishable by the consequences described below.

Consequences: A student who is found guilty of any form of academic dishonesty will be referred to the Office of Student Rights and Responsibilities (<http://www.boisestate.edu/osrr/>) for disciplinary action. Penalties may include

a final course grade of F, academic probation, suspension, or expulsion from school. Should you turn in an assignment that appears to me to have been plagiarized, you will want to be able to show evidence of your work: notes, outlines, drafts, and other such material. If you are unable to do so, then you have a serious problem.

Teaching Assistant for ME 302 and ME 330 - Fall 2013 in ENGR Atrium 3rd Floor - Brooke Ward					
Time/Day	Monday	Tuesday	Wednesday	Thursday	Friday
11:15 AM					OFFICE HOURS (ME 302 and ME 330) (11:15 AM to 1:15 pm)
Noon	OFFICE HOURS (ME 302 and ME 330) (Noon to 2 pm)		OFFICE HOURS (ME 302 and ME 330) (Noon to 2 pm)		
12:30 PM					
1:30 PM		OFFICE HOURS (ME 302 and ME 330) (1:30 pm to 2:30 pm)		OFFICE HOURS (ME 302 and ME 330) (1:30 pm to 2:30 pm)	
2:00 PM					
2:30 PM					
3:00 PM					
3:30 PM					
4:00 PM					
4:30 PM		OFFICE HOURS (ME 302 and ME 330) (4:30 pm to 5:30 pm)		OFFICE HOURS (ME 302 and ME 330) (4:30 pm to 5:30 pm)	
5:00 PM					
5:30 PM					
6:00 PM					

Note: This semester mobile technology was integrated into the class room to enhance student learning experience. A teaching assistant was made available for the course. I have also held several help sessions for the students. I have extensively used "Active Learning" this semester. The use of everyday examples in engineering also enhanced student engagement and persistence in the class.