

Basic Electrical

2024-25 Academic Year

Program Title	Ministry Title	Major	Year	Semester
STA-Trades Fundamentals	--	TRDE	1	1

Course Code: TFBE 1301	Course Equiv. Code(s): TFBE 1351
Course Hours: 42	Course GPA Weighting: 3
Prerequisite: N/A	
Corequisite: N/A	
Laptop Course: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Delivery Mode(s): In class <input checked="" type="checkbox"/> Online <input type="checkbox"/> Hybrid <input type="checkbox"/> Flexible <input type="checkbox"/> HyFlex <input type="checkbox"/>	
Remote proctoring required Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Authorized by (Dean or Director): Rebecca Milburn	Date: August 2024

Prepared by		
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Course Description:

This course is designed to introduce the student to an exhilarating trade. The student will have an understanding of electricity, basic wiring methods, components, tools, and authority standards associated with a single family electrical residential installation.

Campus Closure Notice

In the event of a campus closure during which time classes cannot be conducted or attended in person, course delivery will be conducted remotely where possible. Should teaching and learning resume on campus, students may be organized into smaller groups for classroom delivery, in accordance with directions from public health authorities.

In either situation, the learning plan sequence and/or evaluation methods may be adjusted to address topics requiring hands-on, practical learning activities.

Subject Eligibility for Prior Learning Assessment & Recognition (PLAR):

Prior Learning Assessment and Recognition (PLAR) is a process a student can use to gain college credit(s) for learning and skills acquired through previous life and work experiences. Candidates who successfully meet the course learning outcomes of a specific course may be granted credit based on the successful assessment of their prior learning. The type of assessment method (s) used will be determined by subject matter experts. Grades received for the PLAR challenge will be included in the calculation of a student's grade point average.

The PLAR application process is outlined in <http://www.durhamcollege.ca/plar>. Full-time and part-time students must adhere to all deadline dates. Please email: PLAR@durhamcollege.ca for details.

PLAR Eligibility

Yes No

PLAR Assessment (if eligible):

- Assignment
- Exam
- Portfolio
- Other

Course Learning Outcomes

Course Learning Outcomes contribute to the achievement of Program Learning Outcomes for courses that lead to a credential (e.g. diploma). A complete list of Vocational/Program Learning Outcomes and Essential Employability Skill Outcomes are located in each Program Guide.

Course Specific Learning Outcomes (CLO)

Student receiving a credit for this course will have reliably demonstrated their ability to:

- CLO1 Identify and adhere to all health and safety requirements of the shop as well as all classrooms and Laboratories.
- CLO2 Describe the educational and career opportunities in the Electrical Trade including both the post secondary and apprenticeship models as well as various job opportunities within the profession.
- CLO3 Complete basic electrical trade related projects and labs using appropriate equipment and supplies.
- CLO4 Complete all trade related calculations in a successful manner in relation to the electrical trade.
- CLO5 Apply basic trade knowledge and related terminology to communicate effectively in the electrical trade.

Essential Employability Skill Outcomes (ESSO)

This course will contribute to the achievement of the following Essential Employability Skills:

- EES 1. Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.
- EES 2. Respond to written, spoken, or visual messages in a manner that ensures effective communication.
- EES 3. Execute mathematical operations accurately.
- EES 4. Apply a systematic approach to solve problems.
- EES 5. Use a variety of thinking skills to anticipate and solve problems.
- EES 6. Locate, select, organize, and document information using appropriate technology and information systems.
- EES 7. Analyze, evaluate, and apply relevant information from a variety of sources.
- EES 8. Show respect for the diverse opinions, values, belief systems, and contribution of others.
- EES 9. Interact with others in groups or teams in ways that contribute to effective working relationships and the achievement of goals.
- EES 10. Manage the use of time and other resources to complete projects.
- EES 11. Take responsibility for one's own actions, decisions, and consequences.

Evaluation Criteria:

The Course Learning Outcomes and Essential Employability Skills Outcomes are evaluated by the following evaluation criterion.

Evaluation Description	Course Learning Outcomes	EESOs	Weighting
Project: Project #1 Wiring device connection to copper#14awg wire with written questions.	CLO1, CLO3, CLO4, CLO5	EES4, EES7, EES9	5
Project: Project #2 Termination of copper and aluminum conductors with written questions.	CLO1, CLO3, CLO5	EES1, EES2, EES4, EES10	5
Project: Project #3 Terminations of flexible cord with written questions	CLO1, CLO3, CLO4, CLO5	EES1, EES2, EES7, EES10	5
Test: Test #1 Series Circuits written questions evaluation.	CLO3, CLO4	EES3, EES10	10
Project: Project#4 Termination of coaxial cable connections with written questions.	CLO1, CLO2, CLO3	EES4, EES7, EES9	5
Test: Test #2 Parallel Circuits written questions evaluation.	CLO3, CLO4	EES3, EES10	10
Project: Project #5 Termination of a Modular Data Plug with written questions.	CLO1, CLO3, CLO5	EES4, EES5, EES6, EES9	5
Project: Project #6 Installation of Residential Smoke detectors using non metallic sheathed cable with written questions.	CLO1, CLO3, CLO4	EES2, EES6, EES7	5
Project: Project#7 Control of a light from one location, with written questions.	CLO1, CLO3, CLO4, CLO5	EES1, EES4, EES6, EES7, EES9, EES10	5
Project: Project#8 Control of a light from 2 locations, with written questions.	CLO1, CLO3, CLO4, CLO5	EES1, EES4, EES5, EES6, EES7, EES9, EES10	5
Project: Project#9 Control of a light from 3 locations or more, with written questions.	CLO1, CLO2, CLO3, CLO4	EES1, EES4, EES5, EES6, EES7, EES9	5
Project: Project#10 Installation of a ground fault circuit interrupter receptacle, with written questions.	CLO1, CLO3, CLO4, CLO5	EES1, EES2, EES4, EES5, EES7	5
Project: Project#11 Installation of 20 amp 120volt receptacles and circuits with written questions.	CLO1, CLO3, CLO4, CLO5	EES1, EES6, EES7	5

Project: Project#12 Installation of split switched duplex receptacles with written questions.	CLO1, CLO3, CLO4, CLO5	EES1, EES4, EES6, EES7	5
Test: Residential Wiring Layout	CLO2, CLO3, CLO4, CLO5	EES3, EES5, EES6, EES7, EES9, EES10	20
Total			100%

Notes:

1. An interim mark will be determined for all first year students to identify their academic progress. This mark will be based on the results of the first test, second test and the in process grade up to the mid term date.

Required Text(s) and Supplies:

1. No materials required

Recommended Resources (purchase is optional):

1. Electrical Code Simplified, Ontario Book 1 -House Wiring Guide.
P.S. Knight, Based on the 25th edition of the Ontario Electrical Safety Code.
ISBN # 978-0-920312-47-6

Policies and Expectations for the Learning Environment:

General Policies and Expectations:

<p>General College policies related to</p> <ul style="list-style-type: none"> + Acceptable Use of Information Technology + Academic Policies + Academic Integrity + Standards for Student Conduct for all Learning Environments can be found at https://durhamcollege.ca/wp-content/uploads/Standards-of-Student-Conduct-for-all-Learning-Environments.pdf + Information about academic policies and procedures can be found on-line at https://durhamcollege.ca/about/governance/policies 	<p>General policies related to</p> <ul style="list-style-type: none"> + attendance + absence related to tests or assignment due dates + excused absences + writing tests and assignments + classroom management can be found in the Program Guide (full time programs only) in MyDC https://durhamcollege.ca/mydc/
<p>All students at Durham College have the responsibility to familiarize themselves with and abide by the college's Academic Integrity Policy. Students are expected to complete and submit their own work in an honest manner, in accordance with the policy. Durham College has zero tolerance for breaches of academic integrity. All suspected breaches of academic integrity will be investigated and documented following procedures outlined in the policy, and should a breach be confirmed, appropriate penalties will be levied. Breaches of academic integrity refer to a variety of practices including, but not limited to:</p> <ul style="list-style-type: none"> • copying another person's work; • using unauthorized materials or resources during an evaluation; • obtaining unauthorized copies of evaluations in advance; • collaborating without permission; • colluding or providing unauthorized assistance; • falsifying academic documents or records; • misrepresenting academic credentials; • buying, selling, stealing, soliciting, exchanging or transacting materials or information for the purpose of academic gain; • bribing or attempting to bribe personnel; • impersonation; • submitting the same work in more than one course without authorization; • improper use of computer technology and the internet; • depriving others of academic resources; • misrepresenting reasons for special consideration of academic work; • plagiarizing or failing to acknowledge ideas, data, graphics or other content without proper and full acknowledgement; • any unauthorized use of generative or other artificial intelligence. <p>If you have questions or concerns about what constitutes appropriate academic conduct or research and citation methods, and what your responsibilities are towards academic integrity, please visit the Academic Integrity website on MyDC, reach out to Student Academic Learning Services (SALS), or speak with your professor or Student Advisor.</p>	

Course Specific Policies and Expectations:

You are expected to write all tests at the assigned place, date and time, missing a test, scores a "0" (zero). Please note that the scheduling of testing will be posted on DC Connect at the beginning of the course, these dates are when the tests MUST be written. DO NOT schedule vacations/holidays during these times as there are NO make-up dates for missing a test for vacations/holidays!

Please note that all documents(whether original, hard copied, electronic or reproductions) issued by a faculty member, are property of the Electrical Department of the School of Skilled Trades, Apprenticeship and Renewable Technology. This includes, but is not limited to: Lab Worksheets, Quizzes, Tests, and Examinations. The aforementioned documents must be returned to faculty upon request and failure to do so will be treated as academic dishonesty.

Only dedicated calculators are allowed(no cell phones or electronic devices)in class.
If these rules are not followed your final mark will be reduced by 10% for each occurrence.

Durham College is committed to the health and safety of all personnel. Therefore while performing lab assignment(s)/project(s) personnel must adhere to the posted safety rules in the room. Upon failing to do so you may not attend class and your lab assignment will result in a mark of zero.

General Course Outline Notes:

1. Students should use the course outline as a learning tool to guide their achievement of the learning outcomes for this course. Specific questions should be directed to their individual professor.
2. The college considers the electronic communication methods (i.e. DC Mail or DC Connect) as the primary channel of communication. Students should check the sources regularly for current course information.
3. Professors are responsible for following this outline and facilitating the learning as detailed in this outline.
4. Course outlines should be retained for future needs (i.e. university credits, transfer of credits etc.)
5. A full description of the Academic Appeals Process can be found at <https://durhamcollege.ca/about/governance/policies/academic-policies> .
6. Faculty are committed to ensuring accessible learning for all students. Students who would like assistance with academic access and accommodations in accordance with the Ontario Human Rights Code should register with the Access and Support Centre (ASC). ASC is located in room SW116, Oshawa Campus and in room 180 at the Whitby Campus. Contact ASC at 905-721-3123 for more information.
7. Durham College is committed to the fundamental values of preserving academic integrity. Durham College and faculty members reserve the right to use electronic means to detect and help prevent plagiarism. Students agree that by taking this course all assignments could be subject to submission either by themselves or by the faculty member for a review of textual similarity to Turnitin.com. Further information about Turnitin can be found on the Turnitin.com Web site.
8. In compliance with the Directive on the Costs of Educational Material under the Ministry of Training, Colleges and Universities Act (MTCU Act), please visit this link to determine textbook costs: <https://durham.bookware3000.ca/course-materials/textbook-search>. Please speak with your professor to determine if prior versions of a textbook are acceptable.

Learning Plan

The Learning Plan is a planning guideline. Actual delivery of content may vary with circumstances.

Students will be notified in writing of changes that involve the addition or deletion of learning outcomes or evaluations, prior to changes being implemented, as specified in the Course Outline Policy and Procedure at Durham College.

Week/ Module	Hours:	2	Delivery:	Lab	
1	Course Learning Outcomes				
	CLO1, CLO2, CLO3				
	Essential Employability Skills				
	Taught:		EES4, EES7, EES9	Practiced: EES4, EES7, EES9	
	Intended Learning Objectives/Topics				
	Safety equipment and requirements.				
	Intended Learning Activities				
Introduction to lab safety and demonstrate lab procedures.					
Resources and References					
Handouts and Power Points					
Evaluation					
Week/ Module	Hours:	1	Delivery:	In Class	
1	Course Learning Outcomes				
	CLO2				
	Essential Employability Skills				
	Taught:		EES1	Practiced: EES2	
	Intended Learning Objectives/Topics				
	Introduction to course outline and to DC connect resources				
	Intended Learning Activities				
Course overview					
Resources and References					
Handouts and Power Points					
Evaluation					

Week/ Module	Hours:	1	Delivery:	In Class
2	Course Learning Outcomes CLO1, CLO3, CLO4, CLO5			
	Essential Employability Skills			
	Taught:	EES4, EES7, EES9	Practiced:	EES4, EES7, EES9
	Intended Learning Objectives/Topics Introduction to Resistance, Voltage, and Current. Ohms Law			
	Intended Learning Activities Introduction to Resistance, Voltage and Current and their relationship. Mathematical relationship and formula calculations.			
	Resources and References PowerPoints			
	Evaluation			
Week/ Module	Hours:	2	Delivery:	Lab
2	Course Learning Outcomes CLO1, CLO3, CLO5			
	Essential Employability Skills			
	Taught:	EES4, EES7, EES9	Practiced:	EES4, EES7, EES9
	Intended Learning Objectives/Topics Project #1, Termination methods used in connecting copper wire to screw terminals. with written questions			
	Intended Learning Activities Project #1, Terminations of copper solid #14awg wire to residential grade wiring devices using common installation tools. with written questions			
	Resources and References Project #1 handout.			
	Evaluation			
Project: Project #1 Wiring device connection to copper#14awg wire with written questions.			Weighting	5

Week/ Module	Hours:	1	Delivery:	In Class
3	Course Learning Outcomes			
	CLO4, CLO5			
	Essential Employability Skills			
	Taught:	EES1, EES3, EES5, EES7	Practiced:	EES1, EES2, EES3, EES4, EES7
	Intended Learning Objectives/Topics			
	series circuit application of Ohms law			
	Intended Learning Activities			
Calculating resistance, voltage drop and current.				
Resources and References				
Power Point Hand outs.				
Evaluation				
Week/ Module	Hours:	2	Delivery:	Lab
3	Course Learning Outcomes			
	CLO1, CLO3, CLO5			
	Essential Employability Skills			
	Taught:	EES1, EES2, EES4, EES10	Practiced:	EES1, EES2, EES4, EES10
	Intended Learning Objectives/Topics			
	Project #2, Wire Terminations using copper and aluminum wire with written questions.			
	Intended Learning Activities			
Project #2 Wire Terminations using #8 American wire gauge copper to a stove receptacle and #2 aluminum conductors with written questions				
Resources and References				
Project #2 handout.				
Evaluation				
Project: Project #2 Termination of copper and aluminum conductors with written questions.			Weighting	5

Week/ Module	Hours:	1	Delivery:	In Class
4	Course Learning Outcomes			
	CLO1, CLO3, CLO4, CLO5			
	Essential Employability Skills			
	Taught:	EES1, EES2, EES7, EES10	Practiced:	EES1, EES2, EES7, EES10
	Intended Learning Objectives/Topics			
	test on series circuits circuit.			
	Intended Learning Activities			
Circuit calculations in parallel connections.				
Resources and References				
PowerPoints and handouts				
Evaluation		Weighting		
Test: Test #1 Series Circuits written questions evaluation.		10		
Week/ Module	Hours:	2	Delivery:	Lab
4	Course Learning Outcomes			
	CLO1, CLO3, CLO4, CLO5			
	Essential Employability Skills			
	Taught:	EES1, EES2, EES7, EES10	Practiced:	EES1, EES2, EES7, EES10
	Intended Learning Objectives/Topics			
	Project #3, Termination of flexible cord to 15 amp 120 volt devices. With written questions.			
	Intended Learning Activities			
Assembly of 15 amp 120 volt plugs and connectors, both 2 wire and 3 wire types to a length of flexible cord and test for connections.				
Resources and References				
Lab #3 handouts				
Evaluation		Weighting		
Project: Project #3 Terminations of flexible cord with written questions		5		

Week/ Module	Hours:	1	Delivery:	In Class	
5	Course Learning Outcomes				
	CLO4, CLO5				
	Essential Employability Skills				
	Taught:		EES1, EES3, EES4, EES5	Practiced: EES2, EES3, EES4, EES5	
	Intended Learning Objectives/Topics				
	Parallel circuits and ohms law				
	Intended Learning Activities				
calculating voltage, current and resistance in a parallel circuit					
Resources and References					
power points hand outs					
Evaluation					
Week/ Module	Hours:	2	Delivery:	Lab	
5	Course Learning Outcomes				
	CLO1, CLO2, CLO3				
	Essential Employability Skills				
	Taught:		EES4, EES7, EES9	Practiced: EES4, EES7, EES9	
	Intended Learning Objectives/Topics				
	Project #4, Installation of RG/6 Coaxial cable with written questions.				
	Intended Learning Activities				
Terminations of RG/6 Coaxial cable Omni seal connectors, assemble a short patch cord and testing, with written questions.					
Resources and References					
N/A					
Evaluation					
Project: Project#4 Termination of coaxial cable connections with written questions.			Weighting 5		

Week/ Module	Hours:	1	Delivery:	In Class	
6	Course Learning Outcomes				
	CLO4				
	Essential Employability Skills				
	Taught:		EES3, EES4, EES5, EES10	Practiced: EES3, EES4, EES5, EES10	
	Intended Learning Objectives/Topics				
	test on Parallel Circuits.				
	Intended Learning Activities				
Take up test on Parallel Circuits Introduce UTP Cable.					
Resources and References					
N/A					
Evaluation		Test: Test #2 Parallel Circuits written questions evaluation.		Weighting 10	
Week/ Module	Hours:	2	Delivery:	Lab	
6	Course Learning Outcomes				
	CLO1, CLO3, CLO5				
	Essential Employability Skills				
	Taught:		EES4, EES5, EES6, EES9	Practiced: EES4, EES5, EES6, EES9	
	Intended Learning Objectives/Topics				
	Project #5 Termination of 4 pair Modular Plugs with written questions.				
	Intended Learning Activities				
Termination of 4 pair Modular plugs on Cat 5e Cable. Assemble and test to ensure proper operation. With written questions.					
Resources and References					
Ideal Electric Data com handout,					
Evaluation		Project: Project #5 Termination of a Modular Data Plug with written questions.		Weighting 5	

Week/ Module	Hours:	1	Delivery:	In Class	
7	Course Learning Outcomes				
	CLO5				
	Essential Employability Skills				
	Taught:		EES1, EES4	Practiced:	
				EES2, EES5	
	Intended Learning Objectives/Topics				
	American wire gauge. AWG types and sizes of wire				
Intended Learning Activities					
Size of conductors. Insulation rating.					
Resources and References					
Power Points Handouts.					
Evaluation					
Week/ Module	Hours:	2	Delivery:	Lab	
7	Course Learning Outcomes				
	CLO1, CLO3, CLO4				
	Essential Employability Skills				
	Taught:		EES2, EES6, EES7	Practiced:	
				EES2, EES6, EES7	
	Intended Learning Objectives/Topics				
	Project #6 Installation of residential smoke detectors and circuit requirements for single family dwellings. Written questions				
Intended Learning Activities					
Installation of residential smoke detectors and 1 duplex outlet with armored cable and non metallic sheathed cables. Written questions					
Resources and References					
Lab #6 Handout.					
Evaluation					
Project: Project #6 Installation of Residential Smoke detectors using non metallic sheathed cable with written questions.			Weighting	5	

Week/ Module	Hours:	1	Delivery:	In Class	
8	Course Learning Outcomes				
	CLO5				
	Essential Employability Skills				
	Taught:		EES1, EES7	Practiced: EES2, EES7	
	Intended Learning Objectives/Topics				
	Explain and identify basic residential electrical devices.				
	Intended Learning Activities				
Understanding Receptacles, lights, switches, thermostat, and smoke detector.					
Resources and References					
Power points Examples					
Evaluation		Weighting			
		5			
Week/ Module	Hours:	2	Delivery:	Lab	
8	Course Learning Outcomes				
	CLO1, CLO3, CLO4, CLO5				
	Essential Employability Skills				
	Taught:		EES1, EES4, EES6, EES7, EES10	Practiced: EES1, EES4, EES6, EES7, EES10	
	Intended Learning Objectives/Topics				
	Project #7 Installation of a light fixture and control from one location with written questions.				
	Intended Learning Activities				
Installation of a light fixture controlled from one location. Power supplied at the light fixture and also power supplied at the switch location.					
Resources and References					
N/A					
Evaluation		Weighting			
Project: Project#7 Control of a light from one location, with written questions.		5			

Week/ Module	Hours:	1	Delivery:	In Class
9	Course Learning Outcomes			
	CLO5			
	Essential Employability Skills			
	Taught:	EES1, EES4, EES6	Practiced:	EES2, EES4, EES5
	Intended Learning Objectives/Topics			
	Service panel components			
	Intended Learning Activities			
Identify breakers and service connections. Bus ratings Standard size panels for residential				
Resources and References				
power points. Hand outs				
Evaluation			Weighting	
			5	
Week/ Module	Hours:	2	Delivery:	Lab
9	Course Learning Outcomes			
	CLO1, CLO3, CLO5			
	Essential Employability Skills			
	Taught:	EES1, EES4, EES5, EES7, EES10	Practiced:	EES1, EES4, EES5, EES7, EES10
	Intended Learning Objectives/Topics			
	Project #8 Installation of 3 way switch circuits with written questions.			
	Intended Learning Activities			
Installation of 3 way switch circuits. Power supplied at the lamp holder.				
Resources and References				
N/A				
Evaluation			Weighting	
Project: Project#8 Control of a light from 2 locations, with written questions.			5	

Week/ Module	Hours:	1	Delivery:	In Class
10	Course Learning Outcomes			
	CLO3, CLO4, CLO5			
	Essential Employability Skills			
	Taught:	EES4, EES5, EES6, EES7, EES9	Practiced:	EES4, EES5, EES6, EES7, EES9
	Intended Learning Objectives/Topics			
	Installation of special electrical equipment in laundry room, bathrooms and garages.			
	Intended Learning Activities			
Installations of special electrical equipment in laundry rooms, bathrooms and garages.				
Resources and References				
PowerPoints presentations				
Evaluation				
Week/ Module	Hours:	2	Delivery:	Lab
10	Course Learning Outcomes			
	CLO1, CLO3, CLO4			
	Essential Employability Skills			
	Taught:	EES1, EES4, EES5, EES6, EES7	Practiced:	EES1, EES4, EES5, EES6, EES7
	Intended Learning Objectives/Topics			
	Installation of 4 way switch controls of lighting with written questions.			
	Intended Learning Activities			
Installation of 4 way switch controls of lighting.				
Resources and References				
4 way switch controls of lighting				
Evaluation			Weighting	
Project: Project#9 Control of a light from 3 locations or more, with written questions.			5	

Week/ Module	Hours:	1	Delivery:	In Class
11	Course Learning Outcomes			
	CLO3, CLO4, CLO5			
	Essential Employability Skills			
	Taught:	EES1, EES2, EES5, EES6, EES7, EES9	Practiced:	EES1, EES2, EES5, EES6, EES7, EES9
	Intended Learning Objectives/Topics			
	Electrical authority and inspections			
	Intended Learning Activities			
Electrical Inspection forms and fees. Code relevant sections				
Resources and References				
PowerPoints				
Evaluation				
Week/ Module	Hours:	2	Delivery:	Lab
11	Course Learning Outcomes			
	CLO1, CLO3, CLO4, CLO5			
	Essential Employability Skills			
	Taught:	EES4, EES5, EES6, EES10	Practiced:	EES4, EES5, EES6, EES10
	Intended Learning Objectives/Topics			
	GFCI Receptacle installation wired on the project board with written questions.			
	Intended Learning Activities			
GFCI Receptacle installation wired on the project board, feed through connected to a second duplex receptacle. With written questions.				
Resources and References				
N/A				
Evaluation				
Project: Project#10 Installation of a ground fault circuit interrupter receptacle, with written questions.			Weighting	5

Week/ Module	Hours:	1	Delivery:	In Class
12	Course Learning Outcomes			
	CLO4, CLO5			
	Essential Employability Skills			
	Taught:		Practiced:	
	Intended Learning Objectives/Topics			
	Residential service calculation			
	Intended Learning Activities			
Apply code and calculate demand for a typical residence.				
Resources and References				
CEC 2024 Calculator Power Points				
Evaluation				
Week/ Module	Hours:	2	Delivery:	Lab
12	Course Learning Outcomes			
	CLO1, CLO3, CLO4, CLO5			
	Essential Employability Skills			
	Taught:		Practiced:	
	EES3, EES4, EES5		EES3, EES4, EES5	
	Intended Learning Objectives/Topics			
	Installation of 2, 20 amp duplex receptacles on the student project boards with written questions.			
Intended Learning Activities				
Installation of 2, 20 amp duplex receptacles on the student project boards. with written questions.				
Resources and References				
N/A				
Evaluation			Weighting	
Project: Project#11 Installation of 20 amp 120volt receptacles and circuits with written questions.			5	

Week/ Module	Hours:	1	Delivery:	In Class
13	Course Learning Outcomes			
	CLO5			
	Essential Employability Skills			
	Taught:		Practiced:	
	Intended Learning Objectives/Topics			
	Service ground and branch wire bonding			
	Intended Learning Activities			
Grounds and bonds				
Resources and References				
Power points CEC 2024				
Evaluation			Weighting	
			5	
Week/ Module	Hours:	2	Delivery:	Lab
13	Course Learning Outcomes			
	CLO1, CLO3, CLO4, CLO5			
	Essential Employability Skills			
	Taught:		Practiced:	
	EES1, EES3, EES4, EES5		EES1, EES3, EES4, EES5	
	Intended Learning Objectives/Topics			
	Control of a split switched receptacle With written questions.			
Intended Learning Activities				
Control of a split switched receptacle with power supplied at the switch and power supplied at the receptacle. With written questions.				
Resources and References				
N/A				
Evaluation			Weighting	
Project: Project#12 Installation of split switched duplex receptacles with written questions.			5	

Week/ Module	Hours:	1	Delivery:	In Class
14	Course Learning Outcomes CLO3, CLO4, CLO5			
	Essential Employability Skills			
	Taught:	EES4, EES7	Practiced:	EES4, EES7
	Intended Learning Objectives/Topics Review of Residential Wiring.			
	Intended Learning Activities Review of Residential Wiring.			
	Resources and References N/A			
	Evaluation			
Week/ Module	Hours:	1	Delivery:	In Class
14	Course Learning Outcomes CLO2, CLO3, CLO4, CLO5			
	Essential Employability Skills			
	Taught:	EES1, EES2, EES4	Practiced:	EES1, EES2, EES4
	Intended Learning Objectives/Topics Short Video promotions and links			
	Intended Learning Activities Introduce Apprenticeship Resources for the Electrical Trade and DC Connect links to assist the students in seeking further studies.			
	Resources and References ECAO resources.			
	Evaluation Test: Residential Wiring Layout			Weighting 20