

## Syllabus

### ME 0051 – Introduction to Thermodynamics

Spring Semester 2022

<b>Lecture Times:</b>	T 8:15~11:00 am	<b>Instructor:</b>	Dr. Jin Xu
<b>Classroom:</b>	4-203	<b>Office:</b>	4-219
<b>Office Hours:</b>	T&R 2~5 pm	<b>Email:</b>	jin.xu@scupi.cn

**Teaching Assistant:** Ash Young. **Email:** 2019141520049@stu.scu.edu.cn.

#### Catalog Description:

This 3-credit course is an introduction into classical thermodynamics to provide an understanding of the basic concepts that relate to thermodynamic systems. Topics covered will include conservation of energy, work, heat, power systems, power cycles, real cycles and ideal cycles. Prerequisite: *PHYS 0174, CHEM 0960*.

#### Course Outcomes:

- Define and state the first law of thermodynamics.
- Define terms such as heat, work, energy and thermal efficiency.
- Identify and describe various forms of energy.
- Describe and define various forms of energy processes such as heat engines, refrigeration and heat pumps.
- Apply first law analysis to thermodynamic system components
- Apply reversible analysis to a power system
- Apply irreversible analysis to a power system.

#### Required Textbook:

Borgnakke, Fundamentals of Thermodynamics, 10<sup>th</sup> Edition or SI Version Global Edition.

#### Additional Reference:

Moran and Shapiro, Fundamentals of Engineering Thermodynamics, 8<sup>th</sup> Edition, Wiley.

#### Course Policies:

Regular class attendance is expected. Each student is responsible for all of the material presented in class and in the reading assignments. Exams will emphasize treatment of material covered in lectures. In general, no late assignments will be accepted, or makeup exams given. Exceptions will be made for a valid excuse consistent with University Policy. If you cannot attend an exam or meet a due date, you must contact the instructor *prior to* the exam or due date. (Failure to do so will result in a zero on that exam/assignment.) Arrangements will be made for students on a case-by-case basis.

#### Integrity and Academic Expectations:

“Violations of academic integrity include, but are not limited to, cheating, plagiarism, or misrepresentation in oral or written form. Such violations will be dealt with severely, in accordance with University policy. Plagiarism means representing someone else’s idea or writing as if it were your own. If you use someone else’s ideas or writing, be sure the source is clearly designated.” It is expected that

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students adhere to the academic integrity policy that is presented in the Student's Honor Code of Conduct / Student Handbook.

### Grading Policy:

Exams 1 & 2 = 20% each, Final = 30%, Homework = 15%, Project = 10%, and Quiz = 5%. Please go to Grade Center on BB for up-to-date grades. Grades will **not** be curved, and the official SCU grading scale will be used when determining your final letter grade (based on the numerical grade).

### Exam Schedule:

Exam 1: Mar. 29<sup>th</sup>, Exam 2: May 10<sup>th</sup>, and Final: June 14<sup>th</sup>.

### Students with Disabilities:

If you have special needs because of a learning, physical, or other disability, please contact the instructor in advance so accommodations will be provided in a timely manner.

### Tentative Course Schedule:

Week	Date	Chapter
1	2/22	Course Overview
2	3/1	2
3	3/8	3
4	3/15	3
5	3/22	4
6	3/29	<b>Exam #1</b>
7	4/5	No Class – National Day
8	4/12	4
9	4/19	5
10	4/26	Intro to Class Project
11	5/3	6
12	5/10	<b>Exam #2</b>
13	5/17	7
14	5/24	7

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15	5/31	9
16	6/7	Exam Review
17	6/14	<b>Final Exam</b>
18	6/21	Final Grades Posted on BB
19	6/28	End of Semester