STATE UNIVERSITY OF NEW YORK
COLLEGE OF TECHNOLOGY
CANTON, NEW YORK

MASTER SYLLABUS

ECMR 103 - Electricity for Trades Lab

CIP Code: 46.0399

Created by: Michael J. Newtown, P.E.
Updated by:

Canino School of Engineering Technology
Civil and Construction Technology
Fall 2021

A. TITLE: Electricity for Trades Lab

B. COURSE NUMBER: ECMR 103

C. CREDIT HOURS (Hours of Lecture, Laboratory, Recitation, Tutorial, Activity):

 # Credit Hours: 4
 # Lecture Hours ___ per Week
 # Lab Hours _4 - (2) hours per Week
Other ___ per Week

Course Length (# of Weeks): 15 weeks

D. WRITING INTENSIVE COURSE: No

E. GER CATEGORY:
Does the course satisfy more than one GER category? If so, which one? No

F. SEMESTER(S) OFFERED: (*Fall, Spring, or Fall and Spring*) Fall

G. COURSE DESCRIPTION:
The exploration of direct and alternating current circuits, resistance, inductance, capacitance, and magnetism through practical applications. Series and parallel circuits, metering, wire sizing, batteries, and motors connect the learner to industry needs.

H. PRE-REQUISITES:
CO-REQUISITES: MATH 106, Intermediate Algebra or higher

I. STUDENT LEARNING OUTCOMES:

Course Student Learning Outcome [SLO]	***PSLO***	***GER***	***ISLO***
a. Apply Ohm's Law to determine voltage, resistance, or current values	1. Install Wiring Systems… 2. Connect wires in accordance with NEC		5. Industry, Professional, Discipline-specific Knowledge and Skills
b. Demonstrate the concepts of DC circuits	1. Install Wiring Systems…		5. Industry, Professional, Discipline-specific Knowledge and Skills

c. Demonstrate the concept of AC circuits	1. Install Wiring Systems… 2. Connect wires in accordance with NEC		5. Industry, Professional, Discipline-specific Knowledge and Skills
d. Demonstrate the proper use of various metering equipment for electrical circuits	1. Install Wiring Systems…		5. Industry, Professional, Discipline-specific
e. Analyze voltage and current relationships in AC circuits	1. Install Wiring Systems… 2. Connect wires in accordance with NEC		5. Industry, Professional, Discipline-specific

KEY	**Institutional Student Learning Outcomes [ISLO 1 – 5]**
ISLO #	**ISLO & Subsets**
1	**Communication Skills** Oral [O], Written [W]
2	**Critical Thinking** *Critical Analysis [CA] , Inquiry & Analysis [IA] , Problem Solving [PS]*
3	**Foundational Skills** *Information Management [IM], Quantitative Lit,/Reasoning [QTR]*
4	**Social Responsibility** *Ethical Reasoning [ER], Global Learning [GL], Intercultural Knowledge [IK], Teamwork [T]*
5	**Industry, Professional, Discipline Specific Knowledge and Skills**

J. APPLIED LEARNING COMPONENT: **Yes__X____ No_____**

If Yes, select one or more of the following categories:

Classroom/Lab___X
Internship___
Clinical Practicum___
Practicum___
Service Learning___
Community Service___
Civic Engagement___
Creative Works/Senior Project___
Research___
Entrepreneurship___
(program, class, project)

K. TEXTS:

Herman, Stephen. *Delmar's Standard Book of Electricity*, 7th ed. Clifton Park: Delmar Learning, 2020

L REFERENCES: N/A

M. EQUIPMENT: Technology enhances classroom

N. GRADING METHOD: A-F

O. SUGGESTED MEASUREMENT CRITERIA/METHODS:

- Tests
- Quizzes
- Homework assignments

P. DETAILED COURSE OUTLINE:

N/A

Q. LABORATORY OUTLINE:

1 Wire connections & splices
2 Crimp & ring terminals
3 Box & switch identification
4 Duplex receptacle & switch termination
5 Voltage testing power supply
6 Digital meter resistance measurements
7 Series resistor circuits
8 Parallel resistor circuits
9 Series-parallel circuits
10 Design build resistor circuits
11 Light, switch, feed at switch
12 Light, switch, feed at light
13 Light, switch, hot receptacle feed at switch
14 Double pole switch controls 240 v receptacle
15 Single- three way lighting dimmers
16 Bath ceiling fan- light- exhaust
17 Light, switch hot receptacle feed at light
18 Three way switch control feed at switch
19 Three way switch control feed at light
20 Light, two three ways, hot receptacle feed at receptacle
21 Light, two three ways, one four way feed at first three way switch
22 Light, two three ways, one four way feed at light
23 Light, switch, split wired receptacle feed at switch
24 Light, switch, duplex receptacle feed at light
25 Bathroom vanity light- GFCI receptacle-exhaust fan-light switch control
26 100 amp overhead service
27 100 amp underground service
28 Door chime with two push buttons