

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



COURSE OUTLINE

COURSE TITLE: CONCEPTS OF TECHNICAL PHYSICS

CODE NO. : PHY117 **SEMESTER:** 2

PROGRAM: Pre-Trades and Technology

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DATE: Jan 2017 **PREVIOUS OUTLINE DATED:** Jan 2016

APPROVED: *"Corey Meunier"* Jan '17
CHAIR DATE

TOTAL CREDITS: 3

PREREQUISITE(S): None, although grade-12 college mathematics is strongly recommended

HOURS/WEEK: 3

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I. COURSE DESCRIPTION:

This course introduces the student to a number of fundamental concepts of technical physics. It is designed to satisfy the needs of students who are interested in an overview of the concepts rather than a rigorous mathematical analysis of the topics as might be encountered in a traditional engineering level course in physics. The included topics relate to the trades and technology fields of study.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. *Measurement and The Metric System***Potential Elements of the Performance:**

- differentiate between accuracy and precision
- be aware of various measuring systems such as:
Metric, Imperial, and U.S. Customary

2. *Motion***Potential Elements of the Performance:**

- differentiate between distance and displacement
- understand speed, velocity, and acceleration

3. *Forces, Work, Energy, Power and Simple Machines***Potential Elements of the Performance:**

- identify forces in nature e.g. gravity, magnetism
- define and describe the units associated with work, energy, power and how forces are used by simple machines

4. *Properties of Matter: Solids, Liquids and Gases***Potential Elements of the Performance:**

- identify the characteristics of matter in various states
- describe the cause(s) of matter to undergo a change of state
- quantify the units of measure which are associated with change of state e.g. temperature and/or heat

5. *Basic Electricity***Potential Elements of the Performance:**

- identify the components of electricity: volt, amperage, and resistance
- be aware of fundamental differences between AC and DC current
- configure parallel and serial circuits

6. ***Temperature and Heat***

Potential Elements of the Performance:

- be aware of centigrade, celcius and Kelvin temperature scales
- be able to convert temperatures between all three scales
- differentiate between temperature and heat

III. **TOPICS:**

1. Measurement and the Metric System
2. Motion
3. Forces, Work, Energy, Power and Simple Machines
4. Properties of Matter: Solids, Liquids and Gases
5. Basic Electricity
6. Temperature and Heat

IV. **REQUIRED RESOURCES/TEXTS/MATERIALS:**

- No text is required for this course. Students are required to attend class and laboratory settings to receive copies of relevant course content.
- Internet Resources.
- ***Scientific Calculator***; similar to Sharp – EL520W

V. **EVALUATION PROCESS/GRADING SYSTEM:**

Your final grade in PHY117 will be determined on the basis of a number of quizzes and tests to be administered during the semester, combined with the results of your laboratory experiment reports. The final mark will be awarded based on the composite score of labs, quizzes and tests as follows:

Tests	50%
Quizzes	10%
<u>Labs, Attendance and Assignments</u>	<u>40%</u>
Total	100%

(The percentages shown above may have to be adjusted to accurately evaluate student skills. Students will be notified of any changes made.)

NOTE: You must obtain a minimum mark of 50% in both the Theory portion and the Lab portion of the course. Failing to do so, will result in an overall failing grade (F).

The professor reserves the right to adjust the mark up or down based on attendance, participation, leadership, creativity and whether there is an improving trend.

- Students must complete and pass both the test and lab portion of the course in order to pass the entire course.
- All Assignments must be completed satisfactorily to complete the course.
- **A minimum of 80% attendance required in the lectures and labs.**
- Makeup Tests are at the discretion of the instructor and will be assigned a maximum grade of 50%.
- The professor reserves the right to adjust the number of tests, practical tests and quizzes based on unforeseen circumstances. The students will be given sufficient notice to any changes and the reasons thereof.
- A student who is absent for 3 or more times without any valid reason or effort to resolve the problem will result in action taken. NOTE: If action is to be taken, it will range from marks being deducted to a maximum of removal from the course.

The following semester grades will be assigned to students:

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:**Attendance:**

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.

It is the departmental policy that once the classroom door has been closed, the learning process has begun. Late arrivers will not necessarily be granted admission to the room.

VII. COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located on the portal form part of this course outline.