

CAMOSUN COLLEGE

PHYSICS DEPARTMENT

PHYS 291 APPLIED THERMODYNAMICS

An introductory course in the application of thermodynamics to engineering. Topics include the basic concepts and laws of thermodynamics, entropy balance, thermodynamic properties of pure, fluids physical phase equilibrium, thermodynamic potentials, availability, conversion of heat into work refrigeration, and liquefaction.

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| OFFERED: | Q3 |
| CREDIT: | 3 |
| IN-CLASS WORKLOAD: | 4 Lec, 2 Lab (Alternate Weeks) 1 Tutorial |
| OUT-OF-CLASS WORKLOAD: | 6 |
| PREREQUISITES: | Restricted to students in the Civil and Mining Engineering Bridge Program or departmental permission |
| COREQUISITE: | Engr 252 |

OUTLINE

1. **Basic Concepts**
2. **Energy and the First Law**
3. **Pure, Simple, Compressible Substances**
4. **Control Volume Analysis**
5. **The Second Law**
6. **Entropy**
7. **Availability**
8. **Vapour Power Systems**
9. **Gas Power Systems**
10. **Refrigeration and Heat Pumps**

TEXTS AND REFERENCES

Fundamentals of Engineering Thermodynamics – Moran and Shapiro, 3rd Ed.