SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO


Sault College

COURSE OUTLINE

COURSE TITLE: Machine Shop Fundamentals II

CODE NO. : MCH145 **SEMESTER:** 2

PROGRAM: Mechanical

AUTHOR: Peter Corbett

DATE: Jan. 2007 **PREVIOUS OUTLINE DATED:**

APPROVED:

_____ _____

DEAN **DATE**

TOTAL CREDITS:

PREREQUISITE(S): Machine Shop Fundamentals I

HOURS/WEEK:

I. COURSE DESCRIPTION:

This course is a continuation of Machine Shop Practical I. The student will continue to develop the skills required to safely setup and operate various machines used in Machine Shops. Focus will be on enhancing existing skills using lathes, milling machines and other machines used in the manufacture of components.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

Machine Shop Fundamentals textbook
Scientific calculator
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.

CELL PHONES MUST NOT BE USED IN THE SHOP.

V. EVALUATION PROCESS/GRADING SYSTEM:

Projects	*70%*
Attendance	*15%*
Participation and attitude	*15%*
Total	*100%*

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

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

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.