

Basic Course Information

Semester	Spring 2023	Instructor	Francisco Fimbres
Course Title & #	Electrical Trades IV	Email	fjfimbres@iid.com
CRN #		Website	
Room	3119 Classroom.	Office	ValleyPlaza Suite 11B Engineering Standards
Class Dates	Feb(14,21,28) Mar(7,14,21,28) Apr (4, 11, 17,25) May(2,9,16,23,30) Jun(6)	Office Hours	7:30 to 17:30
Class Days	Tuesdays	Phone #	760-482-3503
Class Times	17:30 to 22:35	Contact for absence or emergency	Epi Martinez.

Course Description

A comprehensive review of Generation, Transmission, and Distribution systems (T&D) and all components/elements used in the utility industry Alternate Current (AC) and Direct Current (DC), Electrical Diagrams, and Electrical Symbols. (Nontransferable, AA/AS degree only).

Student Learning Outcomes

Students will understand industry rules, regulations, and standards.

Students will learn and recognize Generation, Transmission, and Distribution systems (T&D) and all components/elements used in the utility industry Alternate Current (AC) and Direct Current (DC), Electrical Diagrams, and Electrical Symbols.

Students will describe the functions of the substation equipment and their limitations.

All Students will understand transformer constructions and parts in power transformers and distribution transformers.

Students can identify, Differentiate, three-phase transformers and single-phase transformers Delta and Star.

Students will learn and understand different type of loads; Inductive reactance, Capacitive reactance and Impedance

Students will interpret the basic of Power Distributions/Power Grid.

Course Objectives

Identify Power Electrical Systems according to IID.

Identify Power and Distribution Transformers Connections.

Understand Equipment used in T&D Substations.

Learn about Power Electric Quantities (MVA, MW, MKVAR, and PF).

Use and identify on the one line/electrical diagram all elements of the substations.

Textbooks & Other Resources or Links

Basic Mathematics for Electricity and Electronics.
 The National Electric Code 2017 International Electrical Code NFPA.

Course Grading Based on Course Objectives

The course grade is based on the total points accumulated during the semester. There is a maximum of 100 points. Very limited extra credit points 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:

GRADING:

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

Grading Rubrics: In addition to the percentages and points listed above the following grading rubric (standards expected) will be used when grading student assignments. The description that best fits your work will be the assigned grade.

Grade	Rubric or Standard Expected
A	Focused and clearly organized. Contains advanced critical thinking and analysis. Convincing evidence is provided to support conclusions. Clearly meets or exceeds assignment requirements.
B	Generally focused with some development of ideas, but may be simplistic or repetitive. Evidence is provided to support conclusions. Occasional grammatical errors. Meets assignment requirements, but does not exceed.
C	Unfocused, underdeveloped, or rambling, but has some coherence. Minimal evidence is provided to support conclusions. Several grammatical errors. Meets minimum assignment requirements.
D	Unfocused, underdeveloped, and/or rambling. Limited evidence is used to support conclusions. Serious grammatical errors that impede overall understanding. Does not address the assignment requirements
F	Unfocused, underdeveloped, and/or rambling. Incomplete or too brief. No evidence is used to support conclusions. Serious grammatical errors that block overall understanding. Does not meet assignment requirements. Minimal to no student effort.

Late Assignments will be accepted until the graded assignment is returned to the class, but assessed a penalty of 5 points per calendar day it is late.

Course Assignments and Instructional Methods

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

CORE CONTENT	APPROX % OF COURSE
A. DC and AC Circuits	20%
B. Generation & Transmission System.	10%
C. Distribution Systems. Transformer Single and Three Phases.	20%
D. Solar Generation Plants	10
E. Total Quizzes 3	60%
F. Final TEST	40%
A. Total Grade	100%

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.

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.
- 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.

Academic Dishonesty

- Plagiarism is to take and present 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 clearly understand how to correctly 'cite a source', 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, or assisting others in using materials, which are prohibited or inappropriate in the context of the academic assignment in question. Anyone caught cheating will receive a zero (0) on the exam or assignment, the incident will be reported to the division dean and the dean of Student Affairs, and a document may be placed in a file. Repeated acts of cheating may result in an F in the course and/or disciplinary action. Please refer to the General School Catalog for more information on academic dishonesty or other misconduct. Acts of cheating include, but are not limited to the following:
 - plagiarism
 - copying or attempting to copy from others during an examination or on an assignment;
 - communicating test information with another person during an examination;
 - allowing others to do an assignment or portion of an assignment
 - use of a commercial term paper service

Classroom Etiquette

- Electronic Devices: Cell phones and electronic devices must be turned off and put away during class. Cell phones ringing during class and all electronic devices not put away will be held by the instructor until the end of class as these disruptions are considered disrespectful behavior to others in the class and 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.
- Disruptive Students: Most of you are here to learn, but some students are not as serious. To preserve a productive learning environment, 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.

Additional Help

- Learning Labs: There are several 'labs' on campus to assist you through the use of computers, tutors, or a combination. Please consult your college map for the Math Lab, Reading & Writing Lab, and Learning Services (library). Please speak to the instructor about labs unique to your specific program

- **Library Services:** There is more to our library than just books. You have access to tutors in the learning center, study rooms for small groups, and online access to a wealth of resources.

Disabled Student Programs and Services (DSPS)

Any student with a documented disability who may need educational accommodations should notify the instructor or the Disabled Student Programs and Services (DSP&S) office as soon as possible. The DSP&S office is located in Building 2100, telephone 760-355-6312 if you feel you need to be evaluated for educational accommodations.

Student Counseling and Health Services

Students have counseling and health services available, provided by the pre-paid Student Health Fee. You can find out more about services available for students at <http://www.imperial.edu/students/student-health-center/>. The IVC Student Health Center is located in the Health Science building in Room 2109, telephone 760-355-6310.

Student Rights and Responsibilities

Students have the right to experience a positive learning environment; students who disrupt that environment can be asked to leave the class. Faculty and students also have the right of due process. For further information regarding student rights and responsibilities please refer to the IVC General Catalog available online at www.imperial.edu

Class Schedule

Below is a list of weekly activities and assignments that will assist you in meeting the course objectives and the Student Learning Outcomes. Please review carefully and often as the list may reading assignments, exams, field trips, projects, presentations, etc.

**SPRING 2023 SEMESTER SNAPSHOT
(Subject to Change)**

ASSIGNMENTS, ACTIVITIES, OR PROCESSES:

Students are expected to spend a minimum of 2 hours per unit per week on outside assignments.

WEEK NUMBER	Activity, Assignment, and/or Topic.	QUIZZ
WK 1	Introduction of the topics, Syllabus, review text books, point of view, and calendar semester.	
WK 2	Review ELT-101,102 and 103	
WK 3	Electric Circuits, DC Circuits Intro	
WK 4	DC Circuits Exercises	
WK 5	AC Circuits Intro	
WK 6	AC Circuits Exercises	WK 2,3,4,(25%)
WK 7	Generation, Transmission Systems (Voltages, Configurations)	
WK 8	Cont...Generation Substations and Transmission Substations. One-lines	
WK 9	Cont....Generation Substations and Transmission Substations. One-lines	

Imperial Valley College Course Syllabus

WK 10	Distribution Substations	WK 6,7,8,9 (25%)
WK 11	Cont.....Distribution Substations	
WK 12	Transformers Connections	
WK 13	Cont.... Transformer Connections	
WK 14	Generation Solar Plants	
WK 15	Cont....Distribution Construction Standards and Developer energy Planning Guide.	WK 10,11,12,13,14,15 (25%)
WK 16	FINAL EXAM (GENERAL)	25%

1. Units and Basic Concepts.
2. Resistance.
3. Capacitors.
4. Inductors.
5. Ohm's Law.
6. Series and Parallel Resistive Circuits.
7. Kirchoff's Laws.
8. AC Sources, Waveforms and Circuit Relationships.
9. Complex Numbers and Phasors.