Electrician Apprentice IIA

TEEL - 1210 403

Class Location and Time

Campus:

Building:

Room:

Days:

Time:

Course Student Learning Outcomes

- Show proficiency in calculating properties of an AC circuit.
- Demonstrative proper use of hand tools and electrical equipment in practice live applications.
- Demonstrate proficiency in applying and calculating the sizing of Branch circuits, feeders, services, and load calculations.

Course Prerequisites

All entering students must complete TEEL-1120 with a passing score of C+ or higher.

Course Goals &/or Learning Objectives

At the conclusion of this course, the student will demonstrate:

1. A knowledge of basic measurement calculations as well as volume and area calculations.

2. Satisfactory ability to identify and describe the operation of basic electrical devices to include switches and Ground Fault Circuit Interrupters (GFCI).
3. An understanding of electron theory, circuiting and Ohm's Law. This includes the ability to identify circuit conductors and the relationship between the various circuit properties (Voltage, Current, and Resistance).
4. The ability to perform basic electrical calculations including basic voltage drop and Series circuit calculations.
5. An understanding of general electrical construction knowledge to include construction documents, tool identification, and typical lighting hazards.
6. An introductory understanding of Article 90 to 406 of the NEC

This knowledge will be demonstrated by a final end of semester competency exam on which the student will be required to **score a minimum of 75%**. The students will also be required to be certified in First Aid and CPR.

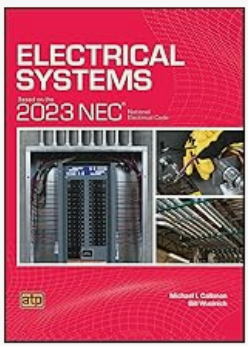
Engagement Plan

Example language:

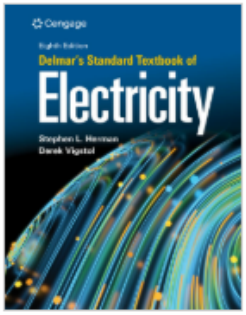
- I will respond to email within [insert your timeline]. I will offer feedback on major assignments within [insert your timeline]. The best way to contact me is via the Canvas Inbox, as I will prioritize this email over other modes of communication.
- In this course I will be posting interactive announcements which will offer specific opportunities for class questions and extra credit every other week.
- Additionally, I will be participating in the discussion forums with you to share my perspective within the discipline and to offer some nuances of interpretation that may not be present in your textbook.
- Lastly, we'll be holding small group Q & A sessions, where we can learn from our peers (and faculty) on some of the more difficult units within the course.

Required Text or Materials

Title: Electrical Systems Based on the 2023 NEC



ISBN: 9780826920638
Authors: Michael I. Callanan
Publication Date: 2023-01-01



Title: Delmar's Standard Textbook of Electricity
ISBN: 9780357933855
Authors: Stephen Herman, Derek Vigstol
Publication Date: 2025-01-01

For more information on textbook accessibility, contact Accessibility & Disability Services at ads@slcc.edu.

Materials Required for Each Lab Class Period

Materials required each class period:

- Textbooks
- Calculator (Recommended: TI-30 or equivalent. Graphing or programmable calculators are not permitted. Construction Master, Electrical Pro, Project Master, or other similar calculators are not permitted. Calculators on cell Phones will also not be allowed to be used in the classroom.)
- Pencil/Pen
- Highlighters
- Notebook

Electronic Devices

Cell phones are permitted to be in the vibrate mode. If it is necessary to answer a call, please step out of the classroom and make it as brief as possible. Extended phone calls may result in reduction of clock hours.

Assignment Schedule

Due Date	Assignment Name	Assignment Type	Points
	2A Midterm	Quiz	60
	Combination circuit #1	Assignment	10
	Combination Circuit #2	Assignment	10
	Combination Circuit #3	Assignment	10
	Combination Circuit #4	Assignment	10
	Day 10 Pre Quiz	Quiz	7
	Day 11 Pre Quiz	Quiz	8
	Day 12 Pre Quiz	Quiz	7
	Day 13 Pre Quiz	Quiz	0
	Day 15 Pre Quiz	Quiz	0
	Day 18 Pre Quiz	Quiz	8
	Day 19 Pre Quiz	Quiz	0
	Day 22 Pre Quiz	Assignment	3
	Day 22 Pre Quiz	Quiz	0
	Day 23 Pre Quiz	Assignment	4
	Day 23 Pre Quiz	Quiz	0

Due Date	Assignment Name	Assignment Type	Points
	Day 24 Pre Quiz	Quiz	0
	Day 25 Pre Quiz	Quiz	0
	Day 26 Pre Quiz	Quiz	0
	Day 27 Pre Quiz	Quiz	0
	Day 28 Pre Quiz	Quiz	0
	Day 3 Pre Quiz	Quiz	19
	Day 9 Pre Quiz	Quiz	6
	Del Unit 21, Resistive-Capacitive Series Circuits	Assignment	8
	Del Unit 22, Resistive-Capacitive Parallel Circuits	Assignment	8
	Electrical Systems Chapter 1 Review Questions	Quiz	35
	ES Ch 1 — The National Electrical Code®	Quiz	35
	ES Ch 2, Rev.— Branch Circuits and Feeders	Quiz	25
	ES Ch 3 Rev. — Dwelling Load Calculations	Quiz	20
	ES Chapter 12 Review Questions	Quiz	30

Due Date	Assignment Name	Assignment Type	Points
	Finish Reviewing Work Sheets 201.	Discussion	0
	Homework: BET Unit 16	Quiz	20
	Homework: BET Unit 17	Quiz	10
	Homework: BET Unit 18	Quiz	25
	Homework: BET Unit 19	Quiz	10
	Homework: BET Unit 19	Quiz	25
	Homework: DEL Unit 1	Quiz	30
	Homework: DEL Unit 13 for 8th Edition	Quiz	20
	Homework: DEL Unit 14 for 8th Edition	Quiz	20
	Homework: DEL Unit 15 8th Edition	Quiz	19
	Homework: DEL Unit 16 - 17 for the 8th Edition	Quiz	55
	Homework: DEL Unit 17 for the 8th Edition	Quiz	30
	Homework: DEL Unit 18	Quiz	15
	Homework: Del Unit 19	Quiz	15

Due Date	Assignment Name	Assignment Type	Points
	Homework: DEL Unit 19, 20	Quiz	40
	Homework: DEL Unit 2	Quiz	19
	Homework: DEL Unit 22	Quiz	8
	Homework: DEL Unit 23	Quiz	60
	Homework: DEL Unit 24	Quiz	60
	Homework: DEL Unit 27	Quiz	50
	Homework: DEL Unit 28	Quiz	50
	Homework: DEL Unit 9	Quiz	20
	Homework: UNEC 100	Quiz	35
	Homework: UNEC 110	Quiz	25
	Homework: UNEC 200	Quiz	10
	Homework: UNEC 210	Quiz	10
	Homework: UNEC 215	Quiz	10
	Homework: UNEC 220	Quiz	15
	Homework: UNEC 230	Quiz	10
	Homework: UNEC 90	Quiz	10
	Introduce Yourself	Discussion	0
	Introduce Yourself	Discussion	0

Due Date	Assignment Name	Assignment Type	Points
	Introduce Yourself	Discussion	0
	Lab: Measuring single and 3-phase transformers	Assignment	10
	Ohms law and code questions	Assignment	20
	Review Voltage work sheet	Discussion	0
	Review Combination circuit 3	Discussion	0
	Review Current work sheet	Discussion	0
	Review for Midterm Exam	Discussion	0
	Review Load calculations	Discussion	0
	Review missing homework	Discussion	0
	Review Series, parallel and Combination ciruits	Discussion	0
	Review Services, Feeders, and Branch Circuits work sheets	Discussion	0
	Roll Call Attendance	Assignment	100
	Series and Parallel circuits	Assignment	10
	TEST 1	Quiz	25

Due Date	Assignment Name	Assignment Type	Points
	TEST 2	Quiz	72
	TEST 3	Quiz	28
	TEST 4	Quiz	0
	TEST 5	Quiz	20
	TEST 6	Quiz	35
	TEST 7	Quiz	30
	TEST 9	Quiz	0
	Theory Questions	Assignment	3
	Unit 2 Challenge Questions	Assignment	10
	Welcome, go over class expectations and syllabus.	Discussion	0
	Work sheet 212 and 222	Assignment	33
	Work sheet Del 18, Resistive-Inductive Parallel Circuits	Assignment	8
	Work sheet Del Unit 15, Alternating Current practice problems	Assignment	10
	work sheet Del Unit 16, Inductance in an AC circuit, Practice problems	Assignment	10

Due Date	Assignment Name	Assignment Type	Points
	work sheet Del Unit 17, Resistive-inductive Series Circuits	Assignment	8
	Work Sheet Del Unit 20, Capacitance in an AC circuit	Assignment	10
	Work sheet Del Unit 21, Resistive-capacitive Series Circuits	Assignment	8
	work sheet Del Unit 22, Resistive-capacitive Parallel circuit	Assignment	8
	Work sheet Del Unit 23, RLC series circuits	Assignment	20
	Work sheet Del unit 24, RLC Parallel circuits	Assignment	8
	Work sheet Del Unit 27, Single Phase Transformers	Assignment	16
	Work sheet Ohms Law #1	Assignment	4
	Work Sheet, Current	Assignment	23
	Work sheet, Voltage	Assignment	28
	Work Sheets 201.1 - 201.6	Assignment	60

Due Date	Assignment Name	Assignment Type	Points
	Worksheet Del Unit 28, 3 phase Transformer	Assignment	8
	Worksheet Ohms Law #2B	Assignment	5
	worksheet, Ohms Law #2	Assignment	5
	Worksheet: series, parallel, and Combination circuits	Assignment	3
12/2/24	ELI 2A Competency Test	Quiz	60
12/11/24	ELI 2A Competency Test Retake	Quiz	60

Brief Description of Assignments/Exams

Classroom Exams – Unit tests and exams will be given periodically throughout the semester to assess the student's learning and retention of the course material. There will be a final competency exam on which the student is required to score a minimum of 75%.

Preparation – Students should expect to spend 5 hours each week in class and approximately an additional 6 hours of study/homework time each week to be successful in this course.

Lab requirement – Students will be expected to attend a minimum of two labs during the semester. These labs will be scheduled by the instructor.

On the Job Training – It is expected that students are employed in the electrical industry and are working full-time while attending school. It is mandatory that students hold a current valid Utah Apprentice Electrician license while enrolled in school. Students without a valid license may be administratively withdrawn from class.

Attendance – As per the requirements set forth in 29 CFR 29.5 Standards of Apprenticeship paragraph (b)(4), each apprentice must successfully complete a minimum of 144 hours of related and supplemental instruction each year of Apprenticeship (72 hours each semester). In our efforts to accommodate the demanding schedules of the majority of the Apprentices registered and enrolled at Salt Lake Community College, we are offering each of our courses for a period of 75 hours each semester (2.5 hours for each of 30 evenings). The enforcement of the attendance policy is the responsibility of each instructor. Instructors are required to take attendance each evening. Individual Students will be held responsible for ensuring they have sufficient clock hours to successfully complete the course. Salt Lake Community College will offer up to an additional 6 clock hours at the end of the semester (usually on a Saturday) for those students who need to "make-up" time. There will be an additional cost of $35 for each block of 3 clock hours, payable on the day of the class. Salt Lake Community College will only offer these additional hours if there is sufficient students to offset the costs associated with providing the training (a minimum of 10 students). Students requiring make up hours must contact the Apprenticeship Office as soon as possible. Students are not allowed to "make-up" clock hours or labs by attending classes for which they are not registered. Students with insufficient clock hours will not be permitted to sit for the final Competency Exam at the end of the semester. They will receive a failing grade and be required to re-take the semester course prior to moving forward in their apprenticeship.

Competency Exam – The Utah State Licensing Board has mandated a final end of semester competency exam which will be administered on the second to last day of class. This competency exam may include any information covered in the approved curriculum outline for the individual program with an emphasis on the above-mentioned course goals and learning objectives. This will be a 60 question, Multiple-Choice and True/False, exam which must be completed in 2hours. This exam will account for a major portion (25%) of the final grade awarded in the class. Students are required to bring a picture ID and a #2pencil to this exam. Students without these items may be asked to leave and receive a failing grade. Additionally, the following materials will be allowed to be used on the competency exam: a 2020 NEC (Handbooks are not allowed); a 2020 UGLY's; a calculator (Recommended: TI-30 or equivalent. Graphing or programmable calculators are not permitted. Construction Master, ElectricalPro, Project Master, or other similar calculators are not permitted. Calculators on cell Phones will also not be allowed to be used in the classroom.).

**This exam will account for 25% of the final grade awarded for the class. If the student scores less than 75% on the exam, the score will be recorded as a 0 (zero). If the student scores a 75% or higher, the earned score will be calculated as 25% of the final grade.

Grading Scale

Grades will be awarded based on the following percentages:

- Homework: 25%
- Quizzes: 25%
- Midterms: 25%
- Comp Exam: 25%

The final grade will be issued according to the following table:

A 94 – 100%

A- 90 – 93%

B+ 87 – 89%

B 84 – 86%

B- 80 – 83%

C+ 77 – 79%

E 0 – 76%

Students receiving an E grade will be issued 0 clock hours for the course.

Transfer/Certification/Licensure/Employment Information

We have made a good-faith effort to collect state licensure requirements for the SLCC programs of study that lead to professional licensure. You can view additional information about state licensure requirements on our Professional Licensure webpage.

How to Navigate to Canvas

Institutional Policies

As members of our academic community, we would like to invite you to review the Institutional Syllabus which covers important policies and procedures. This document contains important links for students on the code of student rights and responsibilities, academic integrity, and grading policies, Title IX and other important acknowledgements. By familiarizing yourself with this information, you can help us create a safe and respectful environment for everyone.

For more information, navigate to the Institutional Policies tab on the Institutional Syllabus page.

Learning Support and Tutoring Services

We are pleased to offer a range of tutoring and learning support services to help you achieve your academic goals. Whether you need assistance with a specific subject or want to improve your study skills, you have many options for tutoring or other support.

To learn more about the services we offer and how to access them, visit the Institutional Syllabus page under the Tutoring and Learning Support tab. We encourage you to take advantage of these resources to help you succeed in your studies. If you have any questions or would like to schedule a tutoring session, please don't hesitate to reach out to us. We are here to support you in any way we can.

Student Academic Calendar

As students you should be aware of all important dates in the semester, such as the day that courses begin and end, as well as the drop date and the last day to withdraw. To learn more about those dates, navigate to the Student Academic Calendar below:

SLCC Student Academic Calendar

Advising and Counseling Support Services

At our institution, we are committed to supporting your academic and personal growth. That's why we offer a range of advising and counseling services to help you navigate the challenges of college life. To learn more about the resources available to you and how to access them, visit the Institutional Syllabus page under the Advising and Counseling Support Services tab. Our advising team and the support centers across campus are here to support you in achieving your goals and overcoming any obstacles you may face.