



COURSE OUTLINE

ELR100

1

Prepared: A. Gooderham Approved: Corey Meunier

Course Code: Title	ELR100: ELECTRICAL FUNDAMENTALS DC
Program Number: Name	4026: ELECTRICAL TN-PROC
Department:	ELECT./INSTRUMENTATION PS
Semester/Term:	17F
Course Description:	This is an introduction to electrical quantities and units, Ohm`s and Kirchoff`s Laws, simple DC series, parallel, series-parallel, and voltage divider circuits, simple DC network analysis, magnetism and electromagnetism, inductance and capacitance, DC series RL circuit analysis.
Total Credits:	5
Hours/Week:	5
Total Hours:	75
This course is a pre-requisite for:	ELN109, ELN115, ELR109
Vocational Learning Outcomes (VLO's): Please refer to program web page for a complete listing of program outcomes where applicable.	<p>#1. Interpret and produce electrical and electronics drawings including other related documents and graphics.</p> <p>#2. Analyze and solve routine technical problems related to electrical systems by applying mathematics and science principles.</p> <p>#3. Use, verify, and maintain instrumentation equipment and systems.</p> <p>#6. Verify acceptable functionality and apply troubleshooting techniques for electrical and electronic circuits, components, equipment, and systems under the supervision of a qualified person.</p> <p>#8. Use computer skills and tools to solve routine electrical related problems.</p> <p>#16. Select electrical equipment, systems and components to fulfill the requirements and specifications under the supervision of a qualified person.</p>
Essential Employability Skills (EES):	<p>#1. Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.</p> <p>#2. Respond to written, spoken, or visual messages in a manner that ensures effective communication.</p> <p>#3. Execute mathematical operations accurately.</p> <p>#4. Apply a systematic approach to solve problems.</p> <p>#5. Use a variety of thinking skills to anticipate and solve problems.</p> <p>#7. Analyze, evaluate, and apply relevant information from a variety of sources.</p>



COURSE OUTLINE

ELR100

2

Prepared: A. Gooderham Approved: Corey Meunier

- #8. Show respect for the diverse opinions, values, belief systems, and contributions of others.
- #9. Interact with others in groups or teams that contribute to effective working relationships and the achievement of goals.
- #10. Manage the use of time and other resources to complete projects.
- #11. Take responsibility for ones own actions, decisions, and consequences.

General Education Themes: Personal Understanding

Science and Technology

Course Evaluation: Passing Grade: 50%, D

Other Course Evaluation & Assessment Requirements: Quizzes worth a maximum of 5% can be given without notice and will be attributed to the current percentage weighting.
No re-writes will be given for completed tests.
If a student misses a test or surprise quiz (maximum 5% of final grade) without contacting the instructor, the Deans office or the switchboard prior to the test or quiz, a mark of zero will be granted without a re-write option

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.

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Test1	33%
Test2	33%
Test3	34%



COURSE OUTLINE

ELR100

3

Prepared: A. Gooderham Approved: Corey Meunier

Books and Required Resources:

Fundamentals of Electric Circuits by David Bell
Publisher: Oxford Edition: 7
ISBN: 978-0-19-542524-6

Course Outcomes and Learning Objectives:

Course Outcome 1.

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

Learning Objectives 1.

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

Course Outcome 2.

Analyze magnetic properties of circuits and devices.

Learning Objectives 2.

- 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
- Completion of written test

Course Outcome 3.

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



COURSE OUTLINE

ELR100

4



Prepared: A. Gooderham Approved: Corey Meunier

Learning Objectives 3.

- 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 written test

Date:

Friday, September 1, 2017

Please refer to the course outline addendum on the Learning Management System for further information.