

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



**SAULT
COLLEGE**

CICE COURSE OUTLINE

COURSE TITLE:	Machine Shop Practical II		
CODE NO. :	MCH145	SEMESTER:	Winter
MODIFIED CODE:	MCH0145		
PROGRAM:	Mechanical Engineering Technician - Manufacturing Mechanical Techniques – Millwright Mechanical Techniques – Machine Shop		
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MODIFIED BY:	Kim Jefferies, Learning Specialist CICE Program		
DATE:	Jan. 2015	PREVIOUS OUTLINE DATED:	Jan. 2014
APPROVED:	"Angelique Lemay"		Jan. 2015
	<hr/> <i>Dean, School of Community Services and Interdisciplinary Studies</i>		<hr/> DATE
TOTAL CREDITS:	4		
PREREQUISITE(S):	MCH0140 Machine Shop Fundamentals I		
HOURS/WEEK:	4		

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I. COURSE DESCRIPTION:

In this course the CICE student, with the assistance of a Learning Specialist, will continue to build on the study of shop machines, safety, and tool care, measurements and layout, bench work and hand tools, material identification, heat treatment and testing, basic lathe, saws, drill presses, grinder, and milling machine, theory and practices, speeds, feeds, tapers, and threads.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the CICE student, with the assistance of a Learning Specialist, will demonstrate the basic ability to:

1. *Work safe in a shop environment whether running machines or doing bench work.*Potential Elements of the Performance:

- Use all shop safety rules.
- Wear and use proper safety equipment.
- Operate machines in a safe manner.
- Practice safe working habits.

2. *Use all of the various measuring tools to verify dimensions of machined parts.*Potential Elements of the Performance:

- Use measuring tools such as scales, inside and outside micrometers and vernier calipers.
- Use transfer measuring tools such as inside and outside calipers, telescopic gauges, small hole gauges and dividers.

3. *Setup and Safely operate lathes.*Potential Elements of the Performance:

- Use four jaw chucks for centering work
- Select correct speeds and feeds
- Select proper pitches using quick change gear box
- Understand and cut threads using different methods and pitches

4. *Setup and safely operate Milling Machines.*Potential Elements of the Performance:

- Setup milling machines using various work holding methods

- Select proper speeds and feeds and verify correct cutter rotation
- Perform various operations such as squaring stock
- Learn about keys and keyways and how to successfully setup and cut

5. *Select and operate different types of drill presses.*

Potential Elements of the Performance:

- Operate sensitive and radial arm drill presses safely.
- Select proper size drills for drilling and tapping.
- Perform operations such as drilling, reaming, and counter boring.
- Perform safe work holding using clamps, vises, angle plates, vee blocks and parallels.

6. *Safely operate arbour press.*

Potential Elements of the Performance:

- Using an arbour press correctly install bushings or bearings
- Learn about internal keyways and how to cut them using an arbour press

7. *Safely perform bench work and assembly.*

Potential Elements of the Performance:

- Assemble machined components
- Make necessary adjustments to allow components to fit together
- Verify accuracy of finished assembled components.

III. TOPICS:

1. Working safely in a shop environment.
2. Use and care of measuring tools.
3. Safe setup and operation of lathes
4. Safe setup and operation of milling machines
5. Safe setup and operation of drill presses
6. Safely operate arbour press
7. Safely perform bench work and assembly

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

- Machining Fundamentals textbook (recommended)
- Scientific calculator (not cell phones)
- Safety glasses
- Safety boots
- Shop coats (Not mandatory but recommended to protect clothing)
- Hair net required when hair is below collar length.
- (Hair may also be put up underneath a ball cap)

NOTE

Students are expected to wear safety equipment in the shop, failure to do so will result in denial to work in the shop on that occasion. While working in the shop do not wear rings or exposed jewellery or shorts.

V. EVALUATION PROCESS/GRADING SYSTEM:

<i>Primary Projects</i>	<i>70%</i>
<i>Attitude/Participation</i>	<i>10%</i>
<i>Attendance</i>	<i>10%</i>

-1% per Hour (Late = 1 Hour)

Each absence will reduce this portion of the attendance mark by 33%. If the student accumulates 3 absences in the semester a meeting will be scheduled with the dean of this program. Continued enrollment in this program will be decided by the Dean, the Coordinator and the instructor of this program.

Safety Violations Including housekeeping 10%
-10% per Occurrence

(See notes Below)

<i>Total</i>	<i>100%</i>
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NO CELL PHONES ARE PERMITTED
IN THE SHOP OR CLASSROOM

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 enclosed, the learning process has begun. Late arrivers will not be granted admission to the room.

Safety:

Sault College recognizes that the Health and Safety of the Students and Staff is of the utmost importance. Recognizing that safety is everyone's responsibility and there is never a reason to compromise safety, is an important step in reducing accidents. To minimize potential hazards in the shop and various labs, safety rules will be strictly enforced.

Students must continuously wear all Sault College required **Personal Protective Equipment (PPE)** while working in the shop or lab as required by the Instructor. Students are required to wearing their required PPE prior to entering the lab. Failure to do this will result in the expulsion from the shop or lab activity and a zero attendance mark will be recorded. A student who repeatedly neglects to wear PPE as required is in violation of the Sault College Academic code of Conduct and may be sanctioned accordingly.(see Student Code of Conduct & Appeal Guidelines). For instance, first violation-verbal warning, second violation –written warning and the third violation-suspension from the Shop or Lab. For each infraction a 1% penalty is applied (as per the Evaluation/Grading System above.)

VII. COURSE OUTLINE ADDENDUM:

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

Addendum:

Further modifications may be required as needed as the semester progresses based on individual student(s) abilities and must be discussed with and agreed upon by the instructor.

CICE Modifications:**Preparation and Participation**

1. A Learning Specialist will attend class with the student(s) to assist with inclusion in the class and to take notes.
2. Students will receive support in and outside of the classroom (i.e. tutoring, assistance with homework and assignments, preparation for exams, tests and quizzes.)
3. Study notes will be geared to test content and style which will match with modified learning outcomes.
4. Although the Learning Specialist may not attend all classes with the student(s), support will always be available. When the Learning Specialist does attend classes he/she will remain as inconspicuous as possible.

A. Tests may be modified in the following ways:

1. Tests, which require essay answers, may be modified to short answers.
2. Short answer questions may be changed to multiple choice or the question may be simplified so the answer will reflect a basic understanding.
3. Tests, which use fill in the blank format, may be modified to include a few choices for each question, or a list of choices for all questions. This will allow the student to match or use visual clues.
4. Tests in the T/F or multiple choice format may be modified by rewording or clarifying statements into layman's or simplified terms. Multiple choice questions may have a reduced number of choices.

B. Tests will be written in CICE office with assistance from a Learning Specialist.***The Learning Specialist may:***

1. Read the test question to the student.
2. Paraphrase the test question without revealing any key words or definitions.
3. Transcribe the student's verbal answer.
4. Test length may be reduced and time allowed to complete test may be increased.

C. Assignments may be modified in the following ways:

1. Assignments may be modified by reducing the amount of information required while maintaining general concepts.
2. Some assignments may be eliminated depending on the number of assignments required in the particular course.

The Learning Specialist may:

1. Use a question/answer format instead of essay/research format
2. Propose a reduction in the number of references required for an assignment
3. Assist with groups to ensure that student comprehends his/her role within the group
4. Require an extension on due dates due to the fact that some students may require additional time to process information
5. Formally summarize articles and assigned readings to isolate main points for the student
6. Use questioning techniques and paraphrasing to assist in student comprehension of an assignment

D. Evaluation:

Is reflective of modified learning outcomes.