## Course Information

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Engineering Thermodynamics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course ID</td>
<td>MNE 220, 3 credits</td>
</tr>
<tr>
<td>Semester</td>
<td>Summer 2017</td>
</tr>
<tr>
<td>Mode</td>
<td>Blended: Online prerecorded lectures, and face-to-face exams</td>
</tr>
</tbody>
</table>

## Instructor Information

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Raymond N. Laoulache</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email</td>
<td><a href="mailto:rlaoulache@umassd.edu">rlaoulache@umassd.edu</a></td>
</tr>
<tr>
<td>Phone</td>
<td>508-999-8540</td>
</tr>
<tr>
<td>Virtual Office Hours</td>
<td>Via Blackboard Collaborate (e-hours: MWF 5-6pm by e-appointment 24 hrs. in advance)</td>
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</tbody>
</table>

## Weekly Online Schedule June 13<sup>th</sup> – July 13<sup>th</sup> 2017

<table>
<thead>
<tr>
<th>Week</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; Week</td>
<td></td>
<td>recorded materials</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; Week</td>
<td></td>
<td>recorded materials</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3&lt;sup&gt;rd&lt;/sup&gt; Week</td>
<td>recorded materials</td>
<td>Test 1&lt;sup&gt;1&lt;/sup&gt;: Tuesday, June 27, 5-7pm LIB-225</td>
<td>recorded materials</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4&lt;sup&gt;th&lt;/sup&gt; Week</td>
<td></td>
<td>recorded materials</td>
<td>Test 2&lt;sup&gt;1&lt;/sup&gt;: Thursday, July 6, 5-7pm LIB-225</td>
<td>recorded materials</td>
<td></td>
</tr>
<tr>
<td>5&lt;sup&gt;th&lt;/sup&gt; Week</td>
<td></td>
<td>recorded materials</td>
<td>Test 3&lt;sup&gt;1&lt;/sup&gt;: Thursday, July 13, 4-7pm LIB-225</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Course Description

The purpose of this course is to introduce you to the various forms of energy and their transformations in engineering applications. This course is run entirely online. There is no face-to-face interaction at any time during the offering of this course, except for exams. The course runs from June 13, 2017 until July 13, 2017. Starting Tuesday, June 13, you are expected to review recorded videos posted weekly all at once. All materials including recordings, WileyPLUS reading and homework assignments, virtual office hours, and tests management are accessed via Blackboard.

**Prerequisite:** CHM 151 or CHM 153, & MTH 112 or MTH 114

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1 Try to arrive 10-15 minutes early to LIB 225 in order to login and get ready to take the exam via blackboard. I am your proctor.
## Required Materials

<table>
<thead>
<tr>
<th>eBook</th>
<th>Moran, Fundamentals of Engineering Thermodynamics, 8e WileyPLUS Learning Space Course.</th>
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</table>

Please see the last page for flyer about e-book information.

**NOTE:** You have 14-day grace period to enroll in WileyPLUS without purchasing the e-book in case you decide for any reason to withdraw from the course in the first week, e.g., course tuition. Afterward you must purchase the book in order to continue using WileyPLUS. There is no refund once the purchase is made!

## Course Objectives

### Course Learning Objectives

- Apply fundamental concepts, including closed system, control volume, boundary and surroundings, property, state, process, extensive and intensive properties, and equilibrium.
- Apply key concepts related to energy and the first law of thermodynamics, including internal, kinetic, and potential energy, work and power, and heat transfer modes.
- Apply energy balances to closed systems.
- Use phase diagrams for pure substances.
- Apply the ideal gas model for thermodynamic analysis.
- Apply mass and energy balances to control volumes.
- State the second law of thermodynamics, & evaluate the performance of power cycles and refrigeration and heat pump cycles.
- Describe and analyze the Carnot cycle.
- Apply the Clausius inequality.
- Apply entropy transfer and entropy production to processes.

## Communication Plan

### Communication Plan

Questions by e-mail are encouraged. I check my email Monday through Friday during normal business hours only. You should expect e-reply from me within 24 hours. You may get a reply during the weekend, but that would be an exception and not the rule.

**Communication Plan for the "Ask Questions Here" Discussion Forum**

This forum is located on the left-hand course menu. I encourage you to post course related questions here. I also encourage you to respond to your peers within this forum; either to answer each other’s questions and/or to further the discussion on the topics of threads. I will monitor this forum and respond to provide corrections or redirection when needed.

**Things to keep in mind as you write discussion posts:**

- Ask questions that are related to the course.
- Comment on questions that are related to the course.
- Offer a different perspective on an idea that is being discussed in a respectful manner.

**Time Considerations:**

You should be prepared to spend three hours daily on online activities, not including video recordings. Please budget your time accordingly!
Methods of Evaluation

- **Homework: 20% of the overall grade**
  - Homework assignments are done within WileyPlus. Once enrolled in myCourses, you will be notified about assignments and due dates. No homework is accepted after the due date.

- **Exams: 80% of the overall grade**
    - There are four exams: Test 1, Test 2 and Test 3. Furthermore, Test 3 is administered as two separate tests, Test3a, 4-5:30 pm, and Test 3b, 5:30-7 pm. This strategy is adopted in order to increase your chances for success based on the following grade distribution: 25% per test for the two highest scores among Test 1 through Test 3b, and 15% per test for the two lowest scores. For example, if Test 1 and Test 3a were your highest scores, then each counts 25% of the grade. The remaining lowest tests will count 15% each.
  - Tests are not cumulative. Each test covers a fixed number of chapters. Normally, I e-mail you in advance information about each test.
  - The exams consist in part of true/false statements, and/or qualitative multiple-choice questions. These questions are a one-time chance. Additionally, there are quantitative questions that may require pencil/pen work on paper accompanied by number crunching on a calculator before you enter your answer online. Normally, I give you a second chance to revisit your work in case your first answer was incorrect. Blank papers as well as all relevant equations are provided.
  - You cannot take any phone calls during the exam.
  - You cannot use headphones.

Incomplete Policy

According to the university catalogue, an incomplete may be given only in exceptional circumstances at the instructor's discretion. The student must be passing at the time of the request or be sufficiently close to passing. If the work is not completed within one year of the recording of the incomplete grade, the grade will become an F(I). The incomplete policy for this course is that at least 70% of the course must be already completed and an exceptional circumstance (i.e. medical issue) must exist. If you feel you require an incomplete for an exceptional reason, you need to email me and state your reasons for the incomplete in writing. We will then decide on a course of action.

Conduct

"Students at the University of Massachusetts Dartmouth are expected to exercise self-discipline and maintain a high standard of honesty and moral conduct."

[http://www.umassd.edu/studentaffairs/departments/studentconductanddisputeresolution/policies/](http://www.umassd.edu/studentaffairs/departments/studentconductanddisputeresolution/policies/)

Student Academic Integrity Policy

All UMass Dartmouth students are expected to maintain high standards of academic integrity and scholarly practice. The University does not tolerate academic dishonesty of any variety, whether as a result of a failure to understand required academic and scholarly procedure or as an act of intentional dishonesty.

A student found responsible of academic dishonesty is subject to severe disciplinary action which may include dismissal.
from the University. The procedure for responding to incidents of academic dishonesty may be found in Section III of this document. You may also refer to the Student Handbook for information about the judicial process.

A high standard of academic integrity promotes the pursuit of truth and learning and respect for the intellectual accomplishments of others. These are values that are fundamental to the mission of this University. Such values are undermined by academic dishonesty.

Academic freedom is a fundamental right in any institution of higher learning. Honesty and integrity are necessary preconditions of this freedom. Academic integrity requires that all academic work be wholly the product of an identified individual or individuals. Joint efforts are legitimate only when the assistance of others is explicitly acknowledged and deemed appropriate by the instructor of the course. Ethical conduct is the obligation of every member of the University community, and breaches of academic integrity constitute serious offenses.

Maintenance of the standards of academic integrity and the successful administration of this policy depend on the mutual cooperation of faculty and students.

Faculty cooperation is essential for successful application of the procedures defined by this Academic Integrity Policy. Faculty members promote academic integrity by making clear on their syllabi their expectations concerning homework assignments, collaborative student efforts, research papers, examinations, computer-based infractions, and the like. Efforts should be made to detect and to prevent cheating and plagiarism in all academic assignments. If faculty members have evidence of academic dishonesty, they are expected to report such evidence promptly.

Students must assume responsibility for maintaining honesty in all work submitted for credit and in any other work designated by the instructor of the course. Students are also expected to report incidents of academic dishonesty to the instructor or dean of the instructional unit.

The intent of this policy is to make clear the standards of academic integrity at UMass Dartmouth.

*For additional information on violations, infractions, and consequences visit the UMass Dartmouth Student Academic Integrity Policy at the link below.  
https://www.umassd.edu/policies/activepolicylist/academicaffairs/academicintegritypolicyandreportingform/

**Center for Access and Success**

In accordance with University policy, if you have a documented disability and require accommodations to obtain equal access in this course, please contact the instructor at the beginning of the semester and provide the appropriate paperwork from the Center for Access and Success. The necessary paperwork is obtained when you bring proper documentation to the Center, which is located in Liberal Arts, Room 016; phone: 508.999.8711.

**Resources for UMass Dartmouth Students**

**Tutoring:**

No face-to-face tutoring is available in this course. In case you encounter difficulty with topics or assignments please email me or communicate with me live via Blackboard Collaborate.
<table>
<thead>
<tr>
<th>Week/Date Beginning</th>
<th>Unit of Instruction Topic</th>
<th>Responsibilities</th>
</tr>
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</table>
| **Week 1: June 13-16** | "Getting Started Introductory Concepts and Definitions"  
"Energy and the First Law of Thermodynamics" | **Reading:** Chapters 1-2  
**Activity:** WileyPLUS  
**Evaluation:** Homework |
| **Week 2: June 19-23** | "Energy and the First Law of Thermodynamics"  
"Evaluating Properties" | **Reading:** Chapters 2-3  
**Activity:** WileyPLUS  
**Evaluation:** Homework |
| **Week 3: June 26-30** | "Evaluating Properties"  
"Control Volume Analysis Using Energy" | **Reading:** Chapters 3-4  
**Activity:** WileyPLUS  
**Evaluation:** Homework-Exam |
| **Week 4: July 3-7** | "Control Volume Analysis Using Energy"  
"The Second Law of Thermodynamics" | **Reading:** Chapters 4-5  
**Activity:** WileyPLUS  
**Evaluation:** Homework-Exam |
| **Week 5: July 10-13** | "The Second Law of Thermodynamics"  
"Using Entropy" | **Reading:** Chapters 5-6  
**Activity:** WileyPLUS  
**Evaluation:** Homework-Exam |
Find and register for this course:

Course ID: 574883

Step 1

Find your course
- Visit www.WileyPLUS.com
- Enter your course ID, 574883

Step 2

Register and get access to the course materials

Option A
Enter Your Registration Code
All new textbooks come packaged with a registration code in a sealed envelope. E-text access is included.

Option B
Purchase Instant Access
If you don't have a registration code, you can pay for access right there on the website. E-text access is included.

Option C
Grace Period
If you're not ready to buy, you can try the course free with full access for two weeks, free. E-text access is included.

Need Help?
WileyPLUS Help
Live chat support: www.wileyplus.com/support