

### Basic Course Information

Semester:	<b>Fall 2015</b>	Instructor Name:	<b>Jesús F. Hernández</b>
Course Title & #:	<b>ELECTRICAL PRINCIPLES EWIR 110</b>	Email:	<b>jesus.hernandez@imperial.edu</b>
CRN #:	<b>10798</b>	Webpage (optional):	
Classroom:	<b>3113</b>	Office #:	
Class Dates:	<b>17 Aug - 11 Dec, 2015</b>	Office Hours:	
Class Days:	<b>Mon-Wed</b>	Office Phone #:	
Class Times:	<b>8:00-10:05 am 10:15 am- 12:20 pm</b>	Emergency Contact:	
Units:	<b>4</b>		

### Course Description

This course provides the electrical student with instruction in basic principles of electrical safety. Instruction will include an introduction to 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.

### 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. Describe conditions likely to affect severity of electrical shock while maintaining safety during installation. (ILO1, ILO2, ILO3, ILO4)
2. Define and explain the difference between direct current and alternating current. (ILO2, ILO4)
3. Apply the basic power formula to power, voltage, and current. (ILO2, ILO3, ILO4)
4. Select essential tools for residential wiring and be able to discuss basic principles of tool use and care. (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 electrical hazards and avoidance.
3. Define and describe the general principles related to electrical energy.
4. Explain the different types of meters used to measure voltage, current, and resistance.
5. Define and describe the general principles related to electrical energy.

6. Describe the relationship of work and power and their application to electrical circuits; calculate the power used by electrical circuits.
7. Identify the basis series, parallel, and series-parallel circuits, and calculate the total resistance of the circuits.
8. Calculate voltage drop and total current using Kirchhoff's Law.
9. Identify various wire size and gauges, as well as markings on conductors and cables for proper installation.
10. Read and identify the basic layout of blueprints, lines, symbols, title blocks, equipment schedules, and specifications.
11. Identify and define receptacle terminals, disconnects, and ground fault circuits interrupts

### Textbooks & Other Resources or Links

- **Modern Residential Wiring (Textbook)**, by Harvey N. Holzman, 10<sup>th</sup> Edition. ISBN 978-1-61960-842-9
- **Modern Residential Wiring (Workbook)**, by Nancy Henke-Konopasek & Harvey N. Holzman. 10<sup>th</sup> Edition, ISBN 978-1-61960-847-4
- NEC (National Electrical Code) 2014

### Course Requirements and Instructional Methods

#### Instructional Scale:

Breakdown (100 points)

Reviews:	20%
Shop Practices:	30%
Midterm:	25%
Final:	25%

Teaching Methods: Discussion of assignments and instructional methods will be a combination of all methods of instruction, which can be classified as telling, lecturing, discussing, showing and/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 assignment will have points subtracted.

Final Grades are calculated as follows:

Grade	Points
<b>A</b>	<b>90-100</b>
<b>B</b>	<b>80-89</b>
<b>C</b>	<b>70-79</b>
<b>D</b>	<b>60-69</b>
<b>F Below</b>	<b>60</b>

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

Grade	Rubric or Standard Expected
<b>A</b>	Focused and clearly organized. Contains advanced critical thinking and analysis. Convincing evidence is provided to support conclusions. Clearly meets or exceeds assignment requirements.
<b>B</b>	Generally focused with some development of ideas, but may be simplistic or repetitive. Evidence is provided to support conclusions. Occasional grammatical errors. Meets assignments requirements, but does not exceed.
<b>C</b>	Unfocused, underdeveloped, or rambling, but has some coherence. Minimal evidence is provided to support conclusions. Several grammatical errors.
<b>D</b>	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.
<b>F</b>	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.
- **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

- **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**

Week/Date	Assignment	Activity
Week 1 Aug 17	Syllabus & Introduction Electrical Safety (p.15)	Chapter 1 Review Workbook & Textbook
Week 2 Aug 19, 24	Electrical Safety cont. Electrical Energy Fundamentals (p.27)	Chapters 1-2 Review Workbook & Textbook
Week 3 Aug 26, 31	Electrical Fundamentals cont. Tools for Electrician (p.51)	Chapters 2-3 Review Workbook & Textbook
Week 4 Sep 2, 9	Tools for Electrician cont. Wiring Systems (p.71)	Chapters 3-4 Review Workbook & Textbook

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Week 5 Sep 14, 16	Wiring Systems cont. Conductors (p.101)	Chapters 4-5 Review Workbook & Textbook
Week 6 Sep 21, 23	Boxes, Fittings and Covers. (p.115)	Chapter 6 Review Workbook & Textbook
Week 7 Sep 28, 30	Device Wiring	Chapter 7 Review Workbook & Textbook
Week 8 Oct 5, 7	Spring Break	
Week 9 Oct 12, 14	Overcurrent Protection (p.147)	Chapter 8 Review Workbook & Textbook
Week 10 Oct 19, 21	Overcurrent Protection Midterm Exam Grounding (p.155)	Chapter 8-9 Workbook & Textbook
Week 11 Oct 26, 28	Grounding	Chapter 9 Review Workbook & Textbook
Week 12 Nov 2, 4	The Service Entrance (p 165)	Chapter 10 Review Workbook & Textbook
Week 13 Nov 9, 16	The Service Entrance (p. 165)	Chapter 10 Review Workbook & Textbook
Week 14 Nov 18, 30	The Service Entrance	Chapter 10 Review Workbook & Textbook
Week 15 Dec 2	Electrical Prints and Specification (p. 191)	Chapter 11 Review Workbook & Textbook
Week 16 Dec 7, 9	Course Core Make-up for Final Exam <b>Final Examination</b>	

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