

Textbook:	<i>Fundamentals of Engineering Thermodynamics</i> , 9 th Edition, by M.J. Moran and H.N. Shapiro, John-Wiley & Sons, Inc., 2014, ISBN#978-1-119-39147-0.	
Instructor:	H. Hadim (Room: Carnegie 204; e-mail: ahadim@stevens.edu)	
Class Hours:	<u>Lecture</u> : Mon., Wed., Fri., 11:00 - 11:50 AM Room# EAS 230 <u>Laboratory</u> : TBA in Thermal Engineering Laboratory (EAS 142)	
Office Hours:	Mon., Wed., Fri., 12:00 - 1:00 PM or by appointment.	
Teaching Assistant	Mahdiah Nasiri (e-mail: mnasiri@stevens.edu , Office: Carnegie 2 nd Floor Mezzanine)	
Grading Scheme:	Quizzes (3 x 15 %)	45%
	Homework	10%
	Laboratory	5%
	Design Project	5%
	Final Examination	35%
	Class participation	5% (bonus)

Quizzes and the final exam will be **closed textbook and closed notes** (an 8 ½" x 11" review sheet written on both sides can be used). No other material will be allowed during examinations. No make-up quizzes will be given. If you miss a quiz (due to emergency only) and you have a valid excuse, your grade will be prorated. Homework will be assigned and collected weekly. Submission of the homework is **mandatory**. **No late homework** please.

Course Outline:

DATE	SUBJECT	TEXT
1/22 - 1/31	Course Organization and Format; Review of First and Second Laws of Thermodynamics	Chaps. 1- 6
1/31 - 2/7	Entropy Rate Balance for Control Volumes	Chap. 6
2/7 – 2/24	Second-Law Analysis	Chap. 7
2/21	QUIZ 1	
2/24 - 3/10	Vapor Power Cycles	Chap. 8
3/10 - 3/24	Refrigeration and Heat Pump Cycles	Chap. 10
3/28	QUIZ 2	
3/24 - 4/11	Gas and Combined Power Cycles	Chap. 9
4/11 - 4/28	Ideal Gas Mixtures and Psychrometric Applications	Chapter 12
4/25	QUIZ 3	
4/28 - 5/7	Reacting Mixtures and Combustion	Chapter 13
5/7	Review	

Course Learning Outcomes

Student Outcome 1: (Complex Engineering Problems) *An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics*

Outcome 1-1: You are able to apply the principles of energy balance and entropy balance to closed thermodynamic systems.

Outcome 1-2: You are able to apply the principles of conservation of mass, energy balance and entropy balance to open (control volume) thermodynamic systems.

Outcome 1-3: You are able to analyze the performance of vapor power, gas power and refrigeration cycles and to identify methods for improving thermodynamic performance.

Outcome 1-4: You are able to apply psychrometric principles to analyze heating and air conditioning processes and systems.

Outcome 1-5: You are able to apply reacting mixture analysis and conduct first law analysis for idealized combustion processes.

Student Outcome 2: (Design) *An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors*

Outcome 2-1: You are able to design operating conditions for a vapor power, gas power, or refrigeration/heat pump cycle based on specified cycle requirements.

Student Outcome 3. (Communication) *an ability to communicate effectively with a range of audiences*

Outcome 3-1: You have demonstrated the ability to communicate effectively in the thermal engineering laboratory written reports.

Student Outcome 5. (Teaming) *an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives*

Outcome 5-1: You have demonstrated a strong ability to function on your team while conducting the thermal engineering laboratory experiments and preparing the written reports.

Student Outcome 6: (Experimentation) *an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions*

Outcome 6-1: You are able to conduct experiments, analyze experimental data and interpret results in your thermal engineering laboratory experiments.

ACADEMIC INTEGRITY

Undergraduate Honor System

Enrollment into the undergraduate class of Stevens Institute of Technology signifies a student's commitment to the Honor System. Accordingly, the provisions of the Stevens Honor System apply to all undergraduate students in coursework and Honor Board proceedings. It is the responsibility of each student to become acquainted with and to uphold the ideals set forth in the Honor System Constitution. More information about the Honor System including the constitution, bylaws, investigative procedures, and the penalty matrix can be found online at <http://web.stevens.edu/honor/> (Links to an external site.)

The following pledge shall be written in full and signed by every student on all submitted work (including, but not limited to, homework, projects, lab reports, code, quizzes and exams) that is assigned by the course instructor. No work shall be graded unless the pledge is written in full and signed.

"I pledge my honor that I have abided by the Stevens Honor System."

Reporting Honor System Violations

Students who believe a violation of the Honor System has been committed should report it within ten business days of the suspected violation. Students have the option to remain anonymous and can report violations online at www.stevens.edu/honor (Links to an external site.).

LEARNING ACCOMODATIONS

Stevens Institute of Technology is dedicated to providing appropriate accommodations to students with documented disabilities. The Office of Disability Services (ODS) works with undergraduate and graduate students with learning disabilities, attention deficit-hyperactivity disorders, physical disabilities, sensory impairments, psychiatric disorders, and other such disabilities in order to help students achieve their academic and personal potential. They facilitate equal access to the educational programs and opportunities offered at Stevens and coordinate reasonable accommodations for eligible students. These services are designed to encourage independence and self-advocacy with support from the ODS staff. The ODS staff will facilitate the provision of accommodations on a case-by-case basis.

Students who are granted learning accommodations must coordinate with the professor to coordinate accommodations within a sufficient timeframe. This is the student's responsibility.