

San José State University
Technology/Aviation
Tech 163 Fall 2016

Course and Contact Information

Instructor:	Kenneth R. Cole BSEE MSEE MBA CSP CA Secondary Credential
Office Location:	IS 216 Before or after class
Telephone:	650 224 6458
Email:	Kenneth.cole@sjsu.edu
Office Hours:	Before or After Regular class meeting (contact via email to arrange)
Class Days/Time:	Friday 3:00 PM to 5:45 PM
Classroom:	IS 216
Prerequisites:	Tech 60 and Tech 63 (Provide copy of transcript on first class meeting)

Course Description

Communications systems. Types of modulation. Transmitters and receivers. Digital communications. Data transmission. Digital modulation and modems. Multiplexing and multiple-access techniques. Wireless communication. Microwave devices. Satellite communications. Fiber optics. Fiber-optic systems.

Course Goals/Learning Outcomes

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

- a) Understand telecommunications theory and applications;
- b) Explain the difference between analog and digital communication;
- c) Understand how multiplexing allows many signals to be sent through a single channel
- d) Identify the devices needed for wire communication, wireless communication, satellite communication, and fiber-optic communication.
- e) Identify the design process from synthesis, encoding, modulation, transmission, demodulation, decoding, to reception.
- f) Develop a model RF communication station and become familiar with the components and their designs.

Required Texts/Readings

Textbook

Blake, R. (2002). Electronic Communication Systems. (2nd ed.). Albany, NY: Delmar.

Course Requirements and Assignments

Grading Information

Grading Criteria

The total points earned on all the midterms, quizzes, assignments, and final exam will be divided by the total possible points and the resulting percentage will determine the course grade. An excel spread sheet will be used and values combined with the math rules of the spread sheet. Scores will be kept to many decimal places but displayed to the units place for grade determination. In other words, grades will be rounded to determine the final grade.

Midterms (3)	30%	300 pts
Quizzes	20%	200 pts
Homework Assignments	10%	100 pts
Research Paper	15 %	150 pts
Final exam	25 %	250 pts
Total	100 %	1000 pts

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

A+	97 -100%	B+	87 - 89%	C+	77 - 79%	D+	66 - 69%
A	93 - 96%	B	83 - 86%	C	73 - 76%	D	60 - 65%
A-	90 - 92%	B-	80 - 82%	C-	70 - 72%	F	0 - 59%

Midterms

There will be three (3) midterms given during the semester:
midterm No.1 - 4th week (on weeks 1st – 3rd material);
midterm No. 2 - 8th week (on weeks 4th – 7th material); and
midterm No. 3 - 12th week (on weeks 8th – 11th material).

All midterms are required and a make-up will be provided for any student with an acceptable reason for missing the scheduled test. On test days, students will be permitted to leave after finishing the exam and handing it to the instructor. Make up exams will be scheduled on the students' own time. Students may use calculators and student prepared notebooks during exams. Text book pages, lecture slides and other references are not to be used unless the material is actually incorporated into the student's notebook.

Quizzes

There will be four (4) quizzes given on the following weeks: 2nd, 6th, 10th, and 14th before lecture. Each quiz will have a time frame of 20 minutes. **No makeup will be allowed. The quiz weight will be 20% regardless of the number of quizzes taken but no more than one may be missed for class credit.**

Homework Assignments

Selected problems from each chapter will be assigned to reinforce the concepts covered during lectures. **Assignments will be turned in at the beginning of each midterm and the final exam. Assignments that are missing will receive a grade of zero. Assignments will be assigned by week and will be on CANVAS.**

Research Paper

The title of the research paper will be announced at the appropriate time during the semester. The research paper should

be typed, 1½-spaced, and at least 8 pages (½-full or ⅔-full pages are not acceptable), not including the title page, table of contents, and references pages. Tables or Figures occupying ⅔ or whole page cannot be counted as one page.

In your paper, proper credit should be given to the source wherever deemed appropriate. On the bibliography page, the references should be listed alphabetically.

Note; The research paper for this term will not be selected from any topics used in last year's selection.

The research paper should include the followings:

1. Title page (see the attached sample page)
2. Table of contents
3. Research body text
 - Introduction
 -
 -
 - Conclusion
4. References (in alphabetical order)

The research paper will be due at the start of class on the last day of instruction. Any late paper will not be accepted. A research paper is required for class credit.

Cell phones, text messaging, e-mail and Internet

1. As a courtesy to the students and the instructor, all cell phones must be turned off during class and lab sessions. This includes all silent operation modes. It is not only the disturbance caused by the ringing of cell phones that interferes with class activities, but also the disturbance caused by students leaving the class to answer messages or return calls. Turned off = airplane mode if so equipped, ring silent, and screen dark. Phones should be put away in a back pack under the seat. If a genuine emergency exists such that a cell phone must be monitored, see the instructor about this before class. Be prepared to exit the class should the emergency arise.
2. The use of computers/tech products is restricted to the tasks assigned in class. Calculators will be allowed in class and on all exams. Notes, internet, and textbooks will not be allowed on exams. Internet surfing as well as monitoring and replying to e-mail is a distraction for everyone. Class notes from the instructor will be provided on CANVAS after or at the same time as lectures. (I will try to provide these before class). It is not anticipated that students in a technical course will attempt/need to use a keyboard during class lecture, however if this changes the instructor will allow provisions for this in class. The presence of computers and or tech products such as smart phones, watches and the like are not allowed during quizzes, midterms or the final exam. The appearance of these items during quizzes or exams will be considered a violation of the school academic integrity program.
3. Students are encouraged to participate in lectures, (answering and asking questions.) Students who disrupt the class and do not stop when requested by the instructor will be referred to the SJSU Office of Student Conduct and Ethical Development.
4. Finally, note that test material will be over items presented in class, from instructor hand-outs, and from past exams and homework assignments. Thus, problems from the textbook are fair game but obscure material that is skipped is not. The instructor will devote time prior to each exam to go over specific examples of items that will be on the exam. The list of critical formulas will be kept to a minimum and nominally will be provided on exams. On quizzes, you will be on your own.

Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drops, academic renewal, etc. Information on add/drops are available at <http://info.sjsu.edu/webdbgen/narr/soc-fall/rec-298.html> . Information about late drop is available at <http://vwww.sjsu.edu/sac/advising/latedrops/policy/> . Students should be aware of the current deadlines and penalties for adding and dropping classes.

Note the drop policy related to prerequisites and co-requisites.

University Policies and Services

I Academic integrity

Students should know that the University's Academic Integrity Policy is available at <http://www.sjsu.edu/studentconduct/>. Your own commitment to learning, as evidenced by your enrollment at San Jose State University and the University's integrity policy, require you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The website for Student Conduct and Ethical Development is available at <http://www.sjsu.edu/studentconduct/>.

Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another person's ideas without giving proper credit) will result in a failing grade and sanctions by the University. For this class, all assignments are to be completed by the individual student unless otherwise specified. If you would like to include in your assignment any material you have submitted, or plan to submit for another class, please note that SJSU's Academic Policy F06-1 requires approval of instructors.

II Campus Policy in Compliance with the American Disabilities Act

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities requesting accommodations must register with the DRC (Disability Resource Center) to establish a record of their disability. Website is at: <http://www.drc.sjsu.edu/>

III Student Technology Resources

Computer labs for student use are available in the Academic Success Center located on the

1st floor of Clark Hall and on the 2nd floor of the Student Union. Additional computer labs may be available in your department/college. Computers are also available in the Martin Luther King Library.

A wide variety of audio-visual equipment is available for student checkout from Media Services located in JRC 112. These items include digital and VHS camcorders, VHS and Beta video players, 16 mm, slide, overhead, DVD, CD, and audiotape players, sound systems, wireless microphones, projection screens and monitors. Website is at http://www.sjsu.edu/studentaffairs/students/tech_resources/

IV Learning Assistance Resource Center

The Learning Assistance Resource Center (LARC) is located in Room 600 in the Student Services Center. It is designed to assist students in the development of their full academic potential and to motivate them to become self-directed learners. The center provides support services, such as skills assessment, individual or group tutorials, subject advising, learning assistance, summer academic preparation and basic skills development. The LARC website is located at <http://www.sjsu.edu/larc/>.

V SJSU Writing Center

The SJSU Writing Center is located in Room 126 in Clark Hall. It is staffed by professional instructors and upper-division or graduate-level writing specialists from each of the seven SJSU colleges. Our writing specialists have met a rigorous GPA requirement, and they are well trained to assist all students at all levels within all disciplines to become better writers. Website at <http://www.sjsu.edu/writingcenter/>

VI Peer Mentor Center

The Peer Mentor Center is located on the 1st floor of Clark Hall in the Academic Success Center. The Peer Mentor Center is staffed with Peer Mentors who excel in helping students manage university life, tackling problems that range from academic challenges to interpersonal struggles. On the road to graduation, Peer Mentors are navigators, offering "roadside assistance" to peers who feel a bit lost or simply need help mapping out the locations of campus resources. Peer Mentor services are free and available on a drop-in basis, no reservation required <http://www.sjsu.edu/muse/peermentor>

Tech 163 Course Topic Outline

Week	Date	Chapter	Topic
1	8/26	1	1) Orientation 2) Introduction to communications Systems
2	9/2	2	1) Quiz #1 2) Radio-Frequency Circuits
3	9/9	2	Radio-Frequency Circuits
4	9/16		Amplitude Modulation
5	9/23	3	Midterm #1 (1 st to 3 rd week)
6	9/30	5	1) Quiz #2 2) Transmitters
7	10/7	5	Transmitters + Research paper assigned
8	10/14		Midterm #2 (4 th to 7 th)
9	10/21	6	Receivers
10	10/28	7	1) Quiz #3 2) Digital Communication
11	11/4	13	Multiplexing & Multiple-Access Techniques
12	11/11		Midterm #3 (8 th to 11 th)
13	11/18	20	Satellite Communication
14	12/2	24	1) Quiz #4 2) Fiber Optics & Fiber-Optic Systems
15	12/9	25	Final Class Meeting (Review) + Research Paper due
16	12/16		Final Exam (half 12 th to 15 th) (Half from all weeks)

[Sample Paper/Project Cover Page]

Research Paper Title

for

Tech 163 Telecommunications Systems

Professor: Kenneth R. Cole.

Submitted by

Your Name

Due Date