Thermodynamics

Syllabus Number 3F335
Special Subjects
Elective 2 credit
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1. Course Description

Thermodynamics has evolved with the development of industrialization since the Industrial Revolution and has been used for the understanding of steam engines. In the class, students will understand the fundamentals of thermodynamics such as thermodynamics 1st law and 2nd law.
This course is related to DP3 and DP4E .

2. Course Objectives

Students can understand the thermodynamics first law and second law which are the basis of thermodynamics. Students can also understand the flow of energy.

3. Grading Policy

Evaluation will be based on small tests and reports (50%) and results of final exams (50%).

4. Textbook and Reference

Textbook
Junichiro Hashimoto 単位が取れる熱力学

Kodansha
Reference
Keiyuki Baba スバラシク実力がつくと評判の熱力学キャンパス・ゼミ Masema

5. Requirements(Assignments)

Please always prepare and review for the class by using textbook (about 1.5 hour each).
The contents of the class are in accordance with the chapters and contents of the textbook.

6. Note

Knowledge of differentiation and integration calculus is necessary for learning thermodynamics, so please attend classes of relevant math classes as much as possible.

7. Schedule

[1] How to learn thermodynamics
[2] State equation (1)
[3] State equation (2)
[4] Internal energy and thermodynamics first law (1)
[5] Internal energy and thermodynamics first law (2)
[6] Specific heat (heat capacity) (1)
[7] Specific heat (heat capacity) (2)
[8] Second law of thermodynamics (1)
[9] Second law of thermodynamics (2)
[10] Introduction of entropy
[11] Entropy calculation (1)
[12] Entropy calculation (2)
[13] Entropy calculation (3)
[14] Thermodynamic functions
[15] Summary and test