

# ENE 209 ENGINEERING THERMODYNAMICS – I 2019-2020 FALL Syllabus

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## Part 1: Course Information

### Instructor Information

**Instructor:** Savaş Yağlıkçı

**Office:** Room 213

**Office Hours:** Wednesday 12:00-13:30

**Office Telephone:** +90-312-485 16 05/5569

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### Course Description

\*Calculates the basic concepts of thermodynamics, calculates the properties of pure fluids depending on the thermodynamic law, applies the basic laws of thermodynamics to engineering systems, calculates work and heat requirements for chemical processes, makes necessary calculations about power cycles, uses thermodynamic diagrams.

#### Prerequisite

- N/A

### Textbook & Course Materials

#### Required Text

- Çengel Y. A., Boles M. A., Thermodynamics: An Engineering Approach, 8<sup>th</sup> Ed., McGraw Hill Education, 2015.

#### Recommended Texts & Other Readings

- Smith J. M., Van Ness H. C., Abbott M. M., Introduction to Chemical Engineering Thermodynamics, 5<sup>th</sup> Ed., McGraw Hill, 1996.
- Sandler S. I., Chemical And Engineering Thermodynamics, 2<sup>nd</sup> Ed., Wiley, 1992.
- Elliott J. R., Lira C. T., Introductory Chemical Engineering Thermodynamics, Prentice Hall, 1999.

**Course Requirements**

- Scientific Calculator
- Thermodynamic Tables (When Distributed)

**Part 2: Student Learning Outcomes**

- Behaviour of Pure Substances
- Interpretation of the laws of thermodynamics
- Recognition of energy conversion systems

You will meet the objectives listed above through a combination of the following activities in this course:

- Attend %70 percent of lectures
- Complete midterms, final exam, quizzes and homework assignments

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## Part 3: Topic Outline/Schedule

- **Week 01:** Introduction and Basic Concepts
- **Week 02:** Properties of Pure Substances
- **Week 03:** Properties of Pure Substances
- **Week 04:** Energy, Energy Transfer and General Energy Analysis
- **Week 05:** Energy, Energy Transfer and General Energy Analysis
- **Week 06:** Energy Analysis of Closed Systems
- **Week 07:** Energy Analysis of Closed Systems
- **Week 08:** Energy Analysis of Closed Systems
- **Week 09:** Mass and Energy Analysis of Control Volumes
- **Week 10:** Mass and Energy Analysis of Control Volumes
- **Week 11:** 2<sup>nd</sup> Law of Thermodynamics
- **Week 12:** 2<sup>nd</sup> Law of Thermodynamics
- **Week 13:** Entropy
- **1<sup>st</sup> Midterm:** 06.11.2019 (Lecture Hours)
- **2<sup>nd</sup> Midterm:** 13.12.2019 (Lecture Hours)