Basic Course Information

Semester:	**Spring 2017**	Instructor Name:	**Jimenez, Javier**
Course Title & #:	**Electrical Trades II / ELTT 102**	Email:	**Javier.Jimenez@imperial.edu**
CRN #:	**20985**	Webpage (optional):	
Classroom:	**ETC-P4LAB**	Office #:	
Class Dates:	**13 FEB 2017 to 9 JUN 2017**	Office Hours:	
Class Days:	**Tuesdays**	Office Phone #:	
Class Times:	04:00 PM – 08:30 PM	Emergency Contact:	**Javier.Jimenez@imperial.edu**
Units:	4.00		

Course Description

Designed to give the apprentice 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).

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

MEASURABLE COURSE OBJECTIVES AND MINIMUM STANDARDS FOR GRADE OF "C":
Upon satisfactory completion of the course, students will be able to (these objectives are subject to change):

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 an interpret the various electrical diagrams used in the maintenance of electrical systems.
7. Recognize and implement the various safety rules, regulations, and procedures that apply to electrical system maintenance personnel (CAL-OSHA/IID).
8. Analize and describe the various fundamentals of overhead rigging, rope handling, and standard hand signals.

Textbooks & Other Resources or Links

1. Electrical Lineman Training Committee (1990). Imperial Irrigation District's Lineman Apprenticeship Training Handbook Imperial, CA Imperial Irrigation District. ISBN: -.
2. Basic Mathematics for Electricity and Electronics (8th/e). Singer, Bertand B., Harry Forster, and Michael E. Schultz (2000). New York Macmillan/McGraw-Hill. ISBN: 0028050223.
3. The Lineman's and Cableman's Handbook (12th/e). Shoemaker, Thomas M. and James E. Mack (2012). New York McGraw-Hill. ISBN: 9780071742580.

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
1. Homework, Assignments:	10
2. Laboratory Experiments:	10
3. Mid-Term Exam:	40
4. 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 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.

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 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:

Points	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 10 points per calendar day it is late.

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, no one who is not enrolled in the class may attend, including children.

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 General Catalog 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.

Additional Student Services

Imperial Valley College offers various services in support of student success. The following are some of the services available for students. Please speak to your instructor about additional services which may be available.

- **Blackboard Support Site.** The Blackboard Support Site provides a variety of support channels available to students 24 hours per day.
- **Learning Services.** There are several learning labs on campus to assist students through the use of computers and tutors. Please consult your Campus Map for the Math Lab; Reading, Writing & Language Labs; and the Study Skills Center.
- **Library Services.** There is more to our library than just books. You have access to tutors in the Study Skills 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 760-355-6313. Please contact them 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.

- **Student Health Center.** A Student Health Nurse is available on campus. In addition, Pioneers Memorial Healthcare District and El Centro Regional Center provide basic health services for students, such as first aid and care for minor illnesses. Contact the IVC Student Health Center at 760-355-6310 in Room 2109 for more information.

- **Mental Health Counseling Services**. Short-term individual, couples, family, and group therapy are provided to currently enrolled students. Contact the IVC Mental Health Counseling Services at 760-355-6196 in Room 2109 for more information.

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.

Information Literacy

Imperial Valley College is dedicated to helping students skillfully discover, evaluate, and use information from all sources. The IVC Library Department provides numerous Information Literacy Tutorials to assist students in this endeavor.

Anticipated Class Schedule/Calendar

Below is a tentative, provisional overview list (the dates and Activities, Assignments and/or Topics are subject to change) of weekly activities and assignments that will assist you in meeting the course objectives and the Student Learning Outcomes.

Date	Activity, Assignment, and/or Topic	Assignment Due
February 14	Syllabus & Introduction	
February 14	A. Safety Procedures.	
February 21	B. Working with Hazardous Materials.	
February 28	C. Introduction to Transmission and Distribution Systems 1. Overview of transmission and distribution systems 2. Transmission systems and their components 3. Substation and switchyard equipment 4. Distribution systems and their components 5. System protection and monitoring 6. IID's transmission and distribution system	
March 7 to March 14	D. AC Power Theory and Switchyard Equipment 1. Power and power loss 2. Inductance and inductive reactance 3. Capacitance and capacitance reactance 4. Resistance 5. Impedance 6. Power factor	
March 21	Review for Final Exam	
March 28	Mid Term Exam	
March 28 to April 25	E. AC Power Theory and Switchyard Equipment 1. Three phase power 2. Delta and wye configurations 3. Voltage regulator applications 4. Capacitor applications	
May 2	F. Electrical Systems Diagrams 1. Introduction to electrical system diagrams 2. Construction diagrams 3. Specification manuals 4. Schematic diagrams 5. One-line diagrams	

	6. Plan-profile diagrams 7. Staking sheets 8. Framing diagrams 9. Map reading	
May 9	G. Safety in the Work Place 1. Review of industrial safety programs 2. Safety rules and regulations a. National Electrical Code b. Occupational Safety and Health Act (OSHA) c. Electrical Safety Code (CAL/OSHA) 3. Safety in transmission and distribution systems a. Safety in transmission and distribution maintenance b. Electrical safety 4. Fire fighting-Using portable fire extinguishers 5. Review of CPR/First aid (Safety Coordinator) 6. Defensive driving (Safety Coordinator)	
May 16 to May 23	H. Rope, Rigging, and Hand Signals 1. Introduction to rigging 2. Rope 3. Knot typing 4. Handlines 5. Block and tackle 6. Standard hand signals 7. Rigging to lift a conductor 8. Rigging to lift the strain from a conductor 9. Rigging to lift and move equipment 10. Using a gin pole	
May 30	Review for Final Exam	
June 6	Final Examination	

*****Tentative, subject to change without prior notice*****