



**I. COURSE DESCRIPTION:**

An introductory course designed to give an overview of terms, devices, symbols and analysis techniques used in DC circuits. Topics include series, parallel and series-parallel DC circuit analysis. Other topics include an introduction to magnetism and magnetic devices, inductors and capacitors and their principle operation in DC circuits.

**II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:**

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

1. Analyse Series, Parallel and Series-Parallel DC circuits containing voltage and current sources and resistors, to determine individual voltage, current and power values.

Potential Elements of the Performance:

Complete mathematical questions from text and assignments  
Choice and use of network Theorems to aid in analysis  
Completion of test

2. Analyse magnetic properties of circuits and devices

Potential Elements of the Performance:

Determine the direction of magnetic flux present as a result of DC current flow in a conductor  
Determine the direction and strength of magnetic flux present as a result of DC current flow in a coil  
Determine the direction of rotation of a simple dc motor  
Determine the direction of current flow in a simple dc generator  
Completion of dc machine diagrams showing flux & main fields and rotation  
Complete test questions

3. Analyse a DC circuit containing inductors or capacitors and resistors, to determine charge and discharge characteristic values

Potential Elements of the Performance:

Completion of RL and RC circuit questions regarding time constants  
Completion of RL and RC circuit questions requiring the solution of the time for threshold voltage or current achievement  
Completion of test

**III. TOPICS:**

1. Definition of voltage, current, resistance, sources, symbols
2. Ohm's Law
3. Series Circuits, Kirchhoff's Laws, Real vs. Ideal Circuits
4. Energy and Power, Efficiency
5. Parallel Circuits, Conductance
6. Series-Parallel Circuits
7. Circuit Theorems, Thevenin's, Max Power Transfer, Superposition

8. Magnetics, materials and circuits, Right Hand Rule, Motor/Generator action
9. Inductors, Series and Parallel, Mutual Inductance, energy storage
10. Capacitors, Series and Parallel, energy stored
11. Inductor-Resistor Circuits, Time Constants, Instantaneous Values of Current and Voltage, Back emf
12. Capacitor-Resistor Circuits, Time Constants, Instantaneous Values of Current and Voltage, Back emf

**IV. REQUIRED RESOURCES/TEXTS/MATERIALS:**

**Principles of Electric Circuits, 6<sup>th</sup> Ed. By Floyd**

**V. EVALUATION PROCESS/GRADING SYSTEM:**

**Three Tests @ 33.33 % each, for : TOTAL 100%**

**Surprise Quiz's may be given for a maximum of 5% of the final grade and are attributed toward the next test percentage value**

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 &amp; 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:**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.

If a student misses a test or surprise quiz ( maximum 5% of final grade ) without contacting the instructor, the Dean’s office or the switchboard prior to the test or quiz, a mark of zero will be granted without a re-write option.

No re-write will be given for completed tests.

**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.