

I. COURSE DESCRIPTION:

This course will introduce several electronic devices and circuits used in the industry. The student will study the devices, their electrical characteristics and industrial applications. Emphasis is placed on the analysis and troubleshooting of typical circuits, as well as some simplified design. This course prepares the student for troubleshooting circuits and systems in the Electrical / Electronic industry.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. Correctly select and test electronic devices based on electrical operating characteristics

Potential Elements of the Performance:

- Understand the operation of various Thyristor devices
- Correctly select/replace Thyristor devices in applications.
- Perform IN/OUT circuit testing to determine the functionality of the devices.

2. Analyse, test and troubleshoot electronic circuits employing Thyristor devices.

Potential Elements of the Performance:

- Accurately analyse the operation of Thyristor circuits.
- Correctly test circuits for operation using common and specialized test equipment.
- Correctly and accurately troubleshoot malfunctioning circuits.

3. Design and modify simple Thyristor circuits.

Potential Elements of the Performance:

- Design simple Thyristor control circuits.
- Correctly modify existing circuits for changing operating characteristics.

4. Understand the operation and electrical characteristics of various Optoelectronic and Fibre Optic devices.

Potential Elements of the Performance:

- Understand the operation of Photocells, Opto-couplers, Phototransistors, LASCR's, and Fibre-Optic cable, transmitters and receivers.

III. TOPICS:

1. Transistor Switching and Timing Circuits
2. SCR Characteristics and Applications
3. Other Thyristor Characteristics and Applications
4. Optoelectronics and Fibre Optics

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

1. Industrial Electronics Parts Package
2. First year Electronics Parts Package (Including DMM and Protoboard).
3. First Year Electronics Textbook
4. Motorola Thyristor Data Book

V. EVALUATION PROCESS/GRADING SYSTEM:

The course is delivered using 2 methods, Theory and Laboratory. The theory component will consist of 2 tests (Mid -Term and Final) and quizzes. The laboratory component will consist of specific lab exercises and practical tests.

The following will be the method for determining your final Grade:

$$50\% \text{ Theory} = \text{Test \#1 (25\%)} + \text{Test \#2 (25\%)}$$

$$50\% \text{ Lab} = \text{Lab Exercises (20\%)} + \text{Practical Tests (30\%)}$$

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

<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>
A+	90 - 100%	4.00
A	80 - 89%	3.75
B	70 - 79%	3.00
C	60 - 69%	2.00
R (Repeat)	59% or below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field placement or non-graded subject areas.	
U	Unsatisfactory achievement in field placement or non-graded subject areas.	
X	A temporary grade. This is used in limited situations with extenuating circumstances giving a student additional time to complete the requirements for a course (see <i>Policies & Procedures Manual – Deferred Grades and Make-up</i>).	
NR	Grade not reported to Registrar's office. This is used to facilitate transcript preparation when, for extenuating circumstances, it has not been possible for the faculty member to report grades.	

VI. SPECIAL NOTES:

Attendance to lab activities is compulsory, unless discussed with the instructor in advance of the absence. Your attendance and final grade are directly related.

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 instructor and/or the Special Needs office. Visit Room E1204 or call Extension 493, 717, or 491 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.

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:

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.