Basic Course Information

Semester	**Spring 2019**	Instructor	**Joel M Delgado**
Course Title & #	**Telecommunications Tech VI APTL106**	Email	**JMDELGADO@IID.COM**
CRN #	**11448**	Website	**n/a**
Room	**IID-HQ-J15**	Office	**n/a**
Class Dates	**2/11/19-6/7/19**	Office Hours	**n/a**
Class Days	**Tuesday**	Phone #	**760 996-5727**
Class Times	**4PM-8:30PM**	Contact for absence or emergency	**760 554-6061**

Course Description

This course contains instruction in installation, configuration, testing, maintaining, troubleshooting and repairing the District's SCADA, data communication, revenue meter, and associated power plant systems. (Nontransferable, non-degree 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

Course Objectives

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

A. Understand T1 multiplexers

1. Understand the theory of multiplexing
2. Understand the principles of operation and types of redundancy
3. Understand (NMS) network management systems/test equipment and diagnostic tools

B. Understand telephone systems

1. Understand basic telephony theory, TDM technology & Volp Technology
2. Understand Analog technology, ISDN technology & PRI
3. Recognize Telephone system infrastructures/wiring color codes
4. Utilize test equipment and diagnostic tools, butt set, TDR & TIMMS

C. Understanding fiber infrastructure

1. Understand wavelengths and their characteristics, laser, LEDs; types of fiber optic single mode properties, and multimode properties
2. Understand types of fiber cables, ADSS, OPGW, and types of connectors.
3. Understand proper handling and installation techniques/PPE and safety practices
4. Understand fiber splicing - in-line and transition
5. Understand fiber splicing - termination
6. Understand Attenuation and budget loss
7. Understand Test equipment - Power Meter and OTDR Testing, Troubleshooting & Verification

Textbooks & Other Resources or Links

Course Grading Based on Course Objectives

The course grade is based on total points accumulated during the semester. There is a maximum of _100___ points. Very limited extra credit points may be available, either through some class participation activity, group work or perfect attendance. Failing to turn in regular assignments will stop you from being able to earn extra credit points and late assignments will have points subtracted. .

Final Grades are calculated as follows:

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

Points	Grade
90-100	A
80-89	B
70-79	C
60-69	D
Below60	F

Grading Rubrics: In addition to the percentages and points listed above the following grading rubric (standards expected) will be used when grading student assignments. The description that best fits your work will be the assigned grade.

Grade	Rubric or Standard Expected
A	Focused and clearly organized. Contains advanced critical thinking and analysis. Convincing evidence is provided to support conclusions. Clearly meets or exceeds assignment requirements.
B	Generally focused with some development of ideas, but may be simplistic or repetitive. Evidence is provided to support conclusions. Occasional grammatical errors. Meets assignment requirements, but does not exceed.
C	Unfocused, underdeveloped, or rambling, but has some coherence. Minimal evidence is provided to support conclusions. Several grammatical errors. Meets minimum assignment requirements.
D	Unfocused, underdeveloped, and/or rambling. Limited evidence is used to support conclusions. Serious grammatical errors that impede overall understanding. Does not address the assignment requirements
F	Unfocused, underdeveloped, and/or rambling. Incomplete or too brief. No evidence is used to support conclusions. Serious grammatical errors that block overall understanding. Does not meet assignment requirements. Minimal to no student effort.

Late Assignments will be accepted until the graded assignment is returned to the class, but assessed a penalty of 5 points per calendar day it is late.

Course Assignments and Instructional Methods

Assignments are designed to elicit your demonstration of critical thinking, understanding and application of the course concepts, and your proficiency in the subject matter.

Required Activities or Assignments Points

1. Homework, Assignments, Quizzes: 20
3. Mid-Term Exam: 40
4. Final Exam: 40

Teaching Methods: During this class you will have opportunity to participate in a variety of presentation and teaching methods. Lectures, including material not covered in your readings, class and group discussions requiring your active participation, student oral presentations, and films or field trips will supplement your required readings.

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. Out of class assignments for this course includes reading assignments, study time for exams/quizzes, and completion of required course assignments. Students should actively read the assignment prior to class, bring any questions to class, and take careful notes during class.

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.
- 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.

Academic Dishonesty

- Plagiarism is to take and present 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 clearly understand how to correctly 'cite a source', 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, or assisting others in using materials, which are prohibited or inappropriate in the context of the academic assignment in question. Anyone caught cheating will receive a zero (0) on the exam or assignment, the incident will be reported to the division dean and the dean of Student Affairs, and a document may be placed in a file. Repeated acts of cheating may result in an F in the course and/or disciplinary action. Please refer to the General School Catalog for more information on academic dishonesty or other misconduct. Acts of cheating include, but are not limited to the following:
  - plagiarism
  - copying or attempting to copy from others during an examination or on an assignment;
  - communicating test information with another person during an examination;
  - allowing others to do an assignment or portion of an assignment
  - use of a commercial term paper service

Classroom Etiquette

- Electronic Devices: Cell phones and electronic devices must be turned off and put away during class. Cell phones ringing during class and all electronic devices not put away will be held by the instructor until the end of class as these disruptions are considered disrespectful behavior to others in the class and 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.
- Disruptive Students: Most of you are here to learn, but some students are not as serious. To preserve a productive learning environment, 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.

Additional Help

- Learning Labs: There are several 'labs' on campus to assist you through the use of computers, tutors, or a combination. Please consult your college map for the Math Lab, Reading & Writing Lab, and Learning Services (library). Please speak to the instructor about labs unique to your specific program
- Library Services: There is more to our library than just books. You have access to tutors in the learning center, 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 Disabled Student Programs and Services (DSP&S) office as soon as possible. The DSP&S office is located in Building 2100, telephone 760-355-6312 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. You can find out more about services available for students at http://www.imperial.edu/students/student-health-center/. The IVC Student Health Center is located in the Health Science building in Room 2109, telephone 760-355-6310.

Student Rights and Responsibilities

Students have the right to experience a positive learning environment; students who disrupt that environment can be asked to leave the class. Faculty and students also have the right of due process. For further information regarding student rights and responsibilities please refer to the IVC General Catalog available online at www.imperial.edu

Class Schedule

Below is a list of weekly activities and assignments that will assist you in meeting the course objectives and the Student Learning Outcomes. Please review carefully and often as the list may include reading assignments, exams, field trips, projects, presentations that are related to the course. Weekly lessons are subject to change.

Date	Activity, Assignment, and/or Topic
February 12	Week 1: Syllabus & Introduction.
February 19	Week 2: Theory of Multiplexing Principles of Operation Types of Redundancy
February 26	Week 3 NMS (Network Management Systems) Test Equipment and Diagnostic Tools Quiz
March 5	Week 4: Basic Telephony Theory Telephone System Infrastructures Wiring Color Codes

March 12	Week 5: VoIP Technology (Voice over Internet Protocol) SIP Traditional PBX and Centrex
March 19	Week 6: Test Equipment and Diagnostic Tools Butt Set TDR TIMMS
March 26	Week 7: Basic RF Theory RF Terminology RF Spectrum

April 2	Week 8: Two-Way Radio Theory Conventional vs Trucking P25 Radio System
April 9	Week 9: Mid-Term review and Examination
April 16	Week 10: Wavelengths and their Characteristics Lasers LEDs Types of Fiber Optics Single Mode Properties Multimode Properties
April 30	Week 11: Types of Fiber Cable ADSS OPGW Types of Connectors
May 7	Week 12: Proper Handling and Installation Techniques PPE and Safety Practices Test Equipment – Power Meter and OTDR Testing, Troubleshooting, & Verification
May 14	Week 13: Fiber Splicing Attenuation and Loss Budget
May 21	Week 14: OSI Layer Network Topology Router and Switches
May 28	Week 15: DNP3 Protocol Theory

June 4	Week 16-Review and Final Examination