![Imperial Valley College logo](IMPERIAL VALLEY COLLEGE)

Basic Course Information

Semester:	**Spring 2021**	Instructor Name:	**Mizael Huereque**
Course Title & #:	**APTL 107 Telecommunication s Tech VII**	Email:	**mhuereque@iid.com**
CRN #:	**21723**	Webpage (optional):	**Imperial.edu**
Classroom:	**IID Bell/SCADA Lab**	Office #:	**IID Bell/SCADA Office**
Class Dates:	**2/16/2021-6/8/2021**	Office Hours:	**6-8 am**
Class Days:	**Tuesday**	Office Phone #:	**760 482-9872**
Class Times:	4-8:15	Emergency Contact:	**760 427-5012**
Units:	4	Class Format:	Lecture/Discussion/Lab

Course Description

Instruction in advance installation, configuration, testing, maintaining, troubleshooting and repairing the District's Energy SCADA, data-communication, revenue meter, and associated power plant systems.

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

Successful completion of APTL 106 with a "C" or better.

Student Learning Outcomes

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

- Understand SONET (Synchronous Optical NET-works).
- Understand intertie metering including the use of test equipment and diagnostic tools including protocol test set, meter configuration software, WECO-20 meter test board
- Understand antenna types and (VSWR) voltage standing wave ratio. (ILO2, ILO3)
- Understand radio frequency safety; test equipment and diagnostic tools including RF monitor, power meter and spectrum analyzer. (ILO2, ILO3)

Course Objectives

Upon satisfactory completion of the course, students will be able to:
- **Understand SONET (Synchronous Optical NET-works)**

- o Understand basic theory and data transport methods
- o Interpret bandwidth requirements and channel provisioning/types of redundancy
- o Understand NMS (network management systems)
- o Understand test equipment and diagnostic tools/onboard diagnostic software
- **Understand intertie metering**
  - o Understand meter theory and safety
  - o Interpret meter classes/forms - types of equipment, meter configuration & installation
  - o Understand real-time meter data application (EMS/SOC/AGC)
  - o Utilize test equipment and diagnostic tools including protocol test set, meter configuration software, and WECO-30 meter test board
- **Understand voice radio systems**
  - o RF theory and frequency ranges
  - o Understand antenna types and (VSWR) voltage standing wave ratio
  - o Understand radio frequency safety; test equipment and diagnostic tools including RF monitor, power meter and spectrum analyzer

Textbooks & Other Resources or Links

- Gordon Clark, Deon Reynders, Modern SCADA Protocols, 2005
- Edison Electric Institute, Handbook for Electricity Metering, 2002

Course Requirements and Instructional Methods

- APTL 106
- Instructional Methods
  - o Audio/Visual
  - o Computer Assisted Instruction
  - o Demonstration
  - o Discussion
  - o Individual Assistance
  - o Lab Activity
  - o Lecture
  - o Simulation/Case Study
  - o Field Visits

Course Grading Based on Course Objectives

90-100% = A
80-89% = B
70-79% = C
60-69% = D
Below 60% = F

      12-Exercises/Discussion/Lecture (5 Points Each)
      1-Power Point Presentation (20 Points)
      1-Mid-Term Practical/Written (50 Points)

1-Final Exam Practical/Written (50 Points)

Total of 180 pts. Total accumulated points are divided by 500 to arrive at percentage score.

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 IID policy and procedures 4530 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.

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, only students enrolled in the class may attend; children are not allowed.

Online Etiquette

- What is netiquette? Netiquette is internet manners, online etiquette, and digital etiquette all rolled into one word. Basically, netiquette is a set of rules for behaving properly online.
- Students are to comply with the following rules of netiquette: (1) identify yourself, (2) include a subject line, (3) avoid sarcasm, (4) respect others' opinions and privacy, (5) acknowledge and return messages promptly, (6) copy with caution, (7) do not spam or junk mail, (8) be concise, (9) use appropriate language, (10) use appropriate emoticons (emotional icons) to help convey meaning, and (11) use appropriate intensifiers to help convey meaning [do not use ALL CAPS or multiple exclamation marks (!!!!)].
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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.

IVC Student Resources

IVC wants you to be successful in all aspects of your education. For help, resources, services, and an explanation of policies, visitor click the heart icon in Canvas.

Anticipated Class Schedule/Calendar

Week	Date	Activity, Assignment, and/or Topic
1	2/16	Syllabus & Introduction SONET-Basic Theory
2	2/23	SONET-Bandwidth requirements
3	3/2	SONET-Network Management Systems
4	3/9	SONET-Test Equipment and Diagnostic Tools
5	3/16	Guest Speaker- ICON (SONET Expert)
6	3/23	Metering-Theory and Safety (Metering Handbook Ch. 1-3)
7	3/30	Metering-Classes and Forms (Metering Handbook Ch. 7)
8	4/13	Midterm Review and Midterm Exam
9	4/20	Metering-Real Time Meter Application (SOC Field Trip)
10	4/27	Metering-Test Equipment (WECO + Arbiter)

Week	Date	Activity, Assignment, and/or Topic
11	5/4	Voice Radio Systems-Compass Comm. Software Assignment-Power Point Presentation
12	5/11	Voice Radio Systems-RF Theory
13	5/18	Voice Radio Systems-Antennae Types
14	5/25	Voice Radio Systems-RF Safety and Test Equipment (Safety Videos)
15	6/1	Power Point Presentation Final Review
16	6/8	Final Exam

Subject to change without prior notice