



Note to Instructor: Replace the placeholder text beneath the headings with the appropriate information for your course. Please note that all sections, with the exception of "Other Course Information," are required elements.

Basic Course Information

| | | | |
|-------------------|----------------------|---------------------|--------------------|
| Semester: | Spring 2023 | Instructor Name: | Myles Mendivil |
| Course Title & #: | Electrical Trades IV | Email: | mpmendivil@iid.com |
| CRN #: | 20873 | Webpage (optional): | Imperial.edu |
| Classroom: | LQ Computer Lab | Office #: | IN THE FIELD |
| Class Dates: | 2/15/2023 – 6/7/2023 | Office Hours: | 5:30-4:00 |
| Class Days: | Wednesday | Office Phone #: | 760-902-0003 |
| Class Times: | 4:00-8:30 | Emergency Contact: | Myles Mendivil |
| Units: | 4 | Class Format: | |

Course Description

An introduction to framing, setting guy poles, installation of conductions and grounds, and the laying out and construction of an underground line system.

Course Prerequisite(s) and/or Corequisite(s)

Successful completion of ELTT103 with a "C" or better.

Student Learning Outcomes

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. Identify and explain the use of line construction equipment; line trucks, digger derricks, bucket trucks.
2. Describe overhead distribution systems and equipment; cutouts, switches, reclosers, sectionalizers, capacitors and voltage regulators.

Course Objectives

Upon satisfactory completion of the course, students will be able to:

1. Practice standard safety procedures appropriate to the power utility industry.
2. Recognize and deal appropriately with hazardous materials in the power utility industry.
3. Operate and maintain a bucket truck, digger derrick, backhoe, and trencher.
4. Demonstrate the method(s) of connecting pole top transformers (single-phase and three phase)
5. Analyze and explain the procedures for troubleshooting and replacement of faulty pole top transformer components; i.e., cutouts, switches, capacitors, and voltage regulators.
6. Explain the procedures in locating cable fault sites.

Textbooks & Other Resources or Links

1. Electrical Lineman Training Committee. 1990. Imperial Irrigation District's Lineman Apprenticeship Training Handbook. Imperial Irrigation District. ISBN: -.



2. Singer, Bertand B., Harry Forster, and Michael E. Schultz. 2000. *Basic Mathematics for Electricity and Electronics*. 8th Macmillan/McGraw-Hill. ISBN: 9780028050225.

3. Shoemaker, Thomas M. and James E. Mack. 2007. *The Lineman's and Cableman's Handbook*. 11th McGraw-Hill. ISBN: -.

4. Alexander Publications. 2007. *Transformation for Lineworkers*. 2nd Edition Alexander. ISBN: .

5. Alexander Publications. . *Fundamentals of Electricity Volume 1*. 3rd Alexander Publications. ISBN: .

6. Alexander Publications. . *Fundamentals of Electricity Volume 2*. 3rd Alexander Publications. ISBN: .

7. Micheal I. Callanan and Bill Wusinich. . *Electrical Systems: Based on the 2017 NEC*. 1st American Technical Publishers. ISBN: 9780826920324.

Course Requirements and Instructional Methods

Assignments are designed to elicit your demonstration of critical thinking, understanding and application of the course concepts, and your proficiency in the subject matter.

| Required Activities or Assignments | Points |
|------------------------------------|--------|
| Homework, Assignments | 10 |
| Laboratory Experiments | 10 |
| Mid-Term Exams | 40 |
| Final Exam | 40 |

Teaching Methods: Discussion of assignments and instructional methods will be a combination of all methods of instruction, which can be classified as telling, lecturing or discussing; showing or demonstrating.

Out of Class Assignment: The Department of Education policy states that (1) credit hour is the amount of student work that reasonably approximates not less than one hours of class time and two (2) hours of out of class times per week over the span of a semester. WASC has adopted a similar requirement.

Course Grading Based on Course Objectives

The course grade is based on total points accumulated during the semester. There is a maximum of 100 points. Very limited extra credit, (if any) may be available, either through some class participation activity, group work or perfect attendance. Failing to turn in regular assignments will stop you from being able to earn extra credit points and late assignments will have points subtracted.

Final Grades are calculated as follows:

| POINTS | GRADE |
|----------|-------|
| 90-100 | A |
| 80-89 | B |
| 70-79 | C |
| 60-69 | D |
| Below 60 | F |

Late Assignments will be accepted until the graded assignment is returned to the class, but assessed a penalty of 10 points per calendar day it is late.



Total: 100% Academic Honesty

Academic honesty in the advancement of knowledge requires that all students and instructors respect the integrity of one another's work and recognize the important of acknowledging and safeguarding intellectual property.

There are many different forms of academic dishonesty. The following kinds of honesty violations and their definitions are not meant to be exhaustive. Rather, they are intended to serve as examples of unacceptable academic conduct.

- Plagiarism is taking and presenting as one's own the writings or ideas of others, without citing the source. You should understand the concept of plagiarism and keep it in mind when taking exams and preparing written materials. If you do not understand how to "cite a source" correctly, you must ask for help.
- Cheating is defined as fraud, deceit, or dishonesty in an academic assignment, or using or attempting to use materials, or assisting others in using materials that are prohibited or inappropriate in the context of the academic assignment in question.

Anyone caught cheating or plagiarizing will receive a zero (0) on the exam or assignment, and the instructor may report the incident to the Campus Disciplinary Officer, who may place related documentation in a file. Repeated acts of cheating may result in an F in the course and/or disciplinary action. Please refer to the IID policy and procedures 4530 for more information on academic dishonesty or other misconduct. Acts of cheating include, but are not limited to, the following: (a) plagiarism; (b) copying or attempting to copy from others during an examination or on an assignment; (c) communicating test information with another person during an examination; (d) allowing others to do an assignment or portion of an assignment; (e) using a commercial term paper service.

Attendance

- A student who fails to attend the first meeting of a class or does not complete the first mandatory activity of an online class will be dropped by the instructor as of the first official meeting of that class. Should readmission be desired, the student's status will be the same as that of any other student who desires to add a class. It is the student's responsibility to drop or officially withdraw from the class. See [General Catalog](#) for details.
- Regular attendance in all classes is expected of all students. A student whose continuous, unexcused absences exceed the number of hours the class is scheduled to meet per week may be dropped. For online courses, students who fail to complete required activities for two consecutive weeks may be considered to have excessive absences and may be dropped.
- Absences attributed to the representation of the college at officially approved events (conferences, contests, and field trips) will be counted as 'excused' absences.

Classroom Etiquette

- Electronic Devices: Cell phones and electronic devices must be turned off and put away during class, unless otherwise directed by the instructor.
- Food and Drink are prohibited in all classrooms. Water bottles with lids/caps are the only exception. Additional restrictions will apply in labs. Please comply as directed by the instructor.



- Disruptive Students: Students who disrupt or interfere with a class may be sent out of the room and told to meet with the Campus Disciplinary Officer before returning to continue with coursework. Disciplinary procedures will be followed as outlined in the [General Catalog](#).
- Children in the classroom: Due to college rules and state laws, only students enrolled in the class may attend; children are not allowed.

Online Etiquette

- What is netiquette? Netiquette is internet manners, online etiquette, and digital etiquette all rolled into one word. Basically, netiquette is a set of rules for behaving properly online.
- Students are to comply with the following rules of netiquette: (1) identify yourself, (2) include a subject line, (3) avoid sarcasm, (4) respect others' opinions and privacy, (5) acknowledge and return messages promptly, (6) copy with caution, (7) do not spam or junk mail, (8) be concise, (9) use appropriate language, (10) use appropriate emoticons (emotional icons) to help convey meaning, and (11) use appropriate intensifiers to help convey meaning [do not use ALL CAPS or multiple exclamation marks (!!!!)].

Student Rights and Responsibilities

Students have the right to experience a positive learning environment and to due process of law. For more information regarding student rights and responsibilities, please refer to the [IVC General Catalog](#).

IVC Student Resources

IVC wants you to be successful in all aspects of your education. For help, resources, services, and an explanation of policies, visitor click the heart icon in Canvas.

Anticipated Class Schedule/Calendar

[Provide a tentative overview of the readings, assignments, tests, and/or other activities for the duration of the course. A table format as in the example below may be used for this purpose.]

*****Subject to change without prior notice*****

| | |
|------------------------|---|
| Week 1 | Syllabus & Introduction |
| Week 2 | Rules and Regulations <ol style="list-style-type: none"> 1. Safety Procedures 2. Identifying and dealing with hazardous materials |
| Week 3 To Week 6 | Line Trucks, Derricks and Digging Equipment <ol style="list-style-type: none"> 1. Introduction to mobile hydraulics systems 2. Introduction to bucket trucks 3. Pre-use inspection 4. Bucket truck replacement 5. Bucket truck operation |

6. Material handling bucket trucks
7. Lifting a Transformer
8. Digger derricks
9. Backhoes
10. Trenches

Week 7

Review for Mid-Term Exam

Week 8

MID-TERM EXAM

Week 9 &10

Distribution Line Maintenance II-Pole Top Equipment Maintenance

1. Overhead distribution system design (Delta and wye)
2. Transformer connections (single and 3-phase)
3. Troubleshooting Transformers (single and 3-phase)
4. Pole top transformer replacement

Week 11 & 12

Troubleshooting and replacing

1. Cutouts
2. Switches
3. Sectionalizers and reclosers
4. Capacitors
5. Voltage regulators

Week 13 & 14

Underground Line Maintenance II – Transformers, Switchgear and Cable Fault Location

1. Underground residential distribution transformers
2. Pad-mounted transformers and switchgear
3. Cable fault location

Week 15

Review for Final Exam

Week 16

FINAL EXAMINATION