



Basic Course Information

Semester:	Spring 2023	Instructor Name:	Javier H. Avendano
Course Title & #:	ELTT 103 Electrical Trades III	Email:	jhavendano@iid.com
CRN #:	10985	Webpage (optional):	
Classroom:	EC Executive Training CR	Office #:	Relay Shop
Class Dates:	Feb 13 – Jun 9	Office Hours:	6:00 – 16:30
Class Days:	Wed	Office Phone #:	760-482-9816
Class Times:	16:30 – 20:30	Emergency Contact:	Miriam Larson
Units:	4	Class Format:	

Course Description

An overview of transmission and distribution systems (T&D), and the various components used in the utility industry. Additional topics will include high voltage AC power, study of electrical diagrams, safety in the workplace, and a section on rope, rigging, and hand signals. (Nontransferable, AA/AS degree only)

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

ELTT 102 with a grade of "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. Understand transformer construction and parts in a distribution transformer. (ILO2, ILO3)
2. Understand three phase transformers and different types of three phase circuits and connections. (ILO2, ILO3)
3. Understand inductive reactance, capacitive reactance and impedance. (ILO2, ILO3)
4. Understand basic power distribution/power grids. (ILO2, ILO3)

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. Describe the functions and characteristics of transmission and distribution systems and their components.
4. Apply the fundamentals of substation and switchyard equipment systems.
5. Analyze and apply basic skills in three phase power systems, and recognize delta and wye configurations, and their components.
6. Describe and interpret the various electrical diagrams used in the electrical systems.
7. Recognize and implement the various safety rules, regulations, and procedures that apply to electrical system maintenance personnel (CAL-OSHA/IID).
8. Analyze and describe the various fundamentals of overhead rigging, rope handling, and standard hand signals.
9. Identify Power Electrical Systems.
10. Identify Power and Distribution Transformers Connections.
11. Understand Equipment used in T&D Substations.
12. Learn about Power Electric Quantities (MVA, MW, MVAR and PF).
13. Use and identify on the one line/electrical diagram all elements of the substations.
14. Recognize safety procedures, safety rules, and hazardous materials

Textbooks & Other Resources or Links

Basic Mathematics for Electricity and Electronics.
The Lineman's and Cableman's Handbook.
International Electrical Code NFPA
The National Electric Safety Code 2017.

Course Requirements and Instructional Methods

Teaching Methods: During this class you will have opportunity to participate in a variety of presentation and teaching methods. Lectures, including material not covered in your readings, class and group discussions requiring your active participation, student oral presentations, and films or field trips will supplement your required readings.

Out of Class Assignments: The Department of Education policy states that one (1) credit hour is the amount of student work that reasonably approximates not less than one hour of class time and two (2) hours of out-of-class time per week over the span of a semester. WASC has adopted a similar requirement. Out of class assignments for this course includes reading assignments, study time for exams/quizzes, and completion of required course assignments. Students should actively read the assignment prior to class, bring any questions to class, and take careful notes during class.

Course Grading Based on Course Objectives

90-100% = A
80-89% = B
70-79% = C
60-69% = D
Below 60% = F

There are 2 quizzes (15 pts. each)

Homework, presentations: (30 pts.)
1 final exam. (40 pts.)

Total of 100 pts. Total accumulated points are divided by 100 to arrive at percentage score.

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

Date or Week	Activity, Assignment, and/or Topic	Pages/ Due Dates/Tests
Week 1 February 15	Syllabus & Introduction. Diagnostic test Text books, supporting material	
Week 2 February 22	Transmission & Distribution Systems Substations and Switchyards	
Week 3 March 1st	Transmission & Distribution Systems Generators	
Week 4 March 8	Transmission & Distribution Systems Transformers	
Week 5 March 15	Transmission & Distribution Systems Instrument Transformers	
Week 6	Transmission & Distribution Systems	Quiz 1



IMPERIAL VALLEY COLLEGE

Date or Week	Activity, Assignment, and/or Topic	Pages/ Due Dates/Tests
March 22	Transmission Lines	
Week 7 March 29	Transmission & Distribution Systems Capacitor Banks	
Week 8 April 5	Transmission & Distribution Systems Reactors	
Week 9 April 19	Rigging, rope handling, hand signals	
Week 10 April 26	Transmission & Distribution Systems Phasor Representation I	
Week 11 May 3	Transmission & Distribution Systems Phasor Representation II	Quiz 2
Week 12 May 10	Transmission & Distribution Systems Control diagrams I	
Week 13 May 17	Transmission & Distribution Systems Control Diagrams II	
Week 14 May 24	Safety in Utility Systems Hazardous Materials, bucket truck, confined space	
Week 15 May 31	Safety in Utility Systems Arc flash, PPE & FR, fall protection	
Week 16 Jun 7	Final Exam	

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