

# IMPERIAL VALLEY COLLEGE

## SCADA/Telecommunications Technician VIII

### Course Syllabus – Fall 2012

**Instructor:** Hector Mendez

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**Office Hours:** Monday, Wednesday, Thursday from 3:00-4:00 PM.

**CRN:** 10410

**Course Description per Catalog:**

Comprehensive review of industry standards relative to constructing control and telecommunication systems. Review of construction safety and the use of test equipment, small electrical devices and transformers. Advanced apprentice training in resistance and wire size and Title VIII Underground and overhead work. (Nontransferable, AA/AS degree only).

**Class Meetings:** Mondays 4:00 pm to 8:30 pm in J-15 Water Control Conference Room.

**Textbook and Supplements:**

Callahan, Michael and Bill Wusinich (2008). *Electrical Systems: Based on the 2008 NEC*, American Technical Publishers Inc.

Shoemaker, Thomas M., and James E. Mack (2007). *The Lineman's and Cableman's Handbook* (11<sup>th</sup>/e). New York, McGraw-Hill.

**Prerequisite:** APSC 107

**Recommended Preparation:**

Credit Units: 4.0

**Measurable Course Objectives and Minimum Standards for Grade of "C"**

Students will be able to:

1. Practice standard safety procedures appropriate to the power utility industry.
2. Recognize and deal appropriately with hazardous materials in the power utility industry.
3. Develop and conduct safety tailgate sessions.
4. Possess a working knowledge of industrial controls and telecommunication systems.
5. Review and interpret circuit maps, blue prints and schematics.
6. Install and maintain disaster recovery systems
7. Successfully pass the NEC Journeyman exam.

**INSTITUTIONAL LEARNING OUTCOMES (ISLOs):**

1. Communication Skills
2. Critical Thinking Skills
3. Personal Responsibility
4. Information Literacy
5. Global Awareness

**STUDENT LEARNING OUTCOMES (SLOs)**

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

1. Understand and apply IID safety rules and regulation such as lockout/tag out, clearance procedures, low voltage requirements and PPE requirements.
2. Understand IID communication systems, industrial protocols, radio networks, and test equipment and tools.
3. Understand national electrical system standards as defined under NEC.

Grading Criteria Course must be taken on a “letter-grade” (LG) basis only.

**Grading Policy**

The student’s grade will depend on the following areas:

Special Project (Oral/Written) 20%	= 100 points
Homework 20%	= 100 points
Trade Tests 15%	= 75 points
Mid-term 20%	= 100 points
Final Exam 25%	= 125 points
Total 100%	= 500 points

Grades are based on the standard scale of: A = 100-90% B = 89-80% C = 79-70% D = 69-60% F = 59% and below

**Class Rules and Expectations**

1. Students are expected to be actively involved in the learning process so failure is not a good choice; apply yourself, study, do not give up on the first try, attend class regularly, ask for help when needed, and always do your best!
  
2. Students are expected to attend class meetings regularly. After the second absence, if the student does not drop the class via Webstar, he/she will receive an “F” as final grade; so it is the student’s responsibility to drop before the deadline.

3. ABSENCES. What constitutes an absence? Not showing up to class during a regular class meeting, or arriving more than 20 minutes after the beginning of the class, or leaving more than 20 before the end of the class.
  - a. Example: Class starts at 4:00 PM and ends at 8:30 PM. If you arrive after 4:20 PM you are absent. If you leave before 8:10 PM you are marked absent. If you leave the room for more than 20 minutes for whatever reason, you are absent.
  
4. TARDIES. What constitutes a tardy? Arriving within the first 20 minutes after the beginning of the class or leaving within the last 20 minutes before the end of the class (3T = 1A).
  - a. Example: Class starts at 4:00 PM and ends at 8:30 PM. If you arrive between 4:01 PM and 4:20 PM you are marked tardy. If you leave between 8:11 PM and 8:30 PM you are marked tardy as well as if you "disappear" from the room for no more than 20 minutes (i.e. having lunch). If you need to use the restroom, you are expected to return within a reasonable time period.
  - b. If you are late to class, please enter the room quietly, do not distract your classmates, and avoid talking to them to find out what is going on in class (it is your responsibility to arrive on time). On the second offense you will be dropped from class.
  
5. If a student reaches the third absence after the deadline, his/her grade will be reduced one letter grade for each subsequent absence, or may be dropped from the class as per IVC policy.
  
6. Deadline to drop the class with a "W" is November 10, 2012. Late drops on graded classes will require that the student receive an F.
  
7. Class materials such as a notebook or binder with lined or quad ruled paper, pen, pencil, scientific calculator, and the textbook will be brought to every class meeting.
  
8. It is up most important that students review the material to do well on exams. Students are encouraged to form study groups to meet regularly to keep up with assignments and to study for tests/mid-term/final exam.
  
9. Late assignments will not be accepted. It is student's responsibility to turn assignments in when they are due regardless he/she is absent (no excuses!).
  
10. Students will not be allowed to make up an exam or final exam.
  
11. The work is individual which means that you are responsible for what you turn. Identical assignments will not be accepted; failure to comply will result in a "zero" for that specific assignment.
  
12. No photocopied textbooks are allowed. No audible pagers, cell phones, and music players (IPODs, MP3, etc) allowed during class time. You will be dropped on your second offense for disturbing the class in this manner.

13. No food or drinks are allowed in the classroom.

14. No children are allowed in the classroom.

15. Absences attributed to the representation of the college at officially approved conferences and contests and attendance upon field trips will not be counted as absences (this includes sports). However, the student is responsible for notifying the instructor and for the work done in class. If your absence coincides with an exam, it is student's responsibility to contact the instructor via e-mail or by phone before the following class meeting to make it up. Failure to do so will result in a "zero" for that particular exam.

16. Classroom Etiquette: In class, it is expected that you will treat your instructor and each other with respect. Do not talk when the instructor is lecturing except to ask a question of the instructor or answer a question posed to the class. Feel free to ask questions as needed and listen when someone else is asking a question because you may have the same one.

17. Discipline: you need to understand that this is a college class so appropriate behavior is expected at all times (i.e. not speaking out of turn, raise your hand to talk and wait until acknowledged, paying attention, avoid side comments, not answering your cell phone in class, working in assignments for another class, etc.). For this reason, no discipline problem will be tolerated.

a. First offense: warning.

b. Second offense: student will immediately be referred to the Dean of Student Services.

18. Academic Integrity: If a student is found cheating in a test or assignment, he/she will receive a grade of zero for the test. If cheating is repeated, he/she will receive a grade of F for the course or may be referred to the Dean of Student Services.

19. 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. DSP&S is at Room 2117, Health Sciences Building, (760) 355---6312.

20. Special Project: Prepare and lead class on one of the chapters for the Electrical Systems subjects.

21. Homework: The purpose of homework is to provide students with additional practice to reinforce concepts and help them to get ready for tests. For each chapter you will need to answer the review questions in the text. Homework will be handed in at the beginning of the class, prior to taking the trade test.

22. Calendar:

WEEK #	DAY	CORE CONTENT	READING ASSIGNMENT
1	August 20 Monday	Developing & conducting tailgate sessions IID's procedures for hazardous waste	
2	August 27 Monday	Circuit maps Line Conductors	Section 14 – <u>Lineman's Handbook</u>
3	September 5 Wednesday	Microwave systems Troubleshooting microwave systems	Section 3.20– <u>Lineman's Handbook</u>
4	September 10 Monday	Radio Frequency	
5	September 17 Monday	Storage Batteries Care and Maintenance	
6	September 24 Monday	IID Communication Systems Industrial protocols	
7	October 1 Monday	IID Communication Systems Network protocols Emergency generators and disaster recovery	
8	October 8 Monday	Mid-term Exam <i>Intro to NEC-Review</i>	Chapters 1 – <u>Electrical Systems</u>
9	October 15 Monday	Electrical shock Trade tests 1 <i>Branch Circuits and Feeders-Review</i> <i>Calculations - Review</i>	Chapter 2&3 – <u>Electrical Systems</u>
10	October 22 Monday	IID construction telecomm standards Construction standards Trade Test 2&3 <i>Services –Review</i> <i>Conductors and Overcurrent Protection</i>	Section 6 – <u>Lineman's Handbook</u>  Chapter 4&5 – <u>Electrical Systems</u>
11	October 29 Monday	Temporary grounding Trade test 4&5 <i>Grounding –Review</i> <i>Wiring Methods</i>	Chapter 6&7 – <u>Electrical Systems</u>
12	November 5 Monday	Resistance and wire sizes Trade test 6&7 <i>Wiring Materials</i>	Chapters 12 & 13 BMEE Chapter 8&9 – <u>Electrical Systems</u>
13	November 14 Wednesday	Title VIII – Telecomm Regulations Trade test 8&9 <i>Equipment for General Use</i>	Chapter 10 – <u>Electrical Systems</u>
14	November 19 Monday	Trade test 10 <i>Motors, Generators, Pumps. Etc</i>	Chapter 11 – <u>Electrical Systems</u>
15	November 26 Monday	Trade test 11 Review for Final Exam	
16	December 3 Monday	Journeyman's Electrician Exam (NEC)	