

### Basic Course Information

Semester	<b>Fall 2014</b>	Instructor's Name	<b>Arturo Juarez Rodelo Francisco Mayoral</b>
Course Title & #	<b>Electrical Principles EWIR 110</b>	Instructor's Email	<a href="mailto:arturo.juarez@imperial.edu">arturo.juarez@imperial.edu</a> <a href="mailto:Francisco.mayoral@imperial.edu">Francisco.mayoral@imperial.edu</a>
CRN #	<b>10846</b>	Webpage (optional)	
Room	<b>3113</b>	Office (PT Faculty:809)	
Class Dates	<b>18 Aug – 13 Dec , 2014</b>	Office Hours (n/a for PT Faculty)	
Class Days	<b>Mon - Wend</b>	Office Phone # (PT may use dept. number)	<b>760 355 6361</b>
Class Times	<b>8:30 - 11:40 11:50 - 12:45</b>	Who students should contact if emergency or other absence	Dept Secretary is an option
Units	<b>4 units</b>		

### Course Description

This course provides the electrical student with instruction in basic principles of electrical safety.instruction will include an introduction to electrical fundamentals ,test equipment,the use of NEC,codes,boxes and fittings, conductors and the interpretation of related electrical blueprints,residential, industrial and commercial,symbols,diagrams and schematics used for wiring.

Electrical Principles on Residential wiring will be the focus instruction ;

### 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. Describe conditions likely to affect the 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 ohms law formulas,and basic power ( ILO2.ILO3,ILO4 ).
4. Select essential tools for residential wiring and be able to discuss basic priciples of tool use and care (ILO2,ILO3 ) Use from CurricUNET <http://www.curricunet.com/Imperial/>

### 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. Perform hand bending and installing of conduit using appropriate math formulas and processes.
4. Define and describe the general principles related to electrical energy.
5. Explain the different types of meters used to measure power,voltage resistance and current.
6. Describe the relationship of work and power and their applications on the electrical circuits and calculate the power used on those.
7. Identify the basis series,parallel and series-parallel (complex) circuits,calculate total resistance of the circuits by formulas used.
8. Calculate voltage drop and total current using Kirchhoff Law.
9. Identify various wire types and gauges ,as well marking on wire jacket for proper installation.
10. Read and identify the basic layout of blueprints ,lines symbols,tittle block,equipment schedules,and specifications.
11. Identify the different electrical devices like; receptacle,switch,breakers, GFCI and others.

### Textbooks & Other Resources or Links

1. **Modern Residential Wiring** by Harvey N. Holzman 10<sup>th</sup> Edition ISBN 978-1-61960-842-9  
Bibliographical, NEC (NATIONAL ELECTRIC CODE)
2. **Dwellings-Electrical Equipment I Title**
3. **Electric Wiring Interior.**

### Course Requirements and Instructional Methods

Below is the Instructional Scale :

Breakdown (100 points)

Reviews:	20%
Shop practices:	30%
Midterm:	25%
Final:	<u>25%</u>
	100%

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:

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

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
<u>A</u>	<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>
<u>B</u>	<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.</b>
<u>C</u>	<b>Unfocused, underdeveloped, or rambling, but has some coherence. Minimal evidence</b>

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**

- **Blackboard** support center: <http://bbcrm.edusupportcenter.com/ics/support/default.asp?deptID=8543>
- **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](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.

<b>Date or Week</b>	<b>Activity, Assignment, and/or Topic</b>	<b>Pages/ Due Dates/Tests</b>
Week 1 Aug18-20	Syllabus & Introduction Electrical Safety	Pages 15 to 26 Chapter Review/W/Book
Week 2 Aug 25-27	Electrical Safety cont... Electrical Fundamentals	Pages 27 to 37 Chapter Review/W/Book
Week 3 Sept-1-3	Electrical Fundamentals cont Tools for Electrician Hand and Power	Pages 37 to 51 Chapter Review/W/Book

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Week 4 Sept- 8-10	Tools for Electrician cont... Wiring Systems	Pag 52 Chapter Review/W/Book
Week 5 Sept -15-17	Wiring Systems cont. Conductors	Pag 71 Pag 101 Chapter Review/W/Book
Week 6 Sept- 22-24	Boxes ,Fittings and Covers ; fill allotments tables,covers variety.	Pag 115 Chapter Review/W/Book
Week 7 Sept -29 Oct-1	Device Wiring,; wiring methods,materials,preparation of conductors,wiing switches,receptacles and fixtures	Pag 131 Chapter Review/W/Book
Week 8 Oct -6-8	Overcurrent Protection ; causes of overcurrent,protective devices,protective device rating.	Pag 147 Chapter Review/W/Book
Week 9 Oct- 13-15	Overcurrent Protection cont Midterm Exam Grounding	Pag 147 Chapter Review/W/Book Pag 155
Week 10 Oct- 20-22	Grounding Basic .. Equipment Grounding GFCI,AFCI	Pag 155
Week 11 Oct-27-29	Introduction to National Electrical Codes NEC	NEC 2014 edition Questionnaires
Week 12 Nov- 3-5	Introduction to National Electrical Codes NEC	NEC 2014 edition Questionnaires
Week 13 Nov-10-12	The Service Entrance; components,disconnects,clearances Panels board,and protections.	Pag 165 Chapter Review/W/Book
Week 14 Nov-17-19	The Service Entrance ; grounding,completion	Pag 175 Chapter Review/W/Book
Week 15 Nov-24-26	Thanksgiving Campus Closed	
Week 16 Dec- 1-3	The Service Entrance ; phases, transformers,	Pag 179 -182 Chapter Review/W/Book
Week 17 Dec-8-10	Course Core Make-up for Final Exam Final Examination	