

**SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY**

**SAULT STE. MARIE, ONTARIO**



Sault College

**COURSE OUTLINE**

**COURSE TITLE:** Machine Shop III  
**CODE NO. :** MCH223 **SEMESTER:** 3  
**PROGRAM:** Mechanical Engineering Technician  
**AUTHOR:** Gord Irvine  
**DATE:** Sept.04 **PREVIOUS OUTLINE DATED:** New  
**APPROVED:**

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**DEAN** **DATE**

**TOTAL CREDITS:** 4  
**PREREQUISITE(S):** MCH135, MCH136  
**HOURS/WEEK:** 4

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*For additional information, please contact C. Kirkwood, Dean*  
*School of Technology, Skilled Trades & Natural Resources*  
*(705) 759-2554, Ext.688*

**I. COURSE DESCRIPTION:**

This component is a continuation of MCH135 & MCH136 and specializes in the use of milling machines and their application in industry.

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

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

1. Identify different types of milling machines and understand their capabilities.

Potential Elements of the Performance:

- Identify and operate universal, vertical and horizontal milling machines
- Identify which of these machines will be best suited for the operation required
- Recognize alternative machine choices to achieve the same results

2. Become proficient in safety procedures of these machines.

Potential Elements of the Performance:

- Follow safe operating procedures for shop and milling machine practices
- Maintain and report the condition of machinery to shop supervisor

3. Perform machine setup and operation and work piece setup as related to an industrial maintenance setting.

Potential Elements of the Performance:

- Align work pieces on machinery to close tolerances
- Set work pieces on machinery to machined surfaces and complete operations
- Adjust machinery to desired positions to complete tasks

4. Successfully perform cutting operations on milling machines.

Potential Elements of the Performance:

- Identify correct cutter for the machine operation required
- Use climb and conventional milling practices in their correct application
- Machine flats, profiles, keyways, gears and other operations suitable to a mechanical maintenance environment
- Understand the effects of current operations and the resulting pressures associated with such actions

5. Identify alternate methods of completing work piece features.

Potential Elements of the Performance:

- Discuss and explain alternate machinery methods and practices for completing various operations performed in a machine shop environment

### **III. TOPICS:**

1. Milling machine safety
2. Milling machine operations
3. Milling machine identification
4. Vertical and horizontal milling machines
5. Fixtures and tool holders for milling machines

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

Safety boots, safety glasses, tape measure, calculator, Machining Fundamentals (text)

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

Practical assignments	65%
Attendance and initiative	10%
Tests and assignments	20%
Safe working practices	5%

The following semester grades will be assigned to students:

<b>Grade</b>	<b><u>Definition</u></b>	<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 703 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.