

Basic Electrical

2019-2020 Academic Year

Program	Year	Semester
START-Trades Fundamentals Certificate	1	1

Course Code:	TFBE 1301	Course Equiv. Code(s):	TFBE 1351, ELEC 2411
Course Hours:	42	Course GPA Weighting:	3
Prerequisite:	none		
Corequisite:	none		
Laptop Course:	Yes No X		
Delivery Mode(s): In class X Online	Hybrid Corresp	oondence
Authorized by (Dean or Director): Rebecca M	/lilburn D	Date: June 2019

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.

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	X	No	
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PLAR Assessment (if eligible):

Assignment			
X 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:

- X 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.
- X EES 2. Respond to written, spoken, or visual messages in a manner that ensures effective communication.
- X EES 3. Execute mathematical operations accurately.
- X EES 4. Apply a systematic approach to solve problems.
- X EES 5. Use a variety of thinking skills to anticipate and solve problems.
- X EES 6. Locate, select, organize, and document information using appropriate technology and information systems.
- X 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.
- X EES 9. Interact with others in groups or teams in ways that contribute to effective working relationships and the achievement of goals.
- X 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
Lab #1 Wiring device connection to copper#14awg wire, short answer questions.	CLO1, CLO3, CLO4, CLO5	EES4, EES7, EES9	4
Lab #2 Termination of large sizes of copper and aluminum conductors.	CLO1, CLO3, CLO5	EES1, EES2, EES4, EES10	4
Lab #3 Termination of flexible cord to devices	CLO1, CLO3, CLO4, CLO5	EES1, EES2, EES7, EES10	4
Test #1 Series Circuits Short Answer Questions	CLO3, CLO4	EES3, EES10	10
Lab #4 Termination of modular outlets and coaxial cable connections.	CLO1, CLO2, CLO3	EES4, EES7, EES9	4
Test #2 based on Parallel Circuits.	CLO3, CLO4	EES3, EES10	15
Lab #5 Termination of a Modular Data Plug.	CLO1, CLO3, CLO5	EES4, EES5, EES6, EES9	4
Lab #6 Installation of Residential Smoke detectors using armored and non metallic sheathed cable.	CLO1, CLO3, CLO4	EES2, EES6, EES7	5
Lab #7 Control of a light from one location.	CLO1, CLO3, CLO4, CLO5	EES1, EES4, EES6, EES7, EES9, EES10	5
Lab #8 Control of a light from 2 locations.	CLO1, CLO3, CLO4, CLO5	EES1, EES4, EES5, EES6, EES7, EES9, EES10	4
Lab #9 Control of a light from 3 locations or more.	CLO1, CLO2, CLO3, CLO4	EES1, EES4, EES5, EES6, EES7, EES9	4
Lab #10 Installation of a ground fault circuit interrupter receptacle.	CLO1, CLO3, CLO4, CLO5	EES1, EES2, EES4, EES5, EES7	4
Lab #11 Installation of 20 amp 120volt receptacles and circuits.	CLO1, CLO3, CLO4, CLO5	EES1, EES6, EES7	4
Lab #12 Installation of split switched duplex receptacles.	CLO1, CLO3, CLO4, CLO5	EES1, EES4, EES6, EES7	4
Test #3 Short answer test Based on residential electrical installations.	CLO2, CLO3, CLO4, CLO5	EES3, EES5, EES6, EES7, EES9, EES10	25
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):

 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:

General College policies related to	General policies related to
+ Acceptable Use of Information Technology	+ attendance
+ Academic Policies	 absence related to tests or assignment due dates
+ Academic Honesty	+ excused absences
+ Student Code of Conduct	+ writing tests and assignments
 Students' Rights and Responsibilities can be found on-line at http://www.durhamcollege.ca/academicpolicies 	 classroom management can be found in the Program Guide (full time programs only) in MyCampus http://www.durhamcollege.ca/mycampus/

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 http://durhamcollege.ca/gradeappeal.
- 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.

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.

Wk.	Hours: 3 Delivery: In Class
1	Course Learning Outcomes
	CLO1, CLO3, CLO4, CLO5
	Essential Employability Skills
	Taught:EES4, EES7, EES9Practiced:EES4, EES7, EES9
	Intended Learning Objectives
	Introduction to the course, outlines, and introduction to DC Connect resources. Safety equipment and requirements.
	Intended Learning Activities
	Demonstration on the effects of Electricity.
	Resources and References
	Handouts and Powerpoints
	Evaluation Students will not be able to complete labs if no Personal Protective Equipment used during Lab Classes.
Wk.	Hours: 1 Delivery: In Class
2	Course Learning Outcomes
	CLO1, CLO3, CLO4, CLO5
	Essential Employability Skills
	Taught:EES4, EES7, EES9Practiced:EES4, EES7, EES9
	Intended Learning Objectives
	Introduction to Resistance, Voltage, and Current.
	Intended Learning Activities
	Introduction to Resistance, Voltage and Current and their relationship. Mathematical relationship and formula calculations.
	Resources and References
	Power Points
	Evaluation Ongoing

Wk.	Hours: 2 Delivery: Lab
2	Course Learning Outcomes
	CLO1, CLO3, CLO5
	Essential Employability Skills
	Taught:EES4, EES7, EES9Practiced:EES4, EES7, EES9
	Intended Learning Objectives
	Lab #1, Termination methods used in connecting copper wire to screw terminals.
	Intended Learning Activities
	Lab #1,Terminations of copper solid#14awg wire to residential grade wiring devices using common installation tools.
	Resources and References
	Lab #1 handout.
	Evaluation Weighting
	Evaluated on the proper terminations as demonstrated in class and as 4 shown in text. Project to be done individually.
1	
Wk.	Hours: 2 Delivery: In Class
Wk .	Hours: 2 Delivery: In Class Course Learning Outcomes In Class
Wk. 3	Hours: 2 Delivery: In Class Course Learning Outcomes CLO1, CLO3, CLO5 Value
Wk. 3	Hours: 2 Delivery: In Class Course Learning Outcomes CLO1, CLO3, CLO5 Essential Employability Skills
Wk. 3	Hours: 2 Delivery: In Class Course Learning Outcomes CLO1, CLO3, CLO5 CLO1, CLO3, CLO5 CLO1, CLO3, CLO5 Essential Employability Skills Practiced: EES1, EES2, EES4, EES10 Taught: EES1, EES2, EES4, EES10 Practiced: EES1, EES2, EES4, EES10
Wk. 3	Hours: 2 Delivery: In Class Course Learning Outcomes CLO1, CLO3, CLO5 CLO5 CLO1, CLO3, CLO5 Essential Employability Skills Taught: EES1, EES2, EES4, EES10 Practiced: EES1, EES2, EES4, EES10 Intended Learning Objectives Delivery: Intended Learning Objectives Delivery: Intended Learning Objectives
Wk. 3	Hours: 2 Delivery: In Class Course Learning Outcomes CLO1, CLO3, CLO5 CLO5 Practiced: ES1, EES2, EES4, EES10 Essential Employability Skills Practiced: EES1, EES2, EES4, EES10 Intended Learning Objectives Series applications of Ohm's Law in a circuit.
Wk. 3	Hours: 2 Delivery: In Class Course Learning Outcomes CLO1, CLO3, CLO5 CLO3, CLO5 Practiced: EES1, EES2, EES4, EES10 Essential Employability Skills Practiced: EES1, EES2, EES4, EES10 Practiced: EES1, EES2, EES4, EES10 Intended Learning Objectives Series applications of Ohm's Law in a circuit. Intended Learning Activities Delivery: Intended Learning Activities
Wk .	Hours: 2 Delivery: In Class Course Learning Outcomes CLO1, CLO3, CLO5 Essential Employability Skills Essential Employability Skills Taught: EES1, EES2, EES4, EES10 Practiced: EES1, EES2, EES4, EES10 Intended Learning Objectives Series applications of Ohm's Law in a circuit. Intended Learning Activities Calculations of Resistance, Voltage, and Current in a series circuit.
Wk .	Hours: 2 Delivery: In Class Course Learning Outcomes CLO1, CLO3, CLO5 Essential Employability Skills Taught: EES1, EES2, EES4, EES10 Taught: EES1, EES2, EES4, EES10 Practiced: EES1, EES2, EES4, EES10 Intended Learning Objectives Series applications of Ohm's Law in a circuit. Intended Learning Activities Calculations of Resistance, Voltage, and Current in a series circuit. Resources and References
Wk. 3	Hours: 2 Delivery: In Class Course Learning Outcomes CL01, CL03, CL05 Essential Employability Skills Taught: EES1, EES2, EES4, EES10 Practiced: EES1, EES2, EES4, EES10 Intended Learning Objectives Series applications of Ohm's Law in a circuit. Intended Learning Activities Calculations of Resistance, Voltage, and Current in a series circuit. Resources and References Power Points
Wk. 3	Hours: 2 Delivery: In Class Course Learning Outcomes CLO1, CLO3, CLO5 Essential Employability Skills Faught: EES1, EES2, EES4, EES10 Taught: EES1, EES2, EES4, EES10 Practiced: EES1, EES2, EES4, EES10 Intended Learning Objectives Series applications of Ohm's Law in a circuit. Intended Learning Activities Calculations of Resistance, Voltage, and Current in a series circuit. Resources and References Power Points Evaluation Weighting

	Hours: 1 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
	Lab#2, Wire Terminations using copper and aluminum wire.
	Intended Learning Activities
	Lab #2 Wire Terminations using #8 American wire gauge copper to a stove receptacle and #2 aluminum conductors to lugs.
	Resources and References
	Lab #2 handout.
	EvaluationWeightingShort answer questions and practical lab terminations of copper and aluminum wire. Project is done individually. Assessed to industry standards.4
Wk.	Hours: 1 Delivery: In Class
Wk .	Hours: 1 Delivery: In Class Course Learning Outcomes
Wk.	Hours: 1 Delivery: In Class Course Learning Outcomes CLO1, CLO3, CLO4, CLO5 In Class
Wk .	Hours: 1 Delivery: In Class Course Learning Outcomes CLO1, CLO3, CLO4, CLO5 Essential Employability Skills
Wk.	Hours: 1 Delivery: In Class Course Learning Outcomes CLO1, CLO3, CLO4, CLO5 Essential Employability Skills Essential Employability Skills Practiced: EES1, EES2, EES7, EES10
Wk .	Hours: 1 Delivery: In Class Course Learning Outcomes CLO1, CLO3, CLO4, CLO5 Practiced: EES1, EES2, EES7, EES10 Essential Employability Skills Practiced: EES1, EES2, EES7, EES10 Intended Learning Objectives Practiced: EES1, EES2, EES7, EES10
Wk .	Hours: 1 Delivery: In Class Course Learning Outcomes CLO1, CLO3, CLO4, CLO5 Practiced: Essential Employability Skills Essential Employability Skills Practiced: EES1, EES2, EES7, EES10 Intended Learning Objectives Practiced: EES1, EES2, EES7, EES10
Wk . 4	Hours: 1 Delivery: In Class Course Learning Outcomes CLO1, CLO3, CLO4, CLO5 Essential Employability Skills Essential Employability Skills Practiced: EES1, EES2, EES7, EES10 Intended Learning Objectives Applications of Ohm's law in a parallel circuit. Intended Learning Activities Intended Learning Activities
Wk .	Hours: 1 Delivery: In Class Course Learning Outcomes CLO1, CLO3, CLO4, CLO5 Essential Employability Skills Taught: EES1, EES2, EES7, EES10 Practiced: EES1, EES2, EES7, EES10 Intended Learning Objectives Applications of Ohm's law in a parallel circuit. Intended Learning Activities Circuit calculations in parallel connections.
Wk . 4	Hours: 1 Delivery: In Class Course Learning Outcomes CLO1, CLO3, CLO4, CLO5 CLO1, CLO3, CLO4, CLO5 Essential Employability Skills Taught: EES1, EES2, EES7, EES10 Practiced: EES1, EES2, EES7, EES10 Intended Learning Objectives Applications of Ohm's law in a parallel circuit. Intended Learning Activities Circuit calculations in parallel connections. Resources and References Eesences Eesences Eesences
Wk .	Hours: 1 Delivery: In Class Course Learning Outcomes CLO1, CLO3, CLO4, CLO5 CLO1, CLO3, CLO4, CLO5 Essential Employability Skills Taught: EES1, EES2, EES7, EES10 Practiced: EES1, EES2, EES7, EES10 Intended Learning Objectives Applications of Ohm's law in a parallel circuit. Intended Learning Activities Circuit calculations in parallel connections. Resources and References Power Points and handouts Power Points and handouts

Wk.	Hours: 2	Delivery:	Lab		
4	Course Learning Ou	tcomes			
	CLO1, CLO3, CLO4	, CLO5			
	Essential Employabi	ility Skills			
	Taught: EES1,	EES2, EES	7, EES10	Practiced:	EES1, EES2, EES7, EES10
	Intended Learning O	bjectives			
	Lab #3,Termination	of flexible co	rd to 15 amp 12	0volt devices.	
	Intended Learning A	ctivities			
	Assembly of 15 amp cord and test for con	o 120 volt plu inections.	gs and connecto	ors, both 2 wire a	and 3 wire types to a length of flexible
	Resources and Refe	rences			
	Lab #3 handouts				
	Evaluation Short answer question To be done individua	ons and com ally. Tested f	pletion of projec or operation.	t to industry star	Weighting ndards. 4
Wk.	Hours: 1	Delivery:	In Class		
Wk. 5	Hours: 1 Course Learning Our CLO4	Delivery: tcomes	In Class		
Wk. 5	Hours: 1 Course Learning Ou CLO4 Essential Employabi	Delivery: tcomes ility Skills	In Class		
Wk. 5	Hours: 1 Course Learning Ou CLO4 Essential Employabi Taught: EES3,	Delivery: tcomes ility Skills , EES4, EES	In Class	Practiced:	EES3, EES4, EES10
Wk. 5	Hours: 1 Course Learning Ou CLO4 Essential Employabi Taught: EES3, Intended Learning O	Delivery: tcomes ility Skills , EES4, EES bjectives	In Class	Practiced:	EES3, EES4, EES10
Wk. 5	Hours: 1 Course Learning Ou CLO4 Essential Employabi Taught: EES3, Intended Learning O Test #2 Parallel Circ short answer question	Delivery: tcomes ility Skills EES4, EES bjectives	In Class	Practiced:	EES3, EES4, EES10
Wk. 5	Hours: 1 Course Learning Ou CLO4 Essential Employabi Taught: EES3, Intended Learning O Test #2 Parallel Circ short answer question	Delivery: tcomes ility Skills EES4, EES objectives cuits ons activities	In Class	Practiced:	EES3, EES4, EES10
Wk. 5	Hours: 1 Course Learning Ou CLO4 Essential Employabi Taught: EES3, Intended Learning O Test #2 Parallel Circ short answer question Intended Learning A Parallel Circuits	Delivery: tcomes ility Skills , EES4, EES bjectives cuits ons activities	In Class	Practiced:	EES3, EES4, EES10
Wk. 5	Hours: 1 Course Learning Ou CLO4 Essential Employabi Taught: EES3, Intended Learning O Test #2 Parallel Circ short answer question Intended Learning A Parallel Circuits Resources and Reference	Delivery: tcomes ility Skills EES4, EES bjectives cuits ons activities	In Class	Practiced:	EES3, EES4, EES10
Wk . 5	Hours: 1 Course Learning Our CLO4 Essential Employabi Taught: EES3, Intended Learning O Test #2 Parallel Circl short answer question Intended Learning A Parallel Circuits Resources and Refe Power points and ha	Delivery: tcomes ility Skills EES4, EES bjectives cuits ons activities	In Class	Practiced:	EES3, EES4, EES10

Wk.	Hours: 2	Delivery:	Lab		
5	Course Learning	g Outcomes			
	CLO1, CLO2, C	LO3			
	Essential Emplo	yability Skills			
	Taught: El	ES4, EES7, EES9	9	Practiced:	EES4, EES7, EES9
	Intended Learnir	ng Objectives			
	Lab #4, Installation of R	RG/6 Coaxial cabl	e with connector	S.	
	Intended Learnin	ng Activities			
	Terminations of	RG/6 Coaxial cal	ble Omni seal co	onnectors, assen	nble a short patch cord and testing .
	Resources and I	References			
	Lab #4 Handout	t			
	Evaluation			in Talandara	Weighting
	individually to in	d short answer qu dustry standards		In. To be done	4
Wk.	Hours: 1	Delivery:	In Class		
Wk.	Hours: 1 Course Learning	Delivery: g Outcomes	In Class		
Wk. 6	Hours: 1 Course Learning CLO4	Delivery: g Outcomes	In Class		
Wk.	Hours: 1 Course Learning CLO4 Essential Emplo	Delivery: g Outcomes yability Skills	In Class		
Wk.	Hours: 1 Course Learning CLO4 Essential Emplo Taught: El	Delivery: g Outcomes yability Skills ES3, EES4, EES	In Class 5, EES10	Practiced:	EES3, EES4, EES5, EES10
Wк. 6	Hours: 1 Course Learning CLO4 Essential Emplo Taught: El Intended Learnin	Delivery: g Outcomes yability Skills ES3, EES4, EES4	In Class 5, EES10	Practiced:	EES3, EES4, EES5, EES10
Wk.	Hours: 1 Course Learning CLO4 Essential Emplo Taught: El Intended Learnin Take up test on	Delivery: g Outcomes yability Skills ES3, EES4, EES4 ng Objectives Parallel Circuits.	In Class 5, EES10	Practiced:	EES3, EES4, EES5, EES10
Wk.	Hours: 1 Course Learning CLO4 Essential Emplo Taught: Eff Intended Learnin Take up test on Intended Learnin	Delivery: g Outcomes yability Skills ES3, EES4, EES4 ng Objectives Parallel Circuits. ng Activities	In Class 5, EES10	Practiced:	EES3, EES4, EES5, EES10
₩к. 6	Hours: 1 Course Learning CLO4 Essential Emplo 1 Taught: El Intended Learning Take up test on Intended Learning Take up test on	Delivery: g Outcomes yability Skills ES3, EES4, EES4 ng Objectives Parallel Circuits. ng Activities Parallel Circuits I	In Class 5, EES10 Introduce UTP C	Practiced:	EES3, EES4, EES5, EES10
₩к. 6	Hours: 1 Course Learning CLO4 Essential Employ Taught: Taught: El Intended Learning Take up test on Intended Learning Take up test on Resources and Intended Learning Take up test on	Delivery: g Outcomes yability Skills ES3, EES4, EES4 Parallel Circuits. Parallel Circuits I Parallel Circuits I References	In Class 5, EES10 Introduce UTP C	Practiced:	EES3, EES4, EES5, EES10
₩к. 6	Hours: 1 Course Learning CLO4 Essential Emploit Taught: Eliteration Intended Learning Take up test on Intended Learning Take up test on Resources and F N/A	Delivery: g Outcomes yability Skills ES3, EES4, EES4 ng Objectives Parallel Circuits. Parallel Circuits I Parallel Circuits I References	In Class 5, EES10 Introduce UTP C	Practiced:	EES3, EES4, EES5, EES10
₩к. 6	Hours: 1 Course Learning CLO4 Essential Employ Taught: Taught: El Intended Learning Take up test on Intended Learning Take up test on Intended Learning Take up test on Resources and I N/A Evaluation Operation	Delivery: g Outcomes yability Skills ES3, EES4, EES Parallel Circuits. Parallel Circuits I Parallel Circuits I References	In Class 5, EES10	Practiced:	EES3, EES4, EES5, EES10

Wk.	Hours: 2 Delivery: Lab							
6	Course Learning Outcomes CLO1, CLO3, CLO5							
	Essential Employability Skills							
	Taught:EES4, EES5, EES6, EES9Practiced:EES4, EES5, EES6, EES9							
	Intended Learning Objectives							
	Lab #5 Termination of 4 pair Modular Plugs used for Datacomm installations							
	Intended Learning Activities							
	Termination of 4 pair Modular plugs on Cat 5e Cable. Assemble and test to ensure proper operation.							
	Resources and References							
	Ideal Electric Data com handout, Lab #5.							
	EvaluationWeightingShort answer questions and hands on termination project to hand in.4Project is done individually. Wired and tested to EIA/TIA 568A Standard.4							
Wk.	Hours: 1 Delivery: In Class							
7	Course Learning Outcomes							
	CLO1, CLO3, CLO4							
	Essential Employability Skills							
	Taught:EES2, EES6, EES7Practiced:EES2, EES6, EES7							
	Intended Learning Objectives							
	Installation of residential smoke detectors and circuit requirements for single family dwellings.							
	Intended Learning Activities							
	Demonstrate the typical installation of residential smoke detectors.							
	Resources and References							
	Power points							
	Evaluation Ongoing							

Wk.	Hours: 2 Delivery: Lab						
7	Course Learning Outcomes						
	CLO1, CLO3, CLO4						
	Essential Employability Skills						
	Taught:EES2, EES6, EES7Practiced:EES2, EES6, EES7						
	Intended Learning Objectives						
	Lab #6 Installation of residential smoke detectors and circuit requirements for single family dwellings. Student project board to be used.						
	Intended Learning Activities						
	Installation of residential smoke detectors and 1 duplex outlet with armored cable and non metallic sheathed cables.						
	Resources and References						
	Lab #6 Handout.						
	EvaluationWeightingShort answer questions and hands on lab of 2 smoke detectors and 1 duplex outlets. Paperwork to be handed in individually and the project done in partners not to exceed 2 students.5						
Wk.	Hours: 1 Delivery: In Class						
8	Course Learning Outcomes						
	CLO3, CLO4, CLO5						
	Essential Employability Skills						
	Taught:EES4, EES5, EES6, EES7, EES10Practiced:EES4, EES5, EES6, EES7, EES10						
	Intended Learning Objectives						
	Installations of lighting fixtures in residential buildings.						
	Intended Learning Activities						
	Review of requirements for lighting fixtures in residential buildings.						
	Resources and References						
	Power points, text reference.						
	Evaluation Ongoing						

	Hours: 2	Deliv	ery:	Lab							
8	Course Learning Outcomes										
	CLO1, CLO3, CLO4, CLO5										
	Essential En	nployability Sk	ills								
	Taught:EES1, EES4, EES6, EES7, EES10Practiced:EES1, EES4, EES6, EES7, EES10										
	Intended Lea	arning Objectiv	/es								
	Installation of a light fixtures and control from one location using student project board.										
	Intended Lea	arning Activitie	es								
	Installation of power supp	of a light fixture lied at the switc	contro h loca:	olled from c tion.	one location. Power si	upplied at the light fixture and also					
	Resources a	nd References	6								
	Lab #7 Switching c light fixture	of a light fixture	from o	one locatior	n wired with power at	the switch and wired with power at the					
	Evaluation					Weighting					
	Short answe	er questions wit	h a ha	nds on ins	tallation of a light fixtu	ire 5					
	the wiring p	roject done in g	roups	of no more	controlled from one location. Questions to be completed individually and the wiring project done in groups of no more than 2 students.						
Wk.	Hours: 1	Deliv	ery:	In Class							
Wk. 9	Hours: 1 Course Lear	Deliv ning Outcome	very: s	In Class							
Wk. 9	Hours: 1 Course Lear CLO3, CLO	Deliv ning Outcome 4, CLO5	very: s	In Class							
Wk . 9	Hours: 1 Course Lear CLO3, CLO Essential En	Deliv ning Outcome 4, CLO5 nployability Sk	very: s :ills	In Class							
9	Hours: 1 Course Lear CLO3, CLO Essential En Taught:	Deliv ning Outcome 4, CLO5 nployability Sk EES1, EES4,	very: s (ills , EES	In Class	Practiced:	EES1, EES4, EES5					
9	Hours: 1 Course Lear CLO3, CLO Essential En Taught: Intended Lea	Deliv ning Outcome 4, CLO5 nployability Sk EES1, EES4, arning Objectiv	very: s .ills , EES& ves	In Class	Practiced:	EES1, EES4, EES5					
9	Hours: 1 Course Lear CLO3, CLO Essential En Taught: Intended Lea Installation of	Deliv ning Outcome 4, CLO5 nployability Sk EES1, EES4, arning Objectiv of wiring for Kito	very: s (ills , EES (ves chens	In Class	Practiced:	EES1, EES4, EES5					
9 9	Hours: 1 Course Lear CLO3, CLO Essential En Taught: Intended Lea Installation of	Deliv ning Outcome 4, CLO5 nployability Sk EES1, EES4, arning Objectiv of wiring for Kito arning Activitie	very: s ills , EESS ves chens es	In Class	Practiced:	EES1, EES4, EES5					
9	Hours: 1 Course Lear CLO3, CLO Essential En Taught: Intended Lea Installation of Intended Lea	Deliv ning Outcome 4, CLO5 nployability Sk EES1, EES4, arning Objectiv of wiring for Kito arning Activitie of wiring for Kito	very: s .ills , EES ves chens es chens	In Class	Practiced: ment installed. ment installed.	EES1, EES4, EES5					
9 9	Hours: 1 Course Lear CLO3, CLO Essential En Taught: Intended Lea Installation Resources a	Deliv ning Outcome 4, CLO5 nployability Sk EES1, EES4, arning Objectiv of wiring for Kito arning Activitie of wiring for Kito nd References	very: s (ills , EESS ves chens chens s	In Class	Practiced: ment installed. ment installed.	EES1, EES4, EES5					
9 9	Hours: 1 Course Lear CLO3, CLO Essential En Taught: Intended Lea Installation Resources a Power Point	Deliv ning Outcome 4, CLO5 nployability Sk EES1, EES4, arning Objectiv of wiring for Kito arning Activitie of wiring for Kito nd References ts	very: s ills , EESS ves chens s chens s	In Class	Practiced: ment installed.	EES1, EES4, EES5					
9 9	Hours: 1 Course Lear CLO3, CLO Essential En Taught: Intended Lea Installation of Resources a Power Point Evaluation	Deliv ning Outcomes 4, CLO5 nployability Sk EES1, EES4, arning Objectiv of wiring for Kito arning Activitie of wiring for Kito nd References ts	very: s ills , EESS ves chens s chens	In Class	Practiced: ment installed.	EES1, EES4, EES5					

•••	Hours: 2	De	elivery:	Lab					
9	Course Learning Outcomes								
	CLO1, CLO3, CLO5								
	Essential Employability Skills								
	Taught:EES1, EES4, EES5, EES7, EES10Practiced:EES1, EES4, EES5, EES7, EES10								
	Intended Learning Objectives								
	Installation of 3 way switch circuits using the student project boards.								
	Intended Lea	rning Activi	ities						
	Installation o	of 3 way swite	ch circui	ts. Power su	upplied at the lamp h	older.			
	Resources a	nd Referenc	ces						
	Lab #8 3 Way switcl	h controls of	lighting.						
	EvaluationWeightingShort answer questions and hands on lab. Questions are to be handed in individually and the wiring to be done in groups not to exceed 2 students. To be wired to industry standards and codes.4								
			-						
Wk.	Hours: 1	De	elivery:	In Class					
Wk.	Hours: 1 Course Learr	De ning Outcon	elivery: nes	In Class					
Wk. 10	Hours: 1 Course Learr CLO3, CLO4	De ning Outcon 4, CLO5	elivery: nes	In Class					
Wk. 10	Hours: 1 Course Learr CLO3, CLO4 Essential Em	De hing Outcon 4, CLO5 ployability \$	elivery: nes Skills	In Class					
Wk. 10	Hours: 1 Course Learr CLO3, CLO4 Essential Em Taught:	De ning Outcon 4, CLO5 ployability 3 EES4, EES EES9	elivery: nes Skills S5, EES	In Class 6, EES7,	Practiced:	EES4, EES5, EES6, EES7, EES9			
Wk. 10	Hours: 1 Course Learr CLO3, CLO4 Essential Em Taught: Intended Lea	De ning Outcon 4, CLO5 ployability 9 EES4, EES EES9 rning Objec	elivery: nes Skills S5, EES ctives	In Class	Practiced:	EES4, EES5, EES6, EES7, EES9			
Wk. 10	Hours: 1 Course Learr CLO3, CLO4 Essential Em Taught: Intended Lea Installation o	De hing Outcon 4, CLO5 ployability 9 EES4, EES EES9 rning Object of special ele	elivery: nes Skills S5, EES Stives ectrical e	In Class 6, EES7, quipment in	Practiced:	EES4, EES5, EES6, EES7, EES9 pooms and garages.			
Wk. 10	Hours: 1 Course Learr CLO3, CLO4 Essential Em Taught: Intended Lea Installation of Intended Lea	De ning Outcon 4, CLO5 ployability 9 EES4, EES EES9 rning Object of special ele	elivery: nes Skills S5, EES ctives ectrical ed ities	In Class 6, EES7, quipment in	Practiced:	EES4, EES5, EES6, EES7, EES9 coms and garages.			
Wk. 10	Hours: 1 Course Learr CLO3, CLO4 Essential Em Taught: Intended Lea Installation of Intended Lea	De ning Outcon 4, CLO5 ployability 9 EES4, EES EES9 rning Object of special ele rning Activi of special ele	elivery: nes Skills S5, EES ctives ectrical ec ities	In Class 6, EES7, quipment in equipment ir	Practiced: laundry room, bathro	EES4, EES5, EES6, EES7, EES9 booms and garages. hrooms and garages.			
Wk. 10	Hours: 1 Course Learr CLO3, CLO4 Essential Em Taught: Intended Lea Installation of Intended Lea Installations Resources an	De ning Outcon 4, CLO5 ployability 9 EES9 rning Object of special ele rning Activit of special ele	elivery: nes Skills S5, EES ctives ectrical ectrical ectr	In Class 6, EES7, quipment in equipment ir	Practiced:	EES4, EES5, EES6, EES7, EES9 booms and garages. hrooms and garages.			
Wk. 10	Hours:1Course Learr CLO3, CLO4Essential Em Taught:Intended Lea Installation ofIntended Lea InstallationsResources an Power point	De ning Outcon 4, CLO5 ployability s EES4, EES rning Object of special ele rning Activit of special ele nd Reference presentation	elivery: mes Skills S5, EES ctives ectrical ec ities lectrical ec ities	In Class 6, EES7, quipment in equipment ir	Practiced: laundry room, bathro	EES4, EES5, EES6, EES7, EES9 booms and garages. hrooms and garages.			

VVK.	Hours: 2	Delivery:	Lab					
10	Course Learning Outcomes							
	CLO1, CLO3, CLO4							
	Essential Employability Skills							
	Taught: E	ES1, EES4, EES ES7	5, EES6,	Practiced:	EES1, EES4, EES5, EES6, EES7			
	Intended Learning Objectives							
	Installation of 4 way switch controls of lighting using the student project boards.							
	Intended Learnin	ng Activities						
	Installation of 4	way switch contro	ols of lighting.					
	Resources and	References						
	Lab #9 4 way switch co	ntrols of lighting						
	Evaluation				Weighting			
	Short answer qu	uestions and han	ds on project.	Questions to be ha	anded 4			
	2 students. To b	be wired to indust	ry standards a	and codes.	xceed			
Wk.	Hours: 1	Delivery:	In Class					
Wk.	Hours: 1 Course Learning	Delivery: g Outcomes	In Class					
Wk. 11	Hours: 1 Course Learning CLO3, CLO4, C	Delivery: g Outcomes LO5	In Class					
Wk. 11	Hours: 1 Course Learning CLO3, CLO4, C Essential Emplo	Delivery: g Outcomes LO5 yability Skills	In Class					
Wk.	Hours: 1 Course Learning CLO3, CLO4, C Essential Emplo Taught: E E	Delivery: g Outcomes LO5 yability Skills ES1, EES2, EES ES7, EES9	In Class 5, EES6,	Practiced:	EES1, EES2, EES5, EES6, EES7, EES9			
Wk. 11	Hours: 1 Course Learning CLO3, CLO4, C Essential Emplo Taught: E E	Delivery: g Outcomes LO5 yability Skills ES1, EES2, EES ES7, EES9 ng Objectives	In Class 5, EES6,	Practiced:	EES1, EES2, EES5, EES6, EES7, EES9			
Wk .	Hours: 1 Course Learning CLO3, CLO4, C Essential Emplo Taught: E Intended Learning Introduction to r	Delivery: g Outcomes LO5 yability Skills ES1, EES2, EES ES7, EES9 ng Objectives esidential service	In Class 5, EES6, es and wiring i	Practiced: methods used.	EES1, EES2, EES5, EES6, EES7, EES9			
Wk. 11	Hours: 1 Course Learning CLO3, CLO4, C Essential Emplo Taught: E Intended Learning Intended Learning	Delivery: g Outcomes ELO5 yability Skills ES1, EES2, EES ES7, EES9 ng Objectives esidential service	In Class 5, EES6, es and wiring i	Practiced: methods used.	EES1, EES2, EES5, EES6, EES7, EES9			
Wk .	Hours: 1 Course Learning CLO3, CLO4, C Essential Emplo Taught: E Intended Learnin Introduction to r Electrical Inspec	Delivery: g Outcomes ELO5 yability Skills ES1, EES2, EES ES7, EES9 ng Objectives esidential service ng Activities esidential service	In Class 5, EES6, es and wiring r es and wiring r ees.	Practiced: methods used. methods used.	EES1, EES2, EES5, EES6, EES7, EES9			
Wk. 11	Hours: 1 Course Learning CLO3, CLO4, C Essential Emplo Taught: E Intended Learnin Introduction to r Electrical Inspec Resources and I	Delivery: g Outcomes ELO5 yability Skills ES1, EES2, EES ES7, EES9 ng Objectives esidential service ng Activities esidential service ction forms and fe References	In Class 5, EES6, es and wiring r es and wiring r ees.	Practiced: methods used. methods used.	EES1, EES2, EES5, EES6, EES7, EES9			
Wk. 11	Hours:1Course Learning CLO3, CLO4, CEssential Employ Taught:Taught:EIntended Learning Introduction to rIntended Learning Introduction to rIntended Learning Electrical Inspect Power points	Delivery: g Outcomes LO5 yability Skills ES1, EES2, EES ES7, EES9 ng Objectives esidential service rng Activities esidential service ction forms and fe References	In Class 5, EES6, es and wiring r es and wiring r ees.	Practiced: methods used.	EES1, EES2, EES5, EES6, EES7, EES9			
Wk. 11	Hours:1Course Learning CLO3, CLO4, CEssential Employ Taught:Taught:EIntended Learning Introduction to rIntended Learning Introduction to rIntended Learning Introduction to rResources and DPower pointsEvaluation	Delivery: g Outcomes LO5 yability Skills ES1, EES2, EES ES7, EES9 ng Objectives esidential service ction forms and fe References	In Class 5, EES6, es and wiring r es and wiring r ees.	Practiced: methods used.	EES1, EES2, EES5, EES6, EES7, EES9			

Wk.	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							
	GFCI Receptacle installation wired on the project board, feed through connected to a second duplex receptacle.							
	Intended Learning Activities							
	GFCI Receptacle installation wired on the project board, feed through connected to a second duplex receptacle.							
	Resources and References							
	Lab #10 GFCI Receptacle installation							
	EvaluationWeightingShort answer questions and hands on project. Questions to be done individually and lab wired in groups not to exceed 2 students. To be wired to industry standards and codes.4							
Wk.	Hours: 1 Delivery: In Class							
12	Course Learning Outcomes CLO3, CLO4, CLO5							
	Essential Employability Skills							
	Taught: EES3, EES4, EES5 Practiced: EES3, EES4, EES5							
	Intended Learning Objectives							
	Residential Service Calculation.							
	Intended Learning Activities							
	Demonstration of a residential service demand calculation. Using online demand calculator linked in DC Connect.							
	Resources and References							
	Power point							
	Evaluation Ongoing							

Wk.	Hours: 2	Delivery:	Lab					
12	Course Learning C	Dutcomes						
	CLO1, CLO3, CLO4, CLO5							
	Essential Employa	ability Skills						
	Taught: EES	S3, EES4, EES	5	Practiced:	EES3, EES4, EES5			
	Intended Learning	Objectives						
	Installation of 2, 20 amp duplex receptacles on the student project boards							
	Intended Learning	Activities						
	Installation of 2, 20	0 amp duplex r	eceptacles on the	e student projec	t boards.			
	Resources and Re	eferences						
	Lab #11 Installation of 20a	mp duplex rece	eptacle circuits.					
	Evaluation Hands on lab to b	be completed in	groups not to ex	ceed 2 students	Weighting 6. 4			
	Project wired to in	dustry standard	ds and codes.					
Wk.	Hours: 1	Delivery:	In Class					
Wk. 13	Hours: 1 Course Learning C	Delivery: Dutcomes	In Class					
Wk. 13	Hours: 1 Course Learning C CLO3, CLO4, CLC	Delivery: Dutcomes	In Class					
Wk. 13	Hours: 1 Course Learning C CLO3, CLO4, CLC Essential Employa	Delivery: Dutcomes D5 ability Skills	In Class					
Wk. 13	Hours: 1 Course Learning C CLO3, CLO4, CLC Essential Employa Taught: EES	Delivery: Dutcomes D5 ability Skills 64, EES5, EES	In Class	Practiced:	EES4, EES5, EES7			
Wk. 13	Hours: 1 Course Learning C CLO3, CLO4, CLC Essential Employa Taught: EES Intended Learning	Delivery: Dutcomes D5 ability Skills 64, EES5, EES Objectives	In Class	Practiced:	EES4, EES5, EES7			
Wk . 13	Hours: 1 Course Learning C CLO3, CLO4, CLC Essential Employa Taught: EES Intended Learning Service Grounding	Delivery: Dutcomes D5 ability Skills 64, EES5, EES Objectives g and Bonding.	In Class	Practiced:	EES4, EES5, EES7			
Wk . 13	Hours: 1 Course Learning C CLO3, CLO4, CLC Essential Employa Taught: EES Intended Learning Service Grounding Intended Learning	Delivery: Dutcomes D5 ability Skills 64, EES5, EES 0 Objectives g and Bonding. Activities	In Class	Practiced:	EES4, EES5, EES7			
Wk . 13	Hours: 1 Course Learning C CLO3, CLO4, CLC Essential Employa Taught: EES Intended Learning Service Grounding Service Grounding	Delivery: Dutcomes D5 ability Skills 64, EES5, EES 0 Objectives g and Bonding. Activities g and Bonding.	In Class	Practiced:	EES4, EES5, EES7			
Wk . 13	Hours: 1 Course Learning C CLO3, CLO4, CLC Essential Employa Taught: EES Intended Learning Service Grounding Service Grounding Service Grounding	Delivery: Dutcomes D5 ability Skills 64, EES5, EES 0 Objectives g and Bonding. Activities g and Bonding.	In Class	Practiced:	EES4, EES5, EES7			
Wk. 13	Hours: 1 Course Learning C CLO3, CLO4, CLC Essential Employa Taught: EES Intended Learning Service Grounding Service Grounding Resources and Re Power points	Delivery: Dutcomes D5 ability Skills 64, EES5, EES 0 Objectives g and Bonding. Activities g and Bonding.	In Class 7	Practiced:	EES4, EES5, EES7			
Wk . 13	Hours: 1 Course Learning C CLO3, CLO4, CLC Essential Employa Taught: EES Intended Learning Service Grounding Service Grounding Resources and Re Power points Evaluation	Delivery: Dutcomes D5 ability Skills 64, EES5, EES 9 Objectives 9 and Bonding. 9 Activities 9 and Bonding. 9 ferences	In Class 7	Practiced:	EES4, EES5, EES7			

Wk.	Hours: 2 Delivery: Lab							
13	Course Learning Outcomes							
	CLO1, CLO3, CLO4, CLO5							
	Essential Employability Skills							
	Taught:EES1, EES3, EES4, EES5Practiced:EES1, EES3, EES4, EES5							
	Intended Learning Objectives							
	Control of a split switched receptacle to be wired on the student project boards.							
	Intended Learning Activities							
	Control of a split switched receptacle with power supplied at the switch and power supplied at the receptacle.							
	Resources and References							
	Lab #12 Control of a split switched outlet.							
	EvaluationWeightingProject to be completed in groups not to exceed 2 students and wired4to industry codes and standards.4							
Wk.	Hours: 2 Delivery: In Class							
Wk.	Hours: 2 Delivery: In Class Course Learning Outcomes							
Wk. 14	Hours: 2 Delivery: In Class Course Learning Outcomes CLO3, CLO4, CLO5							
Wk .	Hours: 2 Delivery: In Class Course Learning Outcomes CLO3, CLO4, CLO5 Essential Employability Skills							
Wk. 14	Hours: 2 Delivery: In Class Course Learning Outcomes CLO3, CLO4, CLO5 Essential Employability Skills Essential Employability Skills Practiced: EES4, EES7							
Wк. 14	Hours: 2 Delivery: In Class Course Learning Outcomes CLO3, CLO4, CLO5 Essential Employability Skills Essential Employability Skills Practiced: EES4, EES7 Intended Learning Objectives Practiced: EES4, EES7							
Wk. 14	Hours: 2 Delivery: In Class Course Learning Outcomes CLO3, CLO4, CLO5 Essential Employability Skills Essential Employability Skills Practiced: EES4, EES7 Intended Learning Objectives Class wrap up, test #3 Practiced: EES4, EES7							
Wk. 14	Hours: 2 Delivery: In Class Course Learning Outcomes CLO3, CLO4, CLO5 Practiced: EES4, EES7 Essential Employability Skills Practiced: EES4, EES7 Intended Learning Objectives Class wrap up, test #3 Intended Learning Activities							
Wk. 14	Hours: 2 Delivery: In Class Course Learning Outcomes CLO3, CLO4, CLO5 Essential Employability Skills Taught: EES4, EES7 Practiced: EES4, EES7 Intended Learning Objectives Class wrap up, test #3 Intended Learning Activities Multiple choice test involving residential wiring. Multiple choice test involving residential wiring.							
Wk. 14	Hours: 2 Delivery: In Class Course Learning Outcomes CLO3, CLO4, CLO5 Essential Employability Skills Taught: EES4, EES7 Taught: EES4, EES7 Practiced: EES4, EES7 Intended Learning Objectives Class wrap up, test #3 Intended Learning Activities Multiple choice test involving residential wiring. Resources and References EES4							
Wk. 14	Hours: 2 Delivery: In Class Course Learning Outcomes CLO3, CLO4, CLO5 Essential Employability Skills Fracticed: EES4, EES7 Taught: EES4, EES7 Practiced: EES4, EES7 Intended Learning Objectives Class wrap up, test #3 Intended Learning Activities Multiple choice test involving residential wiring. Resources and References Labs and questions from labs 1-12 and notes.							

Wk.	Hours:	1	Delivery:	In Class
14	Course Lea	arning Out	tcomes	
	CLO2, CL	.03, CLO4,	, CLO5	
	Essential E	Employabi	lity Skills	
	Taught:	EES1,	EES2, EES4	4 Practiced: EES1, EES2, EES4
	Intended L	earning O	bjectives	
	Short Vide	eo promotio	ons and links	S
	Intended L	earning A	ctivities	
	Introduce in seeking	Apprentice	eship Resour udies.	rces for the Electrical Trade and DC Connect links to assist the students
	Resources	and Refe	rences	
	ECAO res	ources.		
	Evaluation			
	Reference	e Material i	nformation.	