IMPERIAL VALLEY COLLEGE

Basic Course Information

Semester:	Fall 2023	Instructor Name:	Rafael Serrano
Course Title & #:	EWIR 090-Low Voltage Systems	Email:	rafael.serrano@imperial.edu
CRN #:	10912	Webpage (optional):	None
Classroom:	3110	Office #:	3121
Class Dates:	8/14/2023 - 12/9/2023	Office Hours:	1700-1800
Class Days:	Monday-Wednesday	Office Phone #:	
Class Times:	1800-2030	Emergency Contact:	
Units:	3.00	Class Format:	Face to Face

Course Description

This course provides students the basic knowledge to understand the operation, configuration, and installation of the various types of audio, video, fire, and access control equipment commonly used in residential, commercial or industrial applications. Introduction and review of common test and trouble shooting equipment. Emphasizes NEC requirements in building and electrical codes. (Nontransferable, AA/AS degree only)

Course Prerequisite(s) and/or Corequisite(s)

None

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. Familiarize with audio equipment technologies and their installation standards.
2. Describe and program the functions of fire alarm panels and their related equipment according to NFPA standards.
3. Analyze and install data-video cabling and their respective troubleshooting.
4. Construct, test, and troubleshoot, video surveillance equipment for CCTV systems and Smart Home Panels.

Course Objectives

Upon satisfactory completion of the course, students will be able to:
1. Demonstrate Low Voltage Technologies and Safety practices and procedures used in the laboratory.
2. Construct, test and troubleshoot various Alarm-Video-Data cabling.
3. Understand the operation, configuration, and installation of the various types of audio, video, and access control equipment
4. Understand the operation, configuration, and installation of the various types of fire alarms in Residential and Commercial
5. Understand and prepare Wiring for Smart Home Panels programming and set up.
6. Recognize Video equipment transmission and recording
7. Demonstrate the function of wiring and multiplexer’s programming
8. Understand the operation of smoke sensor types, pull boxes, and Strobe Lights.

Textbooks & Other Resources or Links

Amy and Samuel DiPaola. 2016. Introduction to Low Voltage Systems. 2016 Delmar Cengage Learning. ISBN: 978-1111639532.

Course Requirements and Instructional Methods

Students will read a chapter from the textbook related to Low Voltage Systems each week. Students will complete assigned review questions at the end of each chapter and must be turned in the following week.

Course Grading Based on Course Objectives

Grading will be on a points system

1. Grading system:
    - A=900-1000 of points= Excellent
    - B=800-899 of points= Good
      C=700-799 of points= Satisfactory
    - D= 600-699 of points= Pass, less than satisfactory
    - F= Less than 600 of points= Failing
2. Very important:
    - Mid-Term will be given on October 5.
    - Final-Exam will be given on December 5.
    - There are no make-up exams unless you have a very good reason and make arrangements with the instructor **before** the exam.

Midterm Exam	250
Final Exam	250
Homework and Quizzes	250
Lab Assignments and EXIT Tickets	250
Total	1000

Course Policies

- Attendance is important.
- 1 excused absence is allowed but notifications must be made.
- 2 10 minute tardies equal 1 absence
- 4 unexcused absences equals to being dropped from the class.
- It's the students responsibility to drop or officially withdraw from the class by no later than Nov. 4th 2023.
- Students are expected to show up to class on time and in the proper attire.
- No open toe shoes will be allowed as this is an industrial environment.
- Provided PPE will be worn during lab sessions and horseplay or pranks will not be tolerated.
- Please keep phones on silent and use them to a minimum.
- There will be no name calling or putting down of any sorts.
- Remember the "Golden Rule".
- Please do not interrupt when someone is speaking and wait your turn.
- Assignments will be due at the following class meeting.

Other Course Information

None

IVC Student Resources

IVC wants you to be successful in all aspects of your education. For help, resources, services, and an explanation of policies, visit http://www.imperial.edu/studentresources or click the heart icon in Canvas.

Anticipated Class Schedule/Calendar

Date or Week	Activity, Assignment, and/or Topic	Pages/ Due Dates/Tests
Week 1 August 14 - 19	Syllabus & Introduction Chapter 1: The National Electrical Code Homework Chapter 1 review questions	 Chap. 1 pages 2-12 Due August 21
Week 2 August 21 - 25	Chapter 2:Electrical Conductors and Cable Homework Chapter 2 review questions	Chap. 2 pages 16-57 Due August 28
Week 3 August 28- September 1	Chapter 3: Grounding and Bonding Homework Chapter 3 review questions	 Chap. 3 pages 64-81 Due September 8
Week 4 September 5 - 8	Chapter 4: Audio Physics Homework Chapter 4 review questions	Chap. 4 pages 89-105 Due September 11
Week 5 September 11 - 15	Chapter 5: Audio Signal-Processing Amplification and Reproduction Equipment	Chap 5 pages 108-156 Due September 18

Date or Week	Activity, Assignment, and/or Topic	Pages/ Due Dates/Tests
	Homework Chapter 5 review questions	
Week 6 September 18 - 22	Chapter 6: Networking and Information Technology Equipment Homework Chapter 6 review questions	Chap 6 pages 164-214 Due September 25
Week 7 September 25 - 29	Chapter 7: Power Supplies, Batteries, and Emergency Systems Homework Chapter 7 review questions	Chapter 7 pages 220-248 Due October 2
Week 8 October 2 - 6 MIDTERM	MIDTERM EXAM Chapters 1-7 Chapter 8: Article 725 of the NEC: Classification of Circuits	Chapter 8 pages 256-275 Due October 9
Week 9 October 9 - 13	Chapter 9: Fire Alarm Systems Homework Chapter 9 review questions 1-20	Chapter 9 pages 280-303 Due October 16
Week 10 October 16 - 20	Chapter 9: Fire Alarm Systems (continued) Homework Chapter 9 review questions 21-40	Chapter 9 pages 304-324 Due October 23
Week 11 October 23 - 27	Chapter 10: Fiber-Optic and the NEC Article 770 Homework Chapter 10 review questions	Chapter 10 pages 328-344 Due October 30
Week 12 October 30 November 3	Chapter 11: Telecommunications, and the NEC Article 800 Homework Chapter 11 review questions	Chapter 11 pages 350-370 Due November 5
Week 13 November 5 - 10	Chapter 12: Security and Access-Control System Basics Homework Chapter 12 review questions	Chapter 12 pages 378-402 Due November 13
Week 14 November 13 - 17	Chapter 14: Closed Circuit Television Camera Systems Homework Chapter 14 review questions 1-20	Chapter 14 pages 460-480 Due November 27
	THANKSGIVING BREAK NOVEMBER 18-26	
Week 15 November 27 December 1	CLASS REVIEW Homework Write a 2 page essay what you've learned and plan to do with your knowledge in the future	Written assignment Due December 4
Week 16 December 4 - 8	COURSE REVIEW FINAL EXAM	

Subject to change without prior notice