

I. COURSE DESCRIPTION:

A course in the applications of diodes in rectifier circuits and power supplies. Other topics include Zener diodes, Field Effect Transistors, op-amps and thyristors including the SCR, DIAC and TRIAC

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. Use an oscilloscope to test circuits.
2. Explain the importance of isolation as applied to test equipment.
3. Describe and demonstrate full-wave rectification.
4. Connect capacitors and inductors to filter a power supply output.
5. Explain and demonstrate the use of a Zener diode as a regulator.
6. Describe and demonstrate the operation of an SCR.
7. Describe and demonstrate the operation of a DIAC.
8. Describe and demonstrate the use of a TRIAC.
9. Describe and demonstrate how a DIAC and RC network can be used to phase shift a TRIAC.
10. Describe the operation and applications of a Pulse Transformer and the theory of pulse triggering thyristors.
11. Explain the operation of a Field Effect Transistor (FET).
12. Explain the operation of an Operational Amplifier (Op. Amp).
13. Calculate the expected gain of inverting and non-inverting Op-Amp circuits.
14. Demonstrate the operation of an Op-Amp used as a Comparator.
15. Demonstrate the operation of an Op-Amp used as an amplifier.

III. TOPICS:

1. The Oscilloscope
2. Single-Phase Rectifiers
3. Filters
4. Zener Diodes
5. Thyristors
6. Phase Shifting SCRs and TRIACs
7. Pulse triggering thyristors
8. Field Effect Transistors
9. The Operational Amplifier (Op-Amp)

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Electronics for Electricians, 5th Edition
by Stephen L. Herman

V. EVALUATION PROCESS/GRADING SYSTEM:

Theory	50%
Lab	50%

The following semester grades will be assigned to students:

Grade	Definition	<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W	Student has withdrawn from the course without academic penalty.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:Disability Services:

If you are a student with a disability (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Disability Services 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.

Student Portal:

The Sault College portal allows you to view all your student information in one place. **mysaultcollege** gives you personalized access to online resources seven days a week from your home or school computer. Single log-in access allows you to see your personal and financial information, timetable, grades, records of achievement, unofficial transcript, and outstanding obligations, in addition to announcements, news, academic calendar of events, class cancellations, your learning management system (LMS), and much more. Go to <https://my.saultcollege.ca>.

Electronic Devices in the Classroom:

Students who wish to use electronic devices in the classroom will seek permission of the faculty member before proceeding to record instruction. With the exception of issues related to accommodations of disability, the decision to approve or refuse the request is the responsibility of the faculty member. Recorded classroom instruction will be used only for personal use and will not be used for any other purpose. Recorded classroom instruction will be destroyed at the end of the course. To ensure this, the student is required to return all copies of recorded material to the faculty member by the last day of class in the semester. Where the use of an electronic device has been approved, the student agrees that materials recorded are for his/her use only, are not for distribution, and are the sole property of the College.

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.