Basic Course Information

Semester:	**Fall 2018**	Instructor Name:	**Jose L. Castillo, Jr.**
Course Title & #:	**APTL105**	Email:	**jlcastillo@iid.com**
CRN #:	**11447**	Webpage (optional):	
Classroom:	**IID HQ J-15 Conf. Room**	Office #:	**IID HQ J-15 Bldg**
Class Dates:	**Aug 14- Dec 8 2018**	Office Hours:	**0600-1630**
Class Days:	**Tuesday**	Office Phone #:	**(760) 482-9865**
Class Times:	4-830pm	Emergency Contact:	**(760) 427-8428**
Units:	4		

Course Description

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

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. understand different types of communications cables, protocols, carriers
2. use test equipment and diagnostic tools to interpret proper communications protocols
3. understand industry standards
4. understand multiplexing and communication requirements
5. understand bandwidth requirements and availability of voice traffic/call detail recording

Course Objectives

Upon satisfactory completion of the course, students will be able to:

A. Understand Communication cables and standards
  1. Understand RS-232, RS-485/422
  2. Understand Cat5 568A/568B, DB9/DB25 Pinouts, RJ-45, RJ11, T1 pinouts
  3. Understand ANSI codes and standards
  4. Apply test equipment and diagnostic tools

B. Understand the principles of multiplexing
  1. Understand T1/ Fractional T1 multiplexing
  2. Understand DS0, DS1, DS3
  3. Understand IMUX modules, interfaces, Hot-Standby redundancy
  4. Configure an IMUX network with D&I and Terminal devices
  5. Apply test equipment and diagnostic tools

C. Understand Telephone System
  1. Understand the telephone industry standards
  2. Understand IID telephone system (HiPath 4000)
  3. Interpret Bandwidth requirements and availability voice traffic/call detail recording
  4. Configure voice traffic, VoIP, and recorder channels on IID telephone system and IMUX

Textbooks & Other Resources or Links

James Harry Green, McGraw-Hill Education; 5 edition (November 16, 2005) **The Irwin Handbook of Telecommunications, 5E 5th Edition,** ISBN-10: 0071452222/ ISBN-13: 978-0071452229

Jan Axelson, Lakeview Research LLC; 2 edition (2007) **Serial Port Complete, 2 Edition,** ISBN-978-1931448-06-2

Course Requirements and Instructional Methods

Course Requirements
  Completion of APTL 104

Instructional Methods
  Audio Visual
  Computer Assisted Instruction
  Demonstration
  Discussion
  Group Activity
  Individual Assistance
  Lab Activity
  Lecture
  Simulation/Case Study
  Essay
  Mid-Term/Final Exam(s)
  Objective
  Oral Assignments
  Problem Solving Exercise
  Quizzes
  Skill Demonstration
  Written Assignments

Two (2) hours of independent work done out of class per each hour of lecture or class work, or 3 hours lab, practicum, or the equivalent per unit is expected.

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

CORE CONTENT	APPROX. % OF COURSE

A. Understand Communication cables and standards
  1. Understand RS-232, RS-485/422
  2. Understand Cat5 568A/568B, DB9/DB25 Pinouts, RJ-45, RJ11, T1 pinouts
  3. Understand ANSI codes and standards
  4. Apply test equipment and diagnostic tools
	30.00%

B. Understand the principles of multiplexing
  1. Understand T1/ Fractional T1 multiplexing
  2. Understand DS0, DS1, DS3
  3. Understand IMUX modules, interfaces, Hot-Standby redundancy
  4. Configure an IMUX network with D&I and Terminal devices
5. Apply test equipment and diagnostic tools
	40.00%

C. Understand Telephone System
  1. Understand the telephone industry standards
  2. Understand IID telephone system (HiPath 4000)
  3. Interpret Bandwidth requirements and availability voice traffic/call detail recording
  4. Configure voice traffic, VoIP, and recorder channels on IID telephone system and IMUX
	30.00%

TOTAL	100%

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 Netiquette

- 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 (!!!!)].

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.

- <u>Cheating</u> 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 <u>General Catalog</u> 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.

Additional Student Services

Imperial Valley College offers various services in support of student success. The following are some of the services available for students. Please speak to your instructor about additional services which may be available.

- CANVAS LMS. Canvas is Imperial Valley College's main Learning Management System. To log onto Canvas, use this link: <u>Canvas Student Login</u>. The <u>Canvas Student Guides Site</u> provides a variety of support available to students 24 hours per day. Additionally, a 24/7 Canvas Support Hotline is available for students to use: 877-893-9853.
- <u>Learning Services</u>. There are several learning labs on campus to assist students through the use of computers and tutors. Please consult your <u>Campus Map</u> for the <u>Math Lab</u>; <u>Reading, Writing & Language Labs</u>; and the <u>Study Skills Center</u>.
- <u>Library Services</u>. There is more to our library than just books. You have access to tutors in the <u>Study Skills Center</u>, 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 <u>Disabled Student Programs and Services</u> (DSP&S) office as soon as possible. The DSP&S office is located in Building 2100, telephone 760-355-6313. Please contact them if you feel you need to be evaluated for educational accommodations.

Student Counseling and Health Services

Students have counseling and health services available, provided by the pre-paid Student Health Fee.
- **<u>Student Health Center</u>**. A Student Health Nurse is available on campus. In addition, Pioneers Memorial Healthcare District provide basic health services for students, such as first aid and care for minor illnesses. Contact the IVC <u>Student Health Center</u> at 760-355-6128 in Room 1536 for more information.

- **[Mental Health Counseling Services](#)**. Short-term individual, couples, family and group counseling services are available for currently enrolled students. Services are provided in a confidential, supportive, and culturally sensitive environment. Please contact the IVC Mental Health Counseling Services at 760-355-6310 or in the building 1536 for appointments or more information..

Veteran's Center

The mission of the [IVC Military and Veteran Success Center](#) is to provide a holistic approach to serving military/veteran students on three key areas: 1) Academics, 2) Health and Wellness, and 3) Camaraderie; to serve as a central hub that connects military/veteran students, as well as their families, to campus and community resources. Their goal is to ensure a seamless transition from military to civilian life. The Center is located in Building 600 (Office 624), telephone 760-355-6141.

Student Equity Program

- The Student Equity Program strives to improve Imperial Valley College's success outcomes, particularly for students who have been historically underrepresented and underserved. The college identifies strategies to monitor and address equity issues, making efforts to mitigate any disproportionate impact on student success and achievement. Our institutional data provides insight surrounding student populations who historically, are not fully represented. Student Equity addresses disparities and/or disproportionate impact in student success across disaggregated student equity groups including gender, ethnicity, disability status, financial need, Veterans, foster youth, homelessness, and formerly incarcerated students. The Student Equity Program provides direct supportive services to empower students experiencing insecurities related to food, housing, transportation, textbooks, and shower access. We recognize that students who struggle meeting their basic needs are also at an academic and economic disadvantage, creating barriers to academic success and wellness. We strive to remove barriers that affect IVC students' access to education, degree and certificate completion, successful completion of developmental math and English courses, and the ability to transfer to a university. Contact: 760.355.5736 or 760.355.5733 Building 100.
- The Student Equity Program also houses IVC's Homeless Liaison, who provides direct services, campus, and community referrals to students experiencing homelessness as defined by the McKinney-Vento Act. Contact: 760.355.5736 Building 100.

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.

Information Literacy

Imperial Valley College is dedicated to helping students skillfully discover, evaluate, and use information from all sources. The IVC Library Department provides numerous Information Literacy Tutorials to assist students in this endeavor.

Anticipated Class Schedule/Calendar

The instructor will provide a tentative, provisional overview of the readings, assignments, tests, and/or other activities for the duration of the course. A table format may be useful for this purpose.]

Date or Week	Activity, Assignment, and/or Topic	Pages/ Due Dates/Tests
Week 1 Aug 13-17	Syllabus & Introduction History of Telecommunications (The Irwin Handbook of Telecommunications)	
Week 2 Aug 20-24	Communication Ports, Protocols and Cables (Serial Port Complete)	
Week 3 Aug 27-31	Communication Ports, Protocols and Cables (Serial Port Complete) Testing cables (IID J15 Laboratory)	
Week 4 Sept 4-7	ANSI Codes and Standards	
Week 5 Sept 10-14	Fundamentals of Multiplexing (The Irwin Handbook of Telecommunications)	
Week 6 Sept 17-21	Fundamentals of Multiplexing DS0,T1,Fractional T1, Asynchronous and Synchronous (The Irwin Handbook of Telecommunications)	
Week 7 Sept 24-28	Fundamentals of Multiplexing Introduction to IID IMUX Mid-Term Review	
Week 8 Oct 1-5	Mid-Term Exam (Weeks 1-7)	
Week 9 Oct 8-12	RFL Intelligent Multiplexor (IMUX) (IID J15 Laboratory)	
Week 10 Oct 16-19	RFL Intelligent Multiplexor (IMUX) (IID J15 Laboratory)	

Date or Week	Activity, Assignment, and/or Topic	Pages/ Due Dates/Tests
Week 11 Oct 22-26	RFL Intelligent Multiplexor (IMUX) NMS and test equipment (IID J15 Laboratory) ASE test set and BERT Tester	
Week 12 Oct 29-Nov 2	Telephone System VoIP, PRI, voice recorders	
Week 13 Nov 5-Nov 9	Telephone System (HiPath 4000)	
Week 14 Nov 13-Nov 16	Telephone System Applying test equipment (IID J15 Laboratory)	
Thanksgiving Holiday Week Nov 19-Nov 23	No Classes: Thanksgiving Holiday	
Week 15 Nov 26-Nov 30	Final Exam Review (weeks 8-15)	
Week 16 Dec 3- Dec 7	Final Exam Written *Lab Assignment*	

Tentative, subject to change without prior notice