SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

Sault College

COURSE OUTLINE

COURSE TITLE:	Materials and Fasteners		
CODE NO. :	MCH 134	**SEMESTER:**	**1**
PROGRAM:	Mechanical Programs		
AUTHOR:	Cam Pucci	cam.pucci@saultcollege.ca campucci@shaw.ca	
DATE:	Aug./ 08	**PREVIOUS OUTLINE DATED: 06**	Sept./07
APPROVED:		**"Corey Meunier" CHAIR**	**Sep 16 08 DATE**
TOTAL CREDITS:	2		
PREREQUISITE(S):	None		
HOURS/WEEK:	2		

I. COURSE DESCRIPTION:

To provide students with a working knowledge of the theory behind the procedures that is used in the making and working with carbon steels, aluminum and its alloys, and other construction materials as well as knowledge and applications of fasteners. Practical lab / shop activities will be used to enhance and / or demonstrate theoretical concepts where possible.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. ***Understand Metals and Alloys***

   Potential Elements of the Performance:
   - Identify and describe properties of metals and alloys
   - Identify and describe the effects of temperature on metals and alloys.

2. ***Define the following properties of metals and alloys:***

   Potential Elements of the Performance:
   - Define and describe each of the following mechanical and physical .properties and / or terms:
     - Elasticity
     - Yield Point / Strength
     - Tensile ,Compressive, Shear, Bearing strength
     - Conductivity
     - Corrosion
     - Ductility
     - Malleability
     - Hardness
     - Impact Strength
     - Temperature effects

3. ***Describe the purpose for adding the following to steel:***

   Potential Elements of the Performance:
   - Carbon
   - Sulphur
   - Phosphorus
   - Silicon
   - Manganese
   - copper

4. **Identify and describe the uses of non-metallic materials:**

   Potential Elements of the Performance
   - rubber
   - plastic
   - nylon

5. ***Bolts, Fasteners and Gasket Materials***

   Potential Elements of the Performance:
   - Identify the types, applications and qualities of fasteners including
     - Unified - American - National - Acme
     - Metric and Pipe thread systems
   - Identify and select bolts, nuts, clips, chemical fasteners and adhesives as well as their potential use and application
   - Describe methods of securing machinery and components using bolts, anchors, fasteners, grouting and epoxy resins

III. TOPICS:

1. Metals and Alloys
2. Mechanical and physical Properties of Metals
3. Additive materials in steel
4. Non-metallic materials
5. Bolts, Fasteners and Gasket Materials

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

- Machining Fundamentals
- Millwright Manual
- Handouts/Resource Material

V. EVALUATION PROCESS/GRADING SYSTEM:

Three Term Tests	**50%**
Final test	**20%**
Assignments	**20%**
Attendance/Attitude/Participation	**10%**
	= 100%

The following semester grades will be assigned to students in other than post-secondary courses:

Grade	Definition	Grade Point Equivalent
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
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.

Communication:
The College considers ***WebCT/LMS*** as the primary channel of communication for each course. Regularly checking this software platform is critical as it will keep you directly connected with faculty and current course information. Success in this course may be directly related to your willingness to take advantage of the ***Learning Management System*** communication tool.

Plagiarism:
Students should refer to the definition of "academic dishonesty" in *Student Code of Conduct*. 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:

Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

VIII. ADVANCE CREDIT TRANSFER:

Students who wish to apply for advance credit transfer (advanced standing) should obtain an Application for Advance Credit from the program coordinator (or the course coordinator regarding a general education transfer request) or academic assistant. Students will be required to provide an unofficial transcript and course outline related to the course in question.