SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

Sault College

COURSE OUTLINE

COURSE TITLE: Electrical & Electronic Controls II

CODE NO. : ELR213 **SEMESTER:**

PROGRAM: Industrial Mechanic (Millwright) / Construction Millwright

AUTHOR: R. Chartrand

DATE: 05/2007 **PREVIOUS OUTLINE DATED:** 2006

APPROVED:

_____ _____

DEAN **DATE**

TOTAL CREDITS:

PREREQUISITE(S): None

HOURS/WEEK:

I. COURSE DESCRIPTION:

This hands-on course introduces the student to residential wiring practices.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. To develop the apprentice's basic knowledge concerning electrical
   Potential Elements of the Performance:

   - Review the use of basic electrical testing instruments
   - Review and safely demonstrate the troubleshooting, removal, and resetting of electrical and electronic overload devices such as:
     - Fuses
     - Circuit breakers
     - Ground fault circuit interrupters GFCI
   - Review and safely demonstrate the following
     - Basic general lock-out and tag-out equipment and procedures
     - General shut off procedures

2. To develop the apprentice's basic knowledge concerning instrumentation measuring devices
   Potential Elements of the Performance:

   - Introduce open and closed loop control systems
   - Differentiate between analog and digital signals
   - Describe, briefly, the devices used in a control system such as:
     - Limit switches
     - Proximity switches
     - Photo cells
     - Inductive and capacitive sensors
     - Solenoids
     - Linear variable differential transformers (LVDT)
     - Vibration transducers
     - Displacement, velocity and accelerometer devices

Thermal devices such as;
thermostats,
thermocouples,
bimetallic strip devices,
metal resistance thermometers,
thermistors, and
thermal expansion devices

Miscellaneous transducers such as:
Bourdon tube
Pressure switches
Diaphragm
Bellows
Piezoelectric,
Strain gauge
capsules

III. TOPICS:

1.

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Handouts

-

V. EVALUATION PROCESS/GRADING SYSTEM:

Theory testing : 75%
Application experiences includes 25%
Class participation attendance labs 100%

While marks are not given for attendance, marks may be deducted for classes missed. See Special Notes section.

The following semester grades will be assigned to students in apprentice 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 493 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 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.

- Attendance to shop activities is compulsory, unless discussed with the instructor in advance of the absence and the absence is for a medical or family emergency.
- Any student that is absent for any shop class will be required to provide a doctor's note immediately upon returning. Failing to do so will result in a grade of 0% being assigned to the missed shop activity.
- At the instructor's discretions a deduction of 5% may be made from the student's final mark for each shop class or portion thereof missed.

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.

STUDENT COURSE AGREEMENT (Please print)

I, _____student ID # _____
with regards to the course known as ELR 213 Automation Control Systems
COURSE CODE # **ELR 213** have read and understood the course content, outline and expectations which clearly states the following:

1- Absolutely no make up tests or exams will be administered with the exceptions of personal illness, or death of an immediate family member both requiring written verification.
2- All labs and or assignments must be handed in by the due date or a grade of 0 will be awarded.
3- Lab & lecture attendance are compulsory. Any lecture notes, Project assignments etc. missed, will become the student's responsibility to retrieve from another student.
4- Lab or lecture quizzes can be presented at anytime without prior notification.
5- All Labs must be completed during assigned Lab times unless prior approval is obtained form the instructor.
6- Students must be able to demonstrate Projects (Labs) that are assigned by the instructor on or before the due date if requested by the instructor. Each student must be sure that he / she can duplicate the Project (Lab) that they turned in on or before the due date. If the student cannot duplicate the Project to the satisfaction of the instructor, a grade of 0% will be assessed to that particular Project. Demonstration request will be at the discretion of the instructor.
7- In order to maintain a passing grade the student must obtain a minimum 50% average in all subject sections that the course may have, such as, the theory Tests section, Practical Tests section, Projects (Labs) & Project Write-ups and Demonstrations of Projects to Instructor section
8- Students are not permitted to work on live equipment outside of regular class time and without instructor supervision. Students must wear safety glasses at all times in the Lab and maintain a safe and clean work area.
9- Students must supply their own hand tools, meters and safety glasses. Students will not be permitted in the lab without safety glasses and the student must wear the safety glasses whenever working on live equipment. Students must never work alone in the lab. Unsafe work habits, improper behavior will not be tolerated.
10- I have read and understand the requirements outlined above and in the course outline.

_____ _____
(Student's Signature) (Date)