

**Imperial Community College District
Imperial Valley College
EWIR 125 Course Syllabus**

Jose (Joe) Roman, Instructor

Course Title: Electrical Principles

Course Number: EWIR 125

Credit Units: 4

Class Time M/W 6:00 - 7:05 p.m. (Lec) Bldg 3100, Room 3113
And Location: M/W 7:10 - 10:15 p.m. (Lab) Bldg 3100, Room 3113

Prerequisites: EWIR 115 - Electrical Principles with a grade of "C" or better, or equivalent.

Course Description:

- A. This course includes instruction in feeder service and branch load calculations for circuits and electrical appliances; introduction to and identification of electrical constructors; devices used for overprotection of loads, currents, circuits and fuses; fill requirements for boxes/raceways; principles of wiring devices, switches and receptacles and their locations; requirements for distribution equipment; settings for voltage, switch gear, circuits, and components; distribution system transformers and their characteristics; types of components; NEC requirements; methods for locating and troubleshooting problems. (Nontransferable, AA/AS degree only)

Course Objectives:

- A. Demonstrate and practice electrical safety.
- B. Interpret and apply NEC regulations governing conductors and size conductors for the load.
- C. Size branch circuits over current protection devices for continuous and non-continuous duty circuits.
- D. Use load calculations to determine branch circuit conductor sizes.
- E. Size raceways conduit and conduit bodies, when given NEC requirements and tables.
- F. Calculate the power factor of any given electrical system.
- G. Select and size wiring devices according to NEMA and NEC classification and requirements.

Core Content:

A. Electrical safety.	10%
B. Conductor installations, cable pulling, and cable support installation methods.	10%
C. Conductor terminations, splices, and NEC termination requirements.	10%
D. Installation of industrial and commercial electrical service.	10%
E. Consulting the construction documents and NEC specification.	10%
F. Switches, panelboards, load centers, distribution panels, and branch circuits.	10%
G. Circuit breakers, fuses, NEC regulations, and overloads.	10%
H. Motors, solid state relays, switching circuits, and controls.	10%
I. Planning and designing switching, conductor layouts, and relays circuits.	10%
J. Commercial, and industrial electrical lighting.	10%
Total	100%

Required Material:

- A. EWIR 125 Textbook:
 - Modern Commercial Wiring 6th Edition by Harvey N. Holzman.
 - Modern Commercial Wiring 6th Edition by Harvey N. Holzman. (Workbook)
 - Dewalt** -Electrical Professional Reference 2014 Code

Recommended references and materials:

- A. 2014 NEC manual, National Electric Codes
- B. Pens, pencils, highlighters, post-it notes, supplies as necessary.

Instructor Information:

- A. Email: jose.roman@imperial.edu.
- B. Phone: (760) 355-6361 (**Frances Arce**)
- C. Office Hours: By appointment or New Office-**TBD**

Attendance Policy:

Class attendance policy follows the regulations in the IVC catalog. Students who receive three absences will be dropped from the course unless prior arrangement has been made with the instructor. Three tardies shall constitute one absence. Students who fail to return from breaks shall be marked absent for that session. ***Participation- This course will only have two days per week of classroom and lab. Therefore, class participation and lab will be part of your grade for this semester.**

Disabled Student Programs and Services (DSPS):

IVC catalog policy follows the regulation of Section 504 of the Rehabilitation Act and the (ADA) Americans with Disabilities Act. Services are provided to students with reasonable accommodations to students with mobility, hearing, speech, and orthopedic impairments, learning disabilities, psychological disabilities, and other health impairments. Services are provided on an individual basis and may include reader services, note taking, tutoring, counseling, sign language interpreting, priority registration, learning disabilities assessment, and adapted computer instruction. **Note:** visual and color blind may be an electrical safety hazard for the individual who cannot determine or identifying the color code for wiring as part of the National Electrical Code (NEC) electrical safety requirements, and Occupational Safety and Health Administration (OSHA).

Classroom and Laboratory Rules:

No food is allowed in the classroom. Bottled water is authorized during lectures. Food and drinks may be consumed outside the classroom before class and at breaks only. Cell phones must be placed in “manner mode” or turned off.

Grading criteria and procedure:

Exams	550 points
Assignments	250 points
Lab activities	250 points
Participation	*150 points
Total Points	1200

Homework will be turned in (same day test date &) at the beginning of class to ensure maximum credit. Late work will be accepted with a “one-letter grade deduction” for each classroom day that it is late.

Quizzes will be given at the end of each section or chapter covered. The student will be responsible for information contained in all lectures, handouts, textbook assignments, and all lab presentations.

Midterm and final exams will be given at the pre-arranged times as discussed by your instructor. Make up exams will be given only with prior approval of the instructor.

Grading Scale:

Advanced	1200-1080	=	A
Proficient	1079-960	=	B
Basic	959-840	=	C
Below Basic	839-720	=	D
Far Below Basic	719	=	F

Descriptive Course Outline

EWIR 125 Fall 16'

<u>Week #</u>	<u>Monday</u>	<u>Wednesday</u>
1 (8/15-8/17)	Intro. to Class; Safety Video Assignment About You!	<u>Chapter 2 -Safety</u> Example of Lab & Assignment Safety Video
2 (8/22-8/24)	Cont. Chapt. 2-Safety Lab-TBA Chapt.2-Assign & Workbook	Review for Test #1 Lab-TBA
3 (8/29-8/31)	Review for Test #1 Lab-TBA <u>Chapter 3-Tools Intro.</u> Chapt. 3-Assign & Workbook	Test #1-Safety Assn. #1 Due Lab-TBA
4 (9/5-9/7)	CLASS CLOSED HOLIDAY ;)	Review for Test #2 1st- Lab project
5 (9/12-9/14)	Test #2-Tools Assn. #2 Due <u>Chapt.1-Fundamentals</u> Chapt.1- Assign & Workbook Cont. Lab #1 project	Lab #2 project Cont, Chapt. 5
6 (9/19-9/21)	Review for Test #3 Lab #2/3 project	Test #3- Fundamentals Assn. #3 Due <u>Chapt.4-Elec. Blueprints</u> Chapt.4- Assign & Workbook
7 (9/26-9/28)	Review Chapt. 4 Review for Test #4 Cont. Lab #3/4 project	Test #4- Elec. Blueprints Assn. #4 Due <u>Chapt.5-Wiring Methods</u> Chapt.5- Assign & Workbook
8 (10/3-10/5)	Review for Test #5 Lab #4/5 project	Test #5-Electrical Energy Assn. #5 Due Review Midterm

<u>Week #</u>	<u>Tuesday</u>	<u>Thursday</u>
9 (10/10-10/12)	Review Midterm NO LAB	Midterm NO LAB
10 (10/17-10/19)	<u>Chapt.6-Conductors</u> Chapt.6-Assign/Workbk Lab #5 project	Review for Chapt.6 Assn. #6 Due Lab #6 project
11 (10/24-10/26)	Test #6-Conductors Assn. #6 Due <u>Chapt.7-Boxes</u> Chapt.7-Assign/Workbk	Cont. Ch.7 Lab #7 project
12 (10/31-11/2)	Review for Ch.7 Lab #7/8 project	Test #7 Assn. #7Due <u>Chapt. 8-Overcurrent</u> Chapt.8-Assign/Workbk
13 (11/7-11/9)	Review for Ch.8 Lab #9/10 project	<u>Test #8- Overcurrent</u> Assn. #8- Due <u>Chapt. 10-Motors</u> Chapt.10-Assign/Workbk
14 (11/14-11/16)	Review for Ch.10 Lab Motors	<u>Test #10-Motors</u> Assn. #10 Due Lab Motors
15 (11/24-11/26)	NO CLASS	THANKSGIVING
16 (11/28-11/30)	Review final Final Lab project	Cont. review final Final Lab project
17 <u>(12/5-12/7)</u>	Cont. review final	<u>Final Exam!!!!</u>
