

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



Sault College

COURSE OUTLINE

COURSE TITLE: PUMPS, VALVES, PIPING, COMPRESSORS
CODE NO. : MCH142 **SEMESTER:** 2
PROGRAM: Mechanical Programs
AUTHOR: Cam Pucci – cam.pucci@saultcollege.ca
DATE: Jan/ 08 **PREVIOUS OUTLINE DATED:** Jan/ 07
APPROVED:

	_____ CHAIR	_____ DATE
TOTAL CREDITS:	3	
PREREQUISITE(S):	n/a	
HOURS/WEEK:	3	

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*For additional information, please contact Corey Meunier, Chair
School of the Natural Environment, Technology & Skilled Trades
(705) 759-2554, Ext. 2610*

I. COURSE DESCRIPTION:

In this course, the student will learn about the different applications, installation, maintenance and types of pumps, valves, piping, compressors and ancillary equipment. Along with class instruction, knowledge will be gained through theory and practical assignments.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. Discuss and demonstrate knowledge in various centrifugal type pumps.
Potential Elements of the Performance:
 - Principles of non-positive displacement type pumps
 - Various types of centrifugal type pumps & components
 - Types of seals used in centrifugal pumps
 - Assignments related to centrifugal pumps
 - Installation, start-up and safety requirements
 - Maintenance requirements for centrifugal pumps
2. Discuss and demonstrate knowledge with Positive Displacement type pumps.
Potential Elements of the Performance:
 - Principles of positive displacement type pumps
 - Compare positive and non-positive displacement pumps
 - Discuss various types of positive displacement pumps
 - Perform assignments related to positive displacement pumps
 - Installation, start-up and safety requirements
 - Maintenance requirements for positive displacement pumps
3. Discuss various types of conductors used in the trades. (Piping, tubing, hoses, fittings, ect.)
Potential Elements of the Performance:
 - Discuss various types of uses for conductors
 - Discuss various materials and uses
 - Discuss sizing, and theory requirements
 - Discuss fittings and sealants used with conductors
 - Demonstrate installation techniques with conductors/fittings

- Perform assignments related to conductors
- Discuss safety requirements related to conductors

4. Discuss various types of valves used in today's mechanical field.

Potential Elements of the Performance:

- Discuss theory requirements with various valves
- Examine specific uses for various type valves
- Examine design qualities
- Discuss installation techniques
- Discuss specific sealants used with valves
- Discuss safety and lockouts for valves

5. Discuss various types of compressors used in today

Potential Elements of the Performance:

- Discuss relevant theory related to compressors
- Discuss the various types and uses of compressors
(reciprocating, rotary, screw, positive, dynamic or kinetic)
- Discuss Staging and Acting Compressors
- Discuss compressor components and uses
- Discuss safety and maintenance of compressors
- Discuss troubleshooting

III. TOPICS:

1. Centrifugal (non-positive displacement) pumps
2. Positive displacement pumps
3. Conductors (pipe, tube, hose, fittings, sealants)
4. Various Valves
5. Compressors

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Millwright Manual, Personal notes, Computer Access, Safety Wear.

V. EVALUATION PROCESS/GRADING SYSTEM:

<i>Tests</i>	<i>40%</i>
<i>Assignments.....</i>	<i>40%</i>
<i>Final Exam,</i>	
Personal student performance	20%

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

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:

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.

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.

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.