SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE:	PRECISION MEASURING EQUIPMENT		
CODE NO. :	MCH138	**SEMESTER:**	ONE
PROGRAM:	MECHANICAL PROGRAMS		
AUTHOR:	NEAL MOSS neal.moss@saultcollege.ca		
DATE:	SEPT 2010	**PREVIOUS OUTLINE DATED:**	JUNE 2010
APPROVED:	*"Corey Meunier"* **CHAIR**		_____ **DATE**
TOTAL CREDITS:			
PREREQUISITE(S):	NONE		
HOURS/WEEK:	TWO		

I. COURSE DESCRIPTION:

This course is designed to strengthen the student's ability to measure and inspect to precise tolerances, the physical size and shapes of various machined parts. The students will use various measuring equipment and techniques that modern industry uses in the mechanical fields. Precision and accuracy will be the focus of the course.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. Understand the importance of precise measurement and how it affects product and workmanship in industry.

Potential Elements of the Performance:

- Understand the role of the technician in measurement
- Use of standards and the need for standards
- Understand the importance of maintaining accuracy
- How non precise measurement techniques affect companies
- Lab assignment / report

2. Use of measuring tools.

Potential Elements of the Performance:

- Discuss the use and care of measurement tools
- Be able to interpret imperial and metric readings
- Recognize sources of error in the measuring process
- Correctly adjust, maintain and store measuring tools
- Lab assignment / report

3. Be able to transfer measurements accurately.

Potential Elements of the Performance:

- Learn to transfer measurements taken onto a layout project
- Draw shop floor layout sketches
- Assignment / report
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4. Be knowledgeable in various modern measuring equipment.

Potential Elements of the Performance:

- Discuss modern computerized measuring equipment available today that enhance precise measurement
- Demonstrate the basic use of laser equipment

- Discuss measuring equipment available today that is used in vibration analysis, hydraulic testing and other machinery components

5. Discuss the use of Statistical Process Control in industry.

Potential Elements of the Performance:

- Discuss Statistical Process Control
- Discuss the advantages of using Statistical Processes
- Perform assignments in Statistical Process Control

III. TOPICS:

1. The need for precise measurement
2. The use and care of various measurement tools
3. Simple layout measurement transfer
4. Computerized measurement equipment
5. Statistical Process Control

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

- Machining Fundamentals (textbook & workbook)
- High Cut (8") Safety Boots (CSA approved)
- Impact Resistant Safety Glasses (CSA approved)
- Coveralls or Shop Coat (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)
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Please 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, exposed jewelry or shorts.

V. EVALUATION PROCESS/GRADING SYSTEM:

Three Term Tests	50%
Final test	20%
Assignments	20%
Attitude/Participation	10%
Attendance	***-1% per Hour (Late = 1 Hour)***
Safety Violations	***-1% per Occurrence (See notes Below)***
TOTAL	= 100%

No Cell Phones are Permitted in The Classroom or Shops

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:

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.

VII. COURSE OUTLINE ADDENDUM:

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

Safety;
Sault College recognizes that the Health and Safety of the Students and Staff is of the upmost 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.)