

San José State University
Department of Aviation & Technology
Tech 165 Wireless Communications Technologies, Section 01, Fall
2016

Course and Contact Information

Instructor:	Dr. Julio R. Garcia
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Office Hours:	MW: 1430 – 1530
Class Days/Time:	M 0900 – 1045 Lecture W 0900 – 1145 Lab
Classroom:	Eng 103
Prerequisites:	Tech 63 and Tech 65

Course Format

Faculty Web Page and MYSJSU Messaging

Course materials such as syllabus, handouts, notes, assignment instructions, etc. can be found r on [Canvas Learning Management System course login website](http://sjsu.instructure.com) at <http://sjsu.instructure.com>.

Course Description

Digital wireless technologies. RF Communications. Wireless Personal Area Networks. Wireless Local Area Networks. Wireless Metropolitan Area Networks. Wireless Satellite Fixed Broadband. Wireless Wide Area Networks. Radio Frequency Identification. Wireless Communications in Business. Emerging wireless technologies. Prerequisites: Tech 63 and Tech 65.

Course Learning Outcomes (CLO)

Upon successful completion of this course, students will be able to:

1. Describe the limitations, advantages, and disadvantages of each major wireless network architecture.
2. Identify and select appropriate hardware and software for specific WLAN needs.

3. Troubleshoot a basic wireless computer network.
4. Design and setup a simple wireless LAN...

Required Texts/Readings

Textbook

Olenewa, J. (2014). Guide to Wireless Communications. 3rd Ed. Cambridge, MA: Course Technology. ISBN-13: 9781111307318. Available at Spartan Bookstore/

Course Requirements and Assignments

Class Participation

You will answer selected questions for each chapter. These questions are posted on Canvas. Click on the **Modules** tab. You can work in groups but *each student* must submit his/her own answers. Class Participation contributes to CLO 1, learning the fundamental wireless concepts and terminology, developing teamwork skills and discussing the course material. You will submit it via Canvas by the due date. Class Participation is submitted weekly and has a weight of 10% of the final grade.

Real-World Exercises

You will work in groups of 2-3 students to answer and submit the Real-World Exercises reports (located in the textbook) on or before the due date. *Only one report per group*. Only the indicated students will get the credit. Real-World Exercises contribute to CLO 2, applying the course material in solving proposed scenarios related to wireless computer networks and developing teamwork skills. Real-World Exercises are submitted weekly and have a weight of .10% of the final grade.

Hands-On Projects

You will work in groups of 2-3 classmates to perform Hands-On Projects to install, configure, and optimize basic wireless networks. The Hands-On Projects are in the textbook. It is possible that you might need to rethink your answers to the Hands-On Projects and this is part of the learning process. It is strongly recommended that you work in teams. Hands-On Projects contribute to CLO 2, reinforcing the course material and developing teamwork skills. Hands-On Projects are submitted weekly and have a weight of .10% of the final grade.

Comprehensive Scenarios

You will work in groups of 2-3 to answer the questions in four Comprehensive Scenarios. The case studies and questions in these four Comprehensive Scenarios will reinforce the material of this class. You might also need to do some library/Internet research to answer the proposed questions. Comprehensive Scenarios contribute to applying and reinforcing the course material, and developing/improving library/Internet research and teamwork skills. Comprehensive Scenarios are due on November 28, 2016 and has a weight of 10% of the final grade..

Research Paper

Each student will write a research paper on a topic relevant to wireless communications. A sample list of topics is indicated on the last page; however, if you would like to explore a topic of great interest to you then you should obtain the instructor's approval.

The research paper must include a title page, index, introduction, main body, conclusions, and references. The main body should have between 10 to 15 pages, double-spaced. Submit your research paper via Canvas as an attachment in PDF format or in WORD and as a single electronic file. This means that the title page, main body, circuit, references and any appendices must be incorporated in a single document. You **do not** need to submit a hard copy.

You will select your topic of interest via Canvas by clicking on the **Collaborations** tab. You must select your topic by September 12, 2016.

Research Paper contributes to developing research and writing communication skills. Research Paper is due on December 5, 2016 and has a weight of 10% of the final grade.

Note: Before submitting the research paper check that it complies with the Research Paper guidelines posted on Canvas.

Oral Presentation

Each student will explain their findings of the research paper to the class. Each student has a 7-10 minute time frame to get their points across. It is strongly recommended that you rehearse your presentation and use a professional presentation software package such as PowerPoint.

You **do not** need to submit a copy of your PowerPoint presentation.

Review the Oral Presentation Rubric posted on Canvas so you can do an exceptional and impressive presentation.

Oral Presentations contribute to developing oral communication skills. Oral Presentations will start on September 26 and have a weight of .5% of the final grade.

Implementation of Practical Scenarios

Students working in groups of 2-4 will be responsible for implementing 8 practical scenarios. The outcome should be the implementation of each scenario and the submission is as follows:

- a) Video tape each scenario with each member taking turns so every member participates. Then upload the videos to YouTube or to any Cloud computing service and email the link and the names of all group members to the instructor.

OR

- b) Demonstrate each practical scenario to the instructor.

1. Design and setup a small wireless network. For example, this small wireless network could consist of a desktop, a laptop, a Tablet, a Smartphone, and a scanner or a printer. You will provide your own hardware and software and will decide on the best NOS and the appropriate setup. This small network should be able to access files among all workstations, access to a printer and/or access to a scanner.
2. Setup a private network where only members of the group can have access to this network.
3. We want to remotely access files and applications. In other words. We want to access files and applications from anywhere.
4. Establish a video chat using Tablets and/or Smartphones
5. Setup a way to teach/assess oral communication skills via online
6. Show how to use any type of applications installed in our computer to another user or users at a distance. In addition, the user(s) must show you the mastery of the concepts you just explained. For example, assuming that you are in San Jose, CA and want to demonstrate the use of Multisim or other software to a coworker in India. Then you want to verify that the coworker in India has understood it.
7. We want to control a computer located in New York from your office located in San Jose, CA.
8. You want to print a document. The printer is in your office and your computer is at home.
9. **Only the students whose names are indicated on the video will get the credit.**

The Implementation of Practical Scenarios contributes to CLOs 2, 3 and 4, developing teamwork skills and discussing the course material. The due date is December 7, 2016 and has a weight of .10% of the final grade.

Tests

You will take four quizzes, two midterms and the final exam..Tests will start and end at the indicated times on the greensheet. These tests contribute to CLO 1 and reinforcing the learning of the fundamental wireless network concepts and terminology.

Final Examination

Final Exam will be taken Thursday, December 15 from 0715 to 0930.. The time frame is 100 minutes. You can take the Final Exam up to two (2) times. *In this case the higher score will be considered.*

Grading Information

Quizzes, midterms and final exam will be administered via Canvas. You will have the opportunity of practicing them so while you have more opportunities to learn the course material you will have a better chance of earning high grades. Class Participation, Comprehensive Scenarios and Real-World Exercises will be evaluated based on the percent of accurate responses provided. Hands-On Projects grade will be determined on the percent of projects completed on or before the due date..

Research Paper must follow the APA guidelines and must include the title page, index, introduction, main body, conclusions, and references. Oral Presentation grade will consider the

mastery of the topic, quality of the slides, looking at the audience the audience, no misspellings and the 7-10 minute time frame to explain the main points. The Implementation of Practical Scenarios grade will be based on showing functional wireless network scenarios and answering questions related to these practical scenarios.

Determination of Grades

Grades will be determined based on your performance in Hands-On Projects, Class Participation, Comprehensive Scenarios, Real-World Exercises, Research Paper, Oral Presentation, Quizzes, Midterms and Final Exam. The final grade for the course will be based on the following items and weights:

Hands-On Projects	10%
Comprehensive Scenarios	10%
Class Participation	10%
Real-World Exercises	10%
Quizzes (4)	10%
Midterms (2)	10%
Research Paper	10%
Oral Presentation	5%
Final Exam	15%
Implementation of Practical scenarios	10%

The final grade will be determined according to the following scale:

A+ = 96 - 100%	A = 93 - 95.9%	A- = 90 - 92.9%	B+ = 87 - 89.9%
B = 83 - 86.9%	B- = 80 - 82.9%	C+ = 77 - 79.9%	C = 73 - 76.9%
C- = 70 - 72.9%	D+ = 66 - 69.9%	D = 60 - 65.9%	F = 0 - 59.9%

1. Check continuously your standing in the class on [Canvas](https://sjsu.instructure.com) (https://sjsu.instructure.com). Notify the instructor immediately if there is an error in any of your grades. **You have up to 7 calendar days** to notify the instructor if your grade is missing or has been recorded incorrectly. ***The last day to correct any discrepancy is the last day of instruction (December 12, 2016).*** There will be no change in your grade after the final grade has been submitted to the university.
2. All late assignments submitted up to 7 calendar days after the due date and time will have a penalty of 50%.
3. **Assignments submitted after 7 calendar days of the due date will not be accepted and they will be recorded as 00.**

4. The last day to submit assignments is December 12, 2016.
5. If you miss a quiz and/or a Midterm you have up to 72 hours to take it with a 30% penalty.
6. If you miss the Final Exam you have up to 24 hours to take it with a 30% penalty.
7. In all **Group Assignments** only **one report** needs to be submitted by a designated member of the group. Make sure that all members of the group are mentioned in the report. **Only the students whose names are indicated on the group report will get the credit.**
8. Any email sent to the instructor requesting him to violate any of these ground rules or to improve your final grade because you need 0.1 point to improve from C+ to B-, do not want to repeat the class or are at risk of being disqualified from the university, etc. **will not be considered.**

Classroom Protocol

1. You are expected to attend all meetings for the course as you are responsible for material discussed therein, and active participation is frequently essential to ensure maximum benefit to all class members. Attendance is fundamental to course objectives; for example, you may be required to interact with others in the class.
2. You will study the assigned chapter/material before coming to lecture by using the Study Guide with the textbook and reviewing the PowerPoint presentation posted on [Canvas](https://sjsu.instructure.com) (https://sjsu.instructure.com). Click on the **Modules** tab.

For each chapter there are suggested videos for you to watch to reinforce the lecture material.
3. You will answer selected questions for each chapter. The questions for each chapter are posted on [Canvas](https://sjsu.instructure.com) under **Class Participation** on the **Modules** tab. You can work in groups but *each student* must submit his/her own answers via [Canvas](https://sjsu.instructure.com) (https://sjsu.instructure.com). Click on the **Assignments** tab. This will constitute your *class participation* grade.
4. After reviewing the chapter materials you will answer the Real-World Exercises at the end of the chapter. You will work in groups of 2-3 students to answer and submit the Real-World Exercises reports on or before the due date. **Only one report per group will be submitted via [Canvas](https://sjsu.instructure.com)** (https://sjsu.instructure.com). Click on the **Assignments** tab.. **Only the students whose names are indicated on the group report will get the credit.**
5. Be prepared to check your answers of the Real-World Exercises and participate in Group Discussion. This group discussion will reinforce and/or enhance your wireless networking knowledge with current and relevant information.
6. Instructor will explain key points and answer questions from students. Instructor may add related material to enrich the course content. Instructor will become more as a facilitator of learning. This means that the instructor will provide as much individual or group assistance as needed.

7. You should work and learn in teams. This is very important to be successful in the real world.

Networking Certification

If you want to take Certification Exams you can prepare for them by reviewing the information on the links shown on the document “Networking - Questions - Links” posted on [Canvas](#) (<https://sjsu.instructure.com>). Click on the **Modules** tab.

University Policies

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs’ [Syllabus Information web page](#) at <http://www.sjsu.edu/gup/syllabusinfo/>”

Tech 165 Wireless Communications Technologies, Fall 2016 Course Schedule

Course Schedule**

Session	Date	Topics, Readings, Assignments, Deadlines
1	Aug 24 th	<ul style="list-style-type: none"> • Introduction/Orientation/Greensheet • Email Proof of completion of course prereqs (Tech 63, Tech 65, Tech 60 and Math 008 or equivalent) <p><i>Prepare for next session:</i> Read Study Guide/Textbook, Chapter 1: Introduction to Wireless Communications Review PPT, Chapter 1 Answer Real-World Exercises, Chapter 1 (located in the textbook) Answer Class Participation, Chapter 1 (located on Canvas --> Modules tab)</p> <p>Suggested video to watch https://www.youtube.com/watch?v=3Bh4PcO2YJE</p>
2	Aug 29 th	<ul style="list-style-type: none"> • Discuss Chapter 1 • Check/discuss answers Real-World Exercises, Chapter 1 (located in the textbook). <ol style="list-style-type: none"> 1. Exercise 1-1. Submit a PPT with 10 slides maximum. 2. Exercise 1-2. Submit a 1-page report maximum. 3. Exercise 1-3. Submit a PPT with 10 slides maximum. 4. Exercise 1-4. Submit a 1-page report maximum. 5. Challenge Case Project. Submit a 1-page report maximum. • Email Proof of completion of course prereqs (Tech 63, Tech 65, Tech 60 and Math 008 or equivalent) • Submit Real-World Exercises, Chapter 1. <i>Due by 11:00 pm today! Only 1 report /Group. Only the indicated students will get the credit.</i> • Submit Class Participation, Chapter 1. <i>Due by 11:00 pm today! Individual submission.</i> • Select Research Paper Topic, due on Sep 12th, via Canvas by clicking on the Collaborations tab <p>Note: Even though the due time in Canvas is 11:55 pm the actual due time is 11:00 pm so you have some extra minutes for your submission. This is for all submissions.</p> <p><i>Prepare for next session:</i> Read Study Guide/Textbook, Chapter 2: Wireless Data Transmission</p>

Session	Date	Topics, Readings, Assignments, Deadlines
		Review PPT, Chapter 2 Answer Real-World Exercises, Chapter 2 (located in the textbook) Answer Class Participation, Chapter 2 (located on Canvas --> Modules tab) Suggested videos to watch Radio waves. Freq. Wavelength: https://www.youtube.com/watch?v=FVmTooGIClAM : https://www.youtube.com/watch?v=_5JyiFWLn-w FM: https://www.youtube.com/watch?v=SmW4z76KgNQ Phase modulation: https://www.youtube.com/watch?v=u_qmlGXtlwk Digital Modulation: https://www.youtube.com/watch?v=ow0Dp2KXv8M Digital Modulation: https://www.youtube.com/watch?v=GBSg_bz8T8s ASK/FSK/PSK/BPSK: https://www.youtube.com/watch?v=Ez_KA00hD8 Spread Spectrum: https://www.youtube.com/watch?v=gLRwDysKesc
3	Aug 31 st	<ul style="list-style-type: none"> • Hands-On Projects, Chapter 1. Due by 9/7 (located in the textbook) <ol style="list-style-type: none"> 1. Project 1-1. Submit a 1-2 page report. 2. Project 1-2. Submit a 1-page report. 3. Project 1-3. Submit a 1-page report. 4. Project 1-4. Submit a 1-page report. 5. Project 1-5. Submit a 1-page report.
4	Sept 5 th	Labor Day. Campus closed.
5	Sept 7 th	Submit Hands-On Projects, Chapter 1. Due by 11:00 pm today! Only 1 report /Group. Only the indicated students will get the credit.
6	Sept 12 th	<ul style="list-style-type: none"> • Discuss Chapter 2 • Check/discuss answers Real-World Exercises, Chapter 2. <ol style="list-style-type: none"> 1. Exercise 2-1. Submit a 1-page report maximum. 2. Exercise 2-2. Submit a PPT with at least 10 slides. 3. Exercise 2-3. Submit a 1-page report maximum. 4. Challenge Case Project. Submit a 1-2 page report. • Submit Real-World Exercises, Chapter 2. Due by 11:00 pm today! Only 1 report /Group. Only the indicated students will get the credit. • Submit Class Participation, Chapter 2. Due by 11:00 pm today! Individual submission. • Research Paper Topic due • Take Practice Quiz 1. You can take this test as many times as you wish <p><i>Prepare for next session:</i> Read Study Guide/Textbook, Chapter 3: Radio Frequency Communications Review PPT, Chapter 3 Answer Real-World Exercises, Chapter 3 (located in the textbook)</p>

Session	Date	Topics, Readings, Assignments, Deadlines
		<p>Answer Class Participation, Chapter 3 (located on Canvas --> Modules tab)</p> <p>Suggested videos to watch</p> <p>FDMA: https://www.youtube.com/watch?v=UUCMPynCfIA TDMA: https://www.youtube.com/watch?v=n5hbNSH5Z90 CDMA: https://www.youtube.com/watch?v=vdbc9P3U-Xo Packet Switching: https://www.youtube.com/watch?v=dtpvGmQTXTA SNR: https://www.youtube.com/watch?v=3q6TgxQgomM</p>
7	Sept 14 th	<ul style="list-style-type: none"> Hands-On Projects, Chapter 2. Due by 11:00 pm today! (located in the textbook) Only 1 report /Group. <p>Write a 1-2 page report and include the following:</p> <ol style="list-style-type: none"> Write your name in both hexadecimal and binary The resulting waveform after completing steps 1, 2 and 3 in Project 2-2. The resulting waveform after completing all the steps in Project 2-3.
8	Sept 19 th	<ul style="list-style-type: none"> Discuss Chapter 3 Check/discuss answers Real-World Exercises, Chapter 3. <ol style="list-style-type: none"> Exercise 3-1. Submit a PPT with at least 10 slides. Exercise 3-2. Submit a PPT with at least 10 slides. Challenge Case Project. Submit a 1-page report. Submit Real-World Exercises, Chapter 3. Due by 11:00 pm today! Only 1 report /Group. Only the indicated students will get the credit. Submit Class Participation, Chapter 3. Due by 11:00 pm today! Individual submission. Oral Presentations will start next week. Take Quiz 1 – 100% (Chapters 1 & 2). Open from 10:00 am to 12:00 pm. Time frame is 20 minutes. <p><i>Prepare for next session:</i></p> <p>Read Study Guide/Textbook, Chapter 4: How Antennas Work Review PPT, Chapter 4 Answer Real-World Exercises, Chapter 4 (located in the textbook) Answer Class Participation, Chapter 4 (located on Canvas --> Modules tab)</p> <p>Suggested videos to watch</p> <p>https://www.youtube.com/watch?v=kvfpdH-P1Sk http://www.techtionary.com/members/slides/a/antenna.swf https://www.youtube.com/watch?v=sRX2EY5Ubt0</p>
9	Sept 21 st	<ul style="list-style-type: none"> Hands-On Projects, Chapter 3. Due by 11:00 pm today! (located in the textbook) Only 1 report /Group.

Session	Date	Topics, Readings, Assignments, Deadlines
		<ol style="list-style-type: none"> 1. Project 3-1. Submit a 1-page report. 2. Project 3-2. Submit a 1-page report. 3. Project 3-3. Submit a 1-page report. 4. Project 3-4. Submit a 1-page report describing what the purpose and the outcome of Project 3-4 were. 5. Project 3-5. Submit a 1-page report describing what the purpose and the outcome of Project 3-5 were. 6. Project 3-6. Submit a 1-page report.
10	Sept 26 th	<ul style="list-style-type: none"> • Discuss Chapter 4 • Check/discuss answers Real-World Exercises, Chapter 4.. <ol style="list-style-type: none"> 1. Exercise 4-1. Submit a PPT with at least 10 slides. 2. Challenge Case Project. Submit a 1-2 page report. • Start Oral Presentations • Submit Real-World Exercises, Chapter 4. <i>Due by 11:00 pm today! Only 1 report /Group. Only the indicated students will get the credit.</i> • Submit Class Participation, Chapter 4. <i>Due by 11:00 pm today! Individual submission.</i> • Continue working on Research Paper Topic and Oral Presentation • Take Practice Quiz 2. You can take this test as many times as you wish <p><i>Prepare for next session:</i> Read Study Guide/Textbook, Chapter 5: Wireless Personal Area Networks Review PPT, Chapter 5 Answer Real-World Exercises, Chapter 5 (located in the textbook) Answer Class Participation, Chapter 5 (located on Canvas --> Modules tab)</p> <p>Suggested videos to watch</p> <p>https://www.youtube.com/watch?v=rEKRJeFZkdY https://www.youtube.com/watch?v=rb4abbwwfp0</p>
11	Sep 28 th	<ul style="list-style-type: none"> • Hands-On Projects, Chapter 4. <i>Due by 11:00 pm today!</i> (located in the textbook) Only 1 report /Group. <ol style="list-style-type: none"> 1. Project 4-1. Submit a 1-page report. 2. Project 4-2. Submit a 1-page report. 3. Project 4-3. Submit a 1-2 page report. 4. Project 4-4. Submit a 1-page report.
12	Oct 3 rd	<ul style="list-style-type: none"> • Discuss Chapter 5 • Check/discuss answers Real-World Exercises, Chapter 5. <ol style="list-style-type: none"> 1. Exercise 5-1. Submit a PPT with 10 slides maximum. 2. Exercise 5-2. Submit a 2-3 page report.

Session	Date	Topics, Readings, Assignments, Deadlines
		<p>3. Challenge Case Project. Submit a 1-page report.</p> <ul style="list-style-type: none"> • Continue Oral Presentations • Submit Real-World Exercises, Chapter 5. <i>Due by 11:00 pm today! Only 1 report /Group. Only the indicated students will get the credit.</i> • Submit Class Participation, Chapter 5. <i>Due by 11:00 pm today! Individual submission.</i> • Continue working on Research Paper Topic and Oral Presentation • Take Quiz 2 – 100% (Chapters 3 & 4). Open from 10:00 am to 12:00 pm. Time frame is 20 minutes. <p><i>Prepare for next session:</i> Take Practice Midterm No. 1. You can take this test as many times as you wish.</p>
13	Oct 5 th	<ul style="list-style-type: none"> • Start working on Comprehensive Scenarios. <i>Due on Nov 28th.</i> • Hands-On Projects, Chapter 5. <i>Due by 11:00 pm today!</i> (located in the textbook) Only 1 report /Group. <ol style="list-style-type: none"> 1. Project 5-1. Submit a 2-5 page report describing what the purpose and the outcomes of Project 5-1 were.
14	Oct 10 th	<ul style="list-style-type: none"> • Take Midterm No. 1 – 100% (Chapters 1 to 5). Open from 9:00 am to 12:00 pm. Time frame is 50 minutes. • Continue working on Research Paper Topic and Oral Presentation • Continue working on Comprehensive Scenarios. <i>Due on Nov 28th.</i> <p><i>Prepare for next session:</i> Read Study Guide/Textbook, Chapter 6: High Rate Wireless Personal Area Networks Review PPT, Chapter 6 Answer Real-World Exercises, Chapter 6 (located in the textbook) Answer Class Participation, Chapter 6 (located on Canvas --> Modules tab)</p> <p>Suggested videos to watch</p> <p>WiGig: https://www.youtube.com/watch?v=zQgZHT236Nw Power of WiGig: https://www.youtube.com/watch?v=eT1sT4Y_FjQ UWB bandwidth: https://www.youtube.com/watch?v=SCPj2LKgkfQ UWB: https://www.youtube.com/watch?v=Grfx3Q2Mgro</p>
15	Oct 12 th	<ul style="list-style-type: none"> • Start working on Implementation of Practical Scenarios. Due on Dec 7, 2016.. • Start working on Research Paper. Due on Dec 5, 2016.. • Continue working on Comprehensive Scenarios. Due on Nov 28, 2016.
16	Oct 17 th	<ul style="list-style-type: none"> • Discuss Chapter 6

Session	Date	Topics, Readings, Assignments, Deadlines
		<ul style="list-style-type: none"> • Check/discuss answers Real-World Exercises, Chapter 6. • Exercise 6-1. Submit a PPT with 10 slides maximum. • Exercise 6-2. Submit a PPT with 10 slides maximum. • Challenge Case Project. Submit a 2-3 page report. <ul style="list-style-type: none"> • Submit Real-World Exercises, Chapter 6. <i>Due by 11:00 pm today! Only 1 report /Group. Only the indicated students will get the credit.</i> • Submit Class Participation, Chapter 6. <i>Due by 11:00 pm today! Individual submission.</i> • Continue Oral Presentations • Continue working on Research Paper Topic and Oral Presentation <p><i>Prepare for next session:</i> Read Study Guide/Textbook, Chapter 7: Low-Speed Wireless Local Area Networks Review PPT, Chapter 7 Answer Real-World Exercises, Chapter 7 (located in the textbook) Answer Class Participation, Chapter 7 (located on Canvas --> Modules tab)</p> <p>Suggested videos to watch</p> 6.1.2 Wireless Architecture. Network Pro (Software you purchased in Tech 65) 6.2.1 802.11 Wireless Standards. Network Pro (Software you purchased in Tech 65) https://www.youtube.com/watch?v=odtv_b_hkAk
17	Oct 19 th	<ul style="list-style-type: none"> • Continue working on Comprehensive Scenarios. Due on Nov 28, 2016. • Hands-On Projects, Chapter 6. This chapter does not have any Hands-On Projects. Use this time to continue working on Implementation of Practical Scenarios, Research Paper, etc.
18	Oct 24 th	<ul style="list-style-type: none"> • Discuss Chapter 7 • Check/discuss answers Real-World Exercises, Chapter 7. <ol style="list-style-type: none"> 1. Exercise 7-1. Submit a 1-page report. 2. Exercise 7-2. Submit a 2-3 page report. 3. Challenge Case Project. Submit a 1-2 page report. • Submit Real-World Exercises, Chapter 7. <i>Due by 11:00 pm today! Only 1 report /Group.</i> • Submit Class Participation, Chapter 7. <i>Due by 11:00 pm today! Individual submission. Only the indicated students will get the credit.</i> • Continue Oral Presentations • Take Practice Quiz 3. You can take this test as many times as you wish • Continue working on Research Paper Topic and Oral Presentation <p><i>Prepare for next session:</i></p>

Session	Date	Topics, Readings, Assignments, Deadlines
		<p>Read Study Guide/Textbook, Chapter 8: High-Speed WLANs and WLAN Security Review PPT, Chapter 8 Answer Real-World Exercises, Chapter 8 (located in the textbook) Answer Class Participation, Chapter 8 (located on Canvas --> Modules tab)</p> <p>Suggested videos to watch</p> <p>OFDM: https://www.youtube.com/watch?v=zwaSYUK6p2A OFDM: https://www.youtube.com/watch?v=kqkYUzYiLF4 MIMO & OFDM: https://www.youtube.com/watch?v=VLAgyUQCgD8 MIMO: https://www.youtube.com/watch?v=PGoVBSTNaQU Modulation QAM: https://www.youtube.com/watch?v=d715NbFfBiU Wireless Bridge: https://www.youtube.com/watch?v=7nTgQQbF9zo Wireless Repeaters: https://www.youtube.com/watch?v=Pw8qaomfcTg 802.11e: https://www.youtube.com/watch?v=44t-0JYEwkA 802.11r: https://www.youtube.com/watch?v=ecFDm-U1VAI 802.11s: https://www.youtube.com/watch?v=sSubCiEEP0k 802.11 ac: https://www.youtube.com/watch?v=J6EHP3SAXKQ 802.11ad: https://www.youtube.com/watch?v=eT1sT4Y_FjQ Wireless 802.11ac and 802.11ad: https://www.youtube.com/watch?v=ZXYnXliFIPw Wireless Controllers: https://www.youtube.com/watch?v=ZFTgI-2gWsl WLAN Security: https://www.youtube.com/watch?v=EDy-9zvf44w</p>
19	Oct 26 th	<ul style="list-style-type: none"> • Continue working on Comprehensive Scenarios. Due on Nov 28th. • Hands-On Projects, Chapter 7. Due by 11:00 pm today! (located in the textbook) Only 1 report /Group. <ol style="list-style-type: none"> 1. Project 7-1. Submit a 2-5 page report describing what the purpose and the outcomes of Project 7-1 were. 2. Project 7-2. Submit a 2-5 page report describing what the purpose and the outcomes of Project 7-2 were.
20	Oct 31 st	<ul style="list-style-type: none"> • Discuss Chapter 8 • Check/discuss answers Real-World Exercises, Chapter 8. <ol style="list-style-type: none"> 1. Exercise 8-1. Submit a PPT with 10 slides maximum. 2. Challenge Case Project. Submit a 1-page report. • Submit Real-World Exercises, Chapter 8. Due by 11:00 pm today! Only 1 report /Group. Only the indicated students will get the credit. • Submit Class Participation, Chapter 8. Due by 11:00 pm today! Individual submission. • Continue Oral Presentations • Take Quiz 3 – 100% (Chapters 6 & 7). Open from 10:00 am to 12:00 pm.

Session	Date	Topics, Readings, Assignments, Deadlines
		<p><i>Time frame is 20 minutes.</i></p> <ul style="list-style-type: none"> • Continue working on Research Paper Topic and Oral Presentation • Start working on Implementation of Practical scenarios. Due on Dec 7th. <p><i>Prepare for next session:</i> Read Study Guide/Textbook, Chapter 9: Wireless Metropolitan Area Networks Review PPT, Chapter 9 Answer Real-World Exercises, Chapter 9 (located in the textbook) Answer Class Participation, Chapter 9 (located on Canvas --> Modules tab)</p> <p>Suggested videos to watch</p> WiMAX: https://www.youtube.com/watch?v=pp2MArRRfx8 What is WiMAX?: https://www.youtube.com/watch?v=KQdc5AdJqCg Bandwidth vs Throughput: https://www.youtube.com/watch?v=mxhBaG-1cRc Fixed Wireless Broadband: https://www.youtube.com/watch?v=CnOA3-JzReM Wireless Broadband: https://www.youtube.com/watch?v=-6dV885KgbM Free Space Optics: https://www.youtube.com/watch?v=9sn3GFdFC0o WiMAX Security: https://www.youtube.com/watch?v=2FF-824LXgg
	Nov 2 nd	<ul style="list-style-type: none"> • Continue working on Comprehensive Scenarios. Due on Nov 28^h. • Hands-On Projects, Chapter 8. Due by 11:00 pm today! (located in the textbook) Only 1 report /Group. Only the indicated students will get the credit. <ol style="list-style-type: none"> 1. Project 8-1. Submit a 2-5 page report describing what the purpose and the outcomes of Project 8-1 were.
	Nov 7 th	<ul style="list-style-type: none"> • Discuss Chapter 9 <ul style="list-style-type: none"> • Check/discuss answers Real-World Exercises, Chapter 9. <ol style="list-style-type: none"> 1. Exercise 9-1. Submit a PPT with 10 slides maximum. 2. Challenge Case Project. Submit a 2-page report and PPT with 10 slides maximum. • Submit Real-World Exercises, Chapter 9. Due by 11:00 pm today! Only 1 report /Group. Only the indicated students will get the credit. • Submit Class Participation, Chapter 9. Due by 11:00 pm today! Individual submission. • Continue Oral Presentations • Take Practice Quiz 4. You can take this test as many times as you wish • Continue working on Research Paper Topic and Oral Presentation • Continue working on Implementation of Practical scenarios. Due on Dec 7th. <p><i>Prepare for next session:</i> Read Study Guide/Textbook, Chapter 10: Wireless Wide Area Networks Review PPT, Chapter 10</p>

Session	Date	Topics, Readings, Assignments, Deadlines
		<p>Answer Real-World Exercises, Chapter 10 (located in the textbook) Answer Class Participation, Chapter 10 (located on Canvas --> Modules tab)</p> <p>Suggested videos to watch</p> <p>WWAN 1: https://www.youtube.com/watch?v=USIoMu4avRg WWAN 2: https://www.youtube.com/watch?v=soBG-IKdiFs WWAN 3: https://www.youtube.com/watch?v=NKmNII7SLFU Cellular Systems: https://www.youtube.com/watch?v=DHA72EKL_vc Cellular Technology: https://www.youtube.com/watch?v=1FA2vHWqa5E Cellular Generations: https://www.youtube.com/watch?v=3k5Iic4pWI How Satellites Work: https://www.youtube.com/watch?v=J4gGalZV8TM Satellite Communication: https://www.youtube.com/watch?v=hXa3bTcIGPU What is WAP?: https://www.youtube.com/watch?v=Qxu_YtYvKE</p>
	Nov 9 th	<ul style="list-style-type: none"> • Continue working on Comprehensive Scenarios. Due on Nov 28th. • Hands-On Projects, Chapter 9. Due by 11:00 pm today! (located in the textbook) Only 1 report /Group. Only the indicated students will get the credit. <ol style="list-style-type: none"> 1. Project 9-1. Submit a 1-2 page report. 2. Project 9-2. Submit a 1-2 page report
	Nov 14 th	<ul style="list-style-type: none"> • Discuss Chapter 10 • Check/discuss answers Real-World Exercises, Chapter 10. <ol style="list-style-type: none"> 1. Exercise 10-1. Submit a PPT with 10 slides maximum. 2. Exercise 10-2. Submit a PPT with 20 slides maximum. 3. Challenge Case Project. Submit a 1-2 page report. • Submit Real-World Exercises, Chapter 10. Due by 11:00 pm today! Only 1 report /Group. Only the indicated students will get the credit. • Submit Class Participation, Chapter 10. Due by 11:00 pm today! Individual submission. • Continue Oral Presentations • Take Quiz 4 – 100% (Chapters 8 & 9). Open from 10:00 am to 12:00 pm. Time frame is 20 minutes. • Continue working on Research Paper Topic and Oral Presentation • Submit Research Paper through CANVAS. Due on Dec 5th. • Continue working on Implementation of Practical scenarios. Due on Dec 7th. • Take Practice Midterm No. 2. You can take this test as many times as you wish
	Nov 16 th	<ul style="list-style-type: none"> • Hands-On Projects, Chapter 10. Due by 11:00 pm today! (located in the textbook) Only 1 report /Group. <ol style="list-style-type: none"> 1. Project 10-1. Submit a 1-page report.

Session	Date	Topics, Readings, Assignments, Deadlines
		<p>2. Project 10-2. Submit a 1-page report. 3. Project 10-3. Submit a 1-page report.</p> <ul style="list-style-type: none"> • Continue working on Implementation of Practical Scenarios. Due on Dec 7, 2016.. • Continue working on Research Paper. Due on Dec 5, 2016. • Continue working on Comprehensive Scenarios. Due on Nov 28, 2016..
	Nov 21 st	<ul style="list-style-type: none"> • Take Midterm No. 2 – 100% (Chapters 6 to 10). Open from 9:00 am to 12:00 pm. Time frame is 50 minutes. • Continue working on Implementation of Practical Scenarios. Due on Dec 7, 2016.. • Continue working on Research Paper. Due on Dec 5, 2016. • Continue working on Comprehensive Scenarios. Due on Nov 28, 2016. <p><i>Prepare for next session:</i> Read Study Guide/Textbook, Chapter 11: Radio Frequency Identification and Near-Field Communication Review PPT, Chapter 11 Answer Real-World Exercises, Chapter 11 (located in the textbook) Answer Class Participation, Chapter 11 (located on Canvas --> Modules tab)</p> <p>Suggested videos to watch</p> <p>RFID how it works: https://www.youtube.com/watch?v=XGu_fktA_qM What is RFID?: https://www.youtube.com/watch?v=e7knRDEFUzc 10 Best Barcode Scanners 2015: https://www.youtube.com/watch?v=fh5ekExo1oA What are RFID Tags?: https://www.youtube.com/watch?v=kMOHYsaCFHc</p> <p>What is NFC Technology?: https://www.youtube.com/watch?v=Wim4TqMzgVQ</p> <p>Near Field Communication - What a smartphone can do with a car: https://www.youtube.com/watch?v=gj52cxADj1E Simpleshow explains Near Field Communication (NFC): https://www.youtube.com/watch?v=Gbv2Bli9i58 How NFC Near Field Communication works - Practical NFC: https://www.youtube.com/watch?v=_RBbuGwC7Eg A day with NFC technology: https://www.youtube.com/watch?v=64mAcOn444 How to Set Up NFC Tags: https://www.youtube.com/watch?v=ZUFMLpJUT70 The Basic of RFID and EPC: https://www.youtube.com/watch?v=k-w6ZYIo37E</p>
	Nov 23 rd	<ul style="list-style-type: none"> • Continue working on Implementation of Practical Scenarios. Due on Dec 7, 2016..

Session	Date	Topics, Readings, Assignments, Deadlines
		<ul style="list-style-type: none"> • Continue working on Research Paper. Due on Dec 5, 2016. • Continue working on Comprehensive Scenarios. Due on Nov 28, 2016.
	Nov 28 th	<ul style="list-style-type: none"> • Discuss Chapter 11 • Check/discuss answers Real-World Exercises, Chapter 11. <ol style="list-style-type: none"> 1. Exercise 11-1. Submit a PPT with 15 slides maximum. 2. Exercise 11-2. Submit a PPT with 20 slides maximum. 3. Challenge Case Project. Submit a 5-page maximum report. • Submit Real-World Exercises, Chapter 11. <i>Due by 11:00 pm today! Only 1 report /Group. Only the indicated students will get the credit.</i> • Submit Class Participation, Chapter 11. <i>Due by 11:00 pm today! Individual submission.</i> • Submit Comprehensive Scenarios. <i>Due by 11:00 pm today! Only 1 report /Group. Only the indicated students will get the credit.</i> • Continue Oral Presentations • Continue working on Research Paper Topic and Oral Presentation • Submit Research Paper through CANVAS. <i>Due on Dec 5th</i> • Continue working on Implementation of Practical scenarios. Due on Dec 7th. <p><i>Prepare for next session:</i> Read Study Guide/Textbook, Chapter 12: Wireless Communications in Business Review PPT, Chapter 12 Answer Real-World Exercises, Chapter 12 (located in the textbook) Answer Class Participation, Chapter 12 (located on Canvas --> Modules tab)</p> <p>Suggested videos to watch</p> <p>Wireless Communications and Business Implications: https://www.youtube.com/watch?v=4Oo0i1yzoLo Upgrading your business' wireless network? What you need to know: https://www.youtube.com/watch?v=H4weKzAMJfM Get wireless security tips: https://www.youtube.com/watch?v=X9zTcQOT_rA</p>
	Nov 30 th	<ul style="list-style-type: none"> • Demonstrate each practical scenario to the instructor OR Video tape each scenario with each member taking turns so every member participates. Then upload the videos to YouTube or to any Cloud computing service and email the link and the names of all group members to the instructor • Hands-On Projects, Chapter 11. <i>Due by 11:00 pm today!</i> (located in the textbook) <ol style="list-style-type: none"> 1. Project 11-1. Submit a 1-2 page report. 2. Project 11-2. Submit a 1-2 page report. 3. Project 11-3. Submit a 1-2 page report.

Session	Date	Topics, Readings, Assignments, Deadlines
	Dec 5 th	<ul style="list-style-type: none"> • Discuss Chapter 12 • Check/discuss answers Real-World Exercises, Chapter 12 • Submit Real-World Exercises, Chapter 12. <i>Due by 11:00 pm today! Only 1 report /Group. Only the indicated students will get the credit.</i> • Submit Class Participation, Chapter 12. <i>Due by 11:00 pm today! Individual submission.</i> • Continue Oral Presentations • Submit <i>Research Paper</i> through CANVAS. <i>Due by 11:00 pm today!</i>
	Dec 7 th	<ul style="list-style-type: none"> • Demonstrate each practical scenario to the instructor OR Video tape each scenario with each member taking turns so every member participates. Then upload the videos to YouTube or to any Cloud computing service and email the link and the names of all group members to the instructor
	Dec 12 th	<ul style="list-style-type: none"> • Finish Oral Presentations • Take Practice Final Exam. You can take this test as many times as you wish
Final Exam	Dec 15 th	Thursday, 0715 – 0930

** Subject to change with fair notice via email through my.sjsu.

Suggested Topics for the Research Paper/PowerPoint Presentation

1. Gigabit Speed Wireless Networks with 802.11ac
2. Fog Computing
3. Hosted VoIP
4. Security issues in Public, Private and Hybrid Clouds
5. Windows Server 2003 Migration Risks
6. Antennas in Wireless communications
7. WPAN and WLAN
8. WMAN and WWAN
9. Satellite Fixed Broadband Wireless
10. RFID - Radio Frequency Identification
11. Land Mobile Radio Systems
12. Radio Frequency Communications
13. Wireless Network Security
14. Consumer satellite Communications
15. Requirements for Optimizing a Network for Mobility
16. Devices and technologies for securing wireless and wired networks
17. Wireless guest access precautions
18. Private Cloud Deployments Through Network Automation
19. In-Vehicle Network Solutions
20. Rethinking Traditional Architectures for Enterprise Wireless Networks
21. What's New in Wireless Networking and 802.11?
22. Improving disaster recovery with WAN optimization
23. Security in the Age of Enterprise Technology
24. Web Application Firewalls
25. Managing Mobile Applications & Content
26. Virtual Server Data Protection
27. Obstacles to Cloud Storage and how to overcome them
28. How to Decrease Latency in Virtual & Cloud Environments
29. Strategies and best practices for distributed enterprises to protect their networks against vulnerabilities, threats, and malicious attacks.
30. How to control and monitor a VPN

31. Best practices for Mobile Application Management
32. Mitigating Security Risks at the Network's Edge
33. Cloud-Based Disaster Recovery
34. Total Mobility Management
35. Safeguard Data in Remote Locations
36. Trends in Cloud Architectures
37. Infrared Technologies
38. Infinite connectivity
39. Cloud and shared databases
40. Interfaces and protocols for a whole host of wireless devices, remotes and control devices.
41. How to protect data stored outside of your computer system
42. WAN and application optimization techniques
43. Security Risks Among Mobile Devices and how to reduce them
44. Managing Big Data Growth
45. Wireless jamming & Network security
46. **Other.** Obtain instructor's approval