

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



Sault College

COURSE OUTLINE

COURSE TITLE: Introduction to Thermodynamics
CODE NO. : MCH256 **SEMESTER:** Winter
PROGRAM: Mechanical
AUTHOR: Tom Katagis
DATE: Jan 1, 2007 **PREVIOUS OUTLINE DATED:**
APPROVED: _____
DEAN **DATE**
TOTAL CREDITS: 3
PREREQUISITE(S):
HOURS/WEEK: 3 hours/week

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For additional information, please contact Colin Kirkwood, Dean
School of Technology, Skilled Trades, Natural Resources & Business
(705) 759-2554, Ext. 2688

I. COURSE DESCRIPTION:**II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:**

Upon successful completion of this course, the student will demonstrate the ability to:

1. Understand and explain the first and second law of thermodynamics
2. Understand the properties of various systems including closed/open system boundaries/ surroundings of a system/ isochoric/ isobaric/ iso thermal
3. Understand and apply knowledge of the use of manometers/ closed pressurized systems/ the relationship between volume/pressure/temperature with respect to ideal gases. Utilize steam tables and determine properties of substances as thermodynamic properties change in ideal and non-ideal situations. Utilize the compressibility constant.
4. Understand the Total Energy of a system through the break down of potential/kinetic and internal energy. Develop equations to determine properties as energy is transferred within/and to systems. Determine enthalpy for and apply enthalpy in constant pressure systems.
5. Understand heat transfer through conduction, convection and radiation. Develop and utilize the equations for these modes of heat transfer.

III. TOPICS:

1. Thermodynamics Definitions/Basic Concepts and Review of Concepts
2. Analysis of Press/Temp/Vol change to Thermodynamic Systems
3. Analysis of Energy Transfer in Thermodynamic Systems
4. Analysis of enthalpy/specific heat and heat transfer for isobaric thermodynamic systems

IV. REQUIRED RESOURCES/TEXTS/MATERIALS: None

V. EVALUATION PROCESS/GRADING SYSTEM:*Test #1 – 30%**Test #2 – 30%**Test #3 – 30%**Attendance/Participation – 10%*

The following semester grades will be assigned to students in postsecondary courses:

Grade	<u>Definition</u>	<i>Grade Point Equivalent</i>
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	2.00
C	60 - 69%	1.00
D	50 – 59%	0.00
F (Fail)	49% and below	
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.	
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.	
NR	Grade not reported to Registrar's office.	
W	Student has withdrawn from the course without academic penalty.	

VI. SPECIAL NOTES:

Special Needs:

If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Special Needs office. Visit Room E1101 or call Extension 2703 so that support services can be arranged for you.

Retention of Course Outlines:

It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other postsecondary institutions.

Plagiarism:

Students should refer to the definition of “academic dishonesty” in *Student Rights and Responsibilities*. Students who engage in “academic dishonesty” will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Course Outline Amendments:

The professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Substitute course information is available in the Registrar's office.

<include any other special notes appropriate to your course>

VII. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the professor. Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

VIII. DIRECT CREDIT TRANSFERS:

Students who wish to apply for direct credit transfer (advanced standing) should obtain a direct credit transfer form from the Dean's secretary. Students will be required to provide a transcript and course outline related to the course in question.

