

Basic Course Information

| | | | |
|------------------|---|---|--|
| Semester | Fall 2019 | Instructor's Name | |
| Course Title & # | Electrical Principles EWIR 110 | Jose (Joe) Roman | |
| CRN # | 11499 | Webpage (optional) | jose.roman@imperial.edu |
| Room | CUHS-Carpentry class | Office (PT Faculty:809) | 3121 |
| Class Dates | Oct. 11- Dec. 13, 2019 | Office Hours (n/a for PT Faculty) | TBA- |
| Class Days | Monday- Friday | Office Phone # (PT may use dept. number) | (760) 355-5719 |
| Class Times | 1:00pm-1:55 pm 2:05pm -4:30pm | Who students should contact if emergency or other absence | Dept Secretary: Tisha Nelson is an option (760) 355-6361 |
| Units | 4 | | |

Course Description

This course meets NSF, IID and NABCEP guidelines; this course provides the electrical student with instruction in basic principles of electrical safety. Instruction will include an introduction to power plants and grid functions, electrical theory and test equipment, the use of NEC boxes, fittings and conductors, and the interpretation of related electrical blueprints and commercial/industrial/residential symbols, diagrams, and schematics used for wiring. Electrical principles of residential wiring will be the focus of instruction. (Formerly EWIR 150) (Nontransferable AA/AS degree only)

Student Learning Outcomes

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

1. To discuss, define & identify the principles of Electrical Wiring & Protection that include branch circuits, feeders, electrical service & calculation. (ILO2,ILO3)
2. Explain the Electrical Wiring & Protection's principles, applications, configurations, sizing, components, wiring methods, materials for general use and overcurrent protection. (ILO1,ILO2)
3. Understand Electrical Wiring & Protection, electrical service & calculation, disconnects means, blueprint reading, grounding, installation, maintenance and troubleshooting utilizing National Electrical Code. (ILO2, ILO3)

Course Objectives

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

1. Describe the purpose of the Occupational Safety and Health Act (OSHA) as related to work place safety.
2. Explain & explore many job titles related to electricity.
3. Explain electrical hazards and avoidance.
4. Define and describe the general principles related to electrical energy.
5. Know where to find codes & authorities for an installation using NEC.
6. List the different conductor systems used in residential & light commercial wiring.
7. Describe the relationship of work and power and their applications on the electrical circuits and calculate the power & Ohm's law formula.
8. Identify the basis series, parallel and series-parallel (complex) circuits, calculate total resistance of the

circuits by formulas used.

9. Calculate voltage drop and total current using Kirchhoff Law.
10. Identify various wire types and gauges, as well marking on wire jacket for proper installation.
11. Perform load estimates using electrical load requirements use national electrical code.
12. Identify the different electrical devices: receptacle, switches, breakers, & GFCI.

Textbooks & Other Resources or Links

NCCER Electrical Level 1, 9th Edition 2017 Book, ISBN: 13: 978-0-13-469299-9

National Fire Protection Association (2014). *NEC - National Electrical Code Handbook* (1st/e).

NFPA (Recommendation text)

Course Requirements and Instructional Methods

Below is the Instructional Scale:

Breakdown (1200 points)

Exams: 550

Assignments: 250

Lab activities: 250

***Participation: 150**

1200

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.

***Participation- I encourage students to participate on all subject matters & review each modules. Therefore, class participation and lab will be part of your grade for this semester.**

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 1200 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:

| Grade | Points |
|----------|-----------|
| <u>A</u> | 1200-1080 |
| <u>B</u> | 1079-960 |
| <u>C</u> | 959-840 |
| <u>D</u> | 839-720 |
| <u>F</u> | Below 719 |

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
- 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.

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. **Consider**: specifics for your class/program
- 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: 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

- 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 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 or 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 School 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) use of a commercial term paper service

Additional Help – Discretionary Section and Language

- Canvas support center: **TBA-NEW for IVC**
- 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. If you feel you need to be evaluated for educational accommodations, the DSP&S office is located in Building 2100, telephone 760-355-6313.

Student Counseling and Health Services

Students have counseling and health services available, provided by the pre-paid Student Health Fee. We now also have a fulltime mental health counselor. For information see <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 and due process. For further information regarding student rights and responsibilities please refer to the IVC General Catalog available online at http://www.imperial.edu/index.php?option=com_docman&task=doc_download&gid=4516&Itemid=762

Information Literacy

Imperial Valley College is dedicated to help students skillfully discover, evaluate, and use information from all sources. Students can access tutorials at <http://www.imperial.edu/courses-and-programs/divisions/arts-and-letters/library-department/info-lit-tutorials/>

Anticipated Class Schedule / Calendar

The instructor will provide a tentative, provisional overview of the reading, assignments, tests, or other activity for the duration of the course. The faculty may find a table format useful for this purpose.

| Date or Week | Activity, Assignment, Topic / Lab Activity | Dates: Due/Tests |
|----------------------------------|---|--|
| Week 1- Friday October 11 | Syllabus & Introduction / Example of Lab assignment, Written assignment about you & NCCER Registry | |
| Week 1 | & New VR Program. Module 1: Orientation to the Electrical Trade/ LAB-TBA: example of Lab activity. | Pages 1-30 |
| Week 2 (Half) October 21 | Review test#1 Test#1-Elect. Careers/; <u>Module 2: Electrical Safety;</u> LAB-Review EWIR 110 | Assignment Due & Workbk, Pages:1-53 |
| Week 2 | Continue-Electrical Safety. Review test#2/ Lab Project#1: TBA | |

| Date or Week | Activity, Assignment,Topic / Lab Activity | Dates: Due/Tests |
|------------------------------------|--|--|
| Week 3 October 28 | Test#2- <u>Electrical Safety</u> / <u>Module 3: Introduction to Electrical Circuits</u> ; Continue Lab Project#1. | Assignment Due & Workbk. Pages 1-40 |
| Week 3 | Continue with <u>Electrical Circuits</u> / LAB-TBA | |
| Week 4 (Half) November 4 | Continue with <u>Electrical Circuits</u> / LAB-TBA ; Review test#3 | Pages 191-210 |
| Week 4 | Test#3- <u>Electrical Circuits</u> / <u>Module 4: Electrical Theory</u> ; LAB-TBA & Lab Project#2/#3 | Assignment Due & Workbk |
| Week 5 November 11 | No Class-Holiday ; Continue with Electrical Theory, Cont. w/ Lab Project#2 & #3 | Pages 1-25 |
| Week 5 | Continue with Electrical Theory, Cont. w/ Lab Project#2 & 4; Review test#4 | |
| Week 6 November 18 | Test#4-<u>Electrical Theory</u> / Lab Project#4 & 8; | Assignment Due & Workbk. |
| Week 6 | Cont. w/ Lab Project#4 & 8. <u>Module 5: National Electrical Code (NEC)</u> | Pages 1-20 |
| Week 7 Nov. 25-29 | ****THANKSGIVING**** CLASS CLOSED | |
| Week 8 December 2 | Review test#5; Test#5-NEC. ; Lab Project#8 & 12; <u>Module 6: Device Boxes</u> | |
| Week 8 | Continue w/Device Boxes; Review Test#6; Continue Lab Project#8 & 12; | Assignment Due & Workbk. Pages 243-252; Pages 253-260 |
| Week 9 (Half) Dec. 9-13 | Test#6-<u>Device Boxes</u> , Lab Project#12 & 15. Review Final ; Final Lab Projects | Assignment Due & Workbk. |
| Week 9 | Review Final & Final Test | |

NOTE: Schedule subject change without notice