

**SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY**

**SAULT STE. MARIE, ONTARIO**



Sault College

**COURSE OUTLINE**

**COURSE TITLE:** CAD Tools

**CODE NO. :** ELN-210                                **SEMESTER:** Two

**PROGRAM:** Electrical / Electronics / Instrumentation Technician

**AUTHOR:** Edward Sowka

**DATE:** 01/2006            **PREVIOUS OUTLINE DATED:** 01/2005

**APPROVED:**

	_____	_____
	<b>DEAN</b>	<b>DATE</b>

**TOTAL CREDITS:** 3

**PREREQUISITE(S):**

**HOURS/WEEK:** 2

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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:

This course is designed to develop skills in the use of the AutoCAD and P-Spice ( ORCad ) computer aided drafting and simulation systems, to generate and modify electrical/electronic schematics and printed circuit boards (PCB's). This course will prepare the student for the automated drafting and PCB layout environment.

## II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. Correctly utilize AutoCAD and P-Spice menu and command structure to produce and modify schematic diagrams.

### Potential Elements of the Performance:

- Effectively understand and utilize the P-Spice and AutoCAD menus and commands.
  - Produce and modify schematic diagrams with correct and accurate labelling.
  - Produce and modify schematic symbols.
2. Correctly utilize P-Spice to enter and simulate simple electronic circuits.

### Potential Elements of the Performance:

- Understand and utilize the P-Spice menus and commands.
  - Correctly produce simple electronic circuits in preparation for simulation.
  - Perform circuit simulations and correctly obtain circuit measurements using the simulation software.
3. Produce and modify Printed Circuit Board layouts for simple schematics. (***This topic will be included, only if time permits***)

### Potential Elements of the Performance:

- Develop a simple PCB layout.
- Understand the PCB construction process.

**III. TOPICS:**

1. P-Spice ( ORCad ) menu structures and commands
2. AUTOCAD 2000 menu structures and commands.

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

1. 2 - 3.5" 1.44 MB Floppy Disks or other removeable storage device.
2. Textbook - Introduction to AutoCAD 2000 by Mark Dix / Paul Riley
3. Textbook – Schematic Capture using Microsim P-Spice by Herniter

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

The final grade will be derived as follows;

- 50% - AUTOCAD ( 1 Test , 2 Drawings )
- 50% - P-Spice and ( 1 Test, 2 Drawings )

*See Special Notes for additional grading policies*

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

<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>
A+	90 - 100%	4.00
A	80 - 89%	4.00
B	70 - 79%	3.00
C	60 - 69%	2.00
D	50 – 59%	1.00
F (Fail)	49% and below	0.00
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:

The student must obtain a passing grade for both the P-Spice and AutoCAD portions of this course, to obtain an overall pass.

- Attendance to lab activities is compulsory, unless discussed with the instructor in advance of the absence and the absence is for a medical or family emergency. A **deduction of 1% per hour missed**, will be imposed on the final lab mark.
- Any student that is absent for a test, will be required to provide a doctors' note immediately upon returning. Failing to do so will result in a grade of 0% being assigned to the missed test.
- Tests, quizzes and other activities, will not be scheduled on an individual basis, unless it is for a medical or family emergency.
- Disruptions to theory classes, such as lateness, are not acceptable and will be dealt with on an individual basis.

**Assignments that are not handed in by the specified deadline, will be assigned a grade of 0%.**

### 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 instructor and/or the Special Needs office. Visit Room E1204 or call Extension 493, 717, or 491 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.

**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.