

**Course Information**

EE3150

**Communications Laboratory**

---

**Professor Contact Information**

Prof. *Kamran Kiasaleh* ([www.utdallas.edu/~kamran](http://www.utdallas.edu/~kamran)). Office: ECSN4.302, (972)883-2990 (phone), (972)883-2710(fax). Email: [kamran@utdallas.edu](mailto:kamran@utdallas.edu). Office hours: 1-3 pm, Mondays

**Course Pre-requisites, Co-requisites, and/or Other Restrictions**

(strictly enforced) Co-requisite: EE3350

**Course Description**

This laboratory is designed to enhance students' understanding of communications principle in a laboratory setting. The format of this lab is such that students are encouraged to engage in design and implementation activities which will be demanded from them upon graduation. Given that this course is often followed by the Senior Design class, an emphasis is placed on fostering independent thinking while encouraging team efforts. Furthermore, although a number of prescribed modulation schemes are considered here, the focus remains on the overall understanding of communication principles and practice and not on a particular modulation scheme that is in use today.

---

**Student Learning Objectives/Outcomes**

Students are expected to be able to:

1. Ability to calculate signal properties both in time and frequency domain
2. Ability to design filters for communication systems
3. Ability to design amplitude modulated (AM) systems
4. Ability to design frequency and phase modulated systems
5. Ability to design and make measurements of communication systems

*Students are expected to work independently. Although experiments are conducted by groups of two students, each student is required to work on his/her pre-lab and subsequent lab analysis independently. This implies that the only common factors between pre-labs and lab analyses of lab partners must be limited to the experimental outcome observed in the lab. Any student in violation of the above policy will be referred to UTD's disciplinary committee.*

---

**Required Materials**

1. K. Kiasaleh, Communications Laboratory Guide, Senita Publishing, 2014.

**Suggested Course Materials**

1. David Pozar, Microwave Engineering, 3rd ed. John Wiley and Sons, 2005 (chapter 8).
2. B. P. Lathi, Modern Digital and Analog Communication Systems, 3rd edition, Oxford Series in Electrical and Computer Engineering, 1998
- 3.

**Lab Schedule**

<b>Week of Aug. 29</b>	<b>official start date of the lab</b>	<b>Lecture on Filter Theory</b>	
<b>Week of Sep. 12</b>			<b>Pre-lab 1 is due</b>
<b>Week of Sep. 26</b>	<b>Lab 1 exam</b>		
<b>Week of Oct. 3</b>		<b>Lecture on AM</b>	
<b>Week of Oct. 10</b>			<b>Pre-lab 2 is due</b>
<b>Week of Oct. 24</b>	<b>Lab 2 Exam</b>		
<b>Week of Oct. 31</b>		<b>Lecture on FM</b>	
<b>Week of Nov. 7</b>			<b>Pre-lab 3 is due</b>
<b>Week of Dec. 5</b>	<b>Lab 3 Exam</b>		

**Grading Policy (tentative):**

- |                 |            |
|-----------------|------------|
| 1. Pre-labs     | <b>20%</b> |
| 2. In-lab Exams | <b>75%</b> |
| 3. Lab Reports  | <b>5%</b>  |

An overall score of 40% or better is required to earn a passing grade (C- or better) in this course.

**The above grading policy only applies to those who have attended all labs and have completed all experiments. If any of the experiments is not completed, a score of 0 (and subsequently a grade of F) will be assigned for the course regardless of the exam grades.**

---

### **Course & Instructor Policies**

- 1. In this lab, upon completion of an experiment, an examination of the material related to that experiment will be conducted. Exams are taken individually and not as a team. The exam will contain both theoretical questions as well as experimental procedures. The schedule for the exams is listed above under the title “Lab Schedule.”**
- 2. Each lab contains a pre-lab which must be completed by students individually (not as a group). Pre-lab must be turned in on the commencement date of the experiment at the beginning of the lab. There are no late pre-labs, unless student can provide excused reason(s) for missing the deadline for the pre-lab, such as illness (a note from a physician is needed), work-related (a note from the supervisor is needed), holy days, etc. Even though a grade of 0 is assigned to unexcused late pre-lab submissions, the completion of pre-lab is REQUIRED before initiating or continuing an experiment. In the event of excused absence, students are required to complete the pre-lab before initiating the experiment in the next scheduled lab session.**
- 3. Upon completion of an experiment, students will turn in their individual raw data along with their observations/conclusions to their TAs within 7 calendar days. The reports can be emailed to the TA for the course by close of business day of the due date. This submission is not a formal lab report, but rather an account of the observations made in the lab along with the answers to questions raised in the lab manual. Students must obtain their respective TA’s signature on the data sheet they have collected in the experiment before leaving the lab.**
- 4. Make up for an experiment will be granted for excused absences outlined above. In such a case, the experiment must be completed as soon as possible so that it will not interfere**

with the normal lab schedule. Furthermore, any student who has missed the lab week due to an excused absence is required to complete the experiment individually.

5. During the lab period, upon the completion of a significant step (measurement or observation) ask your TA to verify your results. DO NOT PROCEED to the next step until the TA has verified and taken note of your results. THESE OBSERVATIONS WILL BE USED TO DETERMINE YOUR IN-LAB PERFORMANCE.
6. Finally, any unexcused absence results in a grade of 0 for the lab and pre-lab.
7. Although there are set times for the labs and students are required to attend their designated lab times, with the approval of the instructor and provided that space and personnel are available, students can attend other lab sessions to work on their experiments.
8. If a group cannot complete the experiment due to equipment malfunction or other unforeseen situation, students are allowed to attend other lab sessions for that week, if space is available. If space cannot be found, then students can complete their work in the following week, However, EVERY effort must be made to complete the experiment during its designated week.
9. During the weeks when no experiments are scheduled, students are required to come in during their designated time (or other times with permission) and work on their experiments. Students are required to sign the sign-in sheet every time they are in the lab. Weekly attendance for this lab is mandatory.

### **Off-campus Instruction and Course Activities**

*Off-campus, out-of-state, and foreign instruction and activities are subject to state law and University policies and procedures regarding travel and risk-related activities. Information regarding these rules and regulations may be found at the website address [http://www.utdallas.edu/BusinessAffairs/Travel\\_Risk\\_Activities.htm](http://www.utdallas.edu/BusinessAffairs/Travel_Risk_Activities.htm). Additional information is available from the office of the school dean. Below is a description of any travel and/or risk-related activity associated with this course.*

---

### **Student Conduct & Discipline**

The University of Texas System and The University of Texas at Dallas have rules and regulations for the orderly and efficient conduct of their business. It is the responsibility of each student and each student organization to be knowledgeable about the rules and regulations which govern student conduct and activities. General information on student conduct and discipline is contained in the UTD publication, *A to Z Guide*, which is provided to all registered students each academic year.

The University of Texas at Dallas administers student discipline within the procedures of recognized and established due process. Procedures are defined and described in the *Rules and Regulations, Board of Regents, The University of Texas System, Part 1, Chapter VI, Section 3*, and in Title V, Rules on Student Services and Activities of the university's *Handbook of Operating Procedures*. Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations (SU 1.602, 972/883-6391).

A student at the university neither loses the rights nor escapes the responsibilities of citizenship. He or she is expected to obey federal, state, and local laws as well as the Regents' Rules, university regulations, and administrative rules. Students are subject to discipline for violating the standards of conduct whether such conduct takes place on or off campus, or whether civil or criminal penalties are also imposed for such conduct.

### **Academic Integrity**

The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrate a high standard of individual honor in his or her scholastic work.

Scholastic dishonesty includes, but is not limited to, statements, acts or omissions related to applications for enrollment or the award of a degree, and/or the submission as one's own work or material that is not one's own. As a general rule, scholastic dishonesty involves one of the following acts: cheating, plagiarism, collusion and/or falsifying academic records. Students suspected of academic dishonesty are subject to disciplinary proceedings.

Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the university's policy on plagiarism (see general catalog for details). This course will use the resources of turnitin.com, which searches the web for possible plagiarism and is over 90% effective.

For additional information, consult the following website:  
<http://www.utdallas.edu/deanofstudents/conduct/>

### **Email Use**

The University of Texas at Dallas recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of each individual in an email exchange. The university encourages all official student email correspondence be sent only to a student's U.T. Dallas email address and that faculty and staff consider email from students official only if it originates from a UTD student account. This allows the university to maintain a high degree of confidence in the identity of all individual corresponding and the security of the transmitted information. UTD furnishes each student with a free email account that is to be used in all communication with university personnel. The Department of Information Resources at U.T. Dallas provides a method for students to have their U.T. Dallas mail forwarded to other accounts.

### **Withdrawal from Class**

The administration of this institution has set deadlines for withdrawal of any college-level courses. These dates and times are published in that semester's course catalog. Administration procedures must be followed. It is the student's responsibility to handle withdrawal requirements from any class. In other words, I cannot drop or withdraw any student. You must do the proper paperwork

to ensure that you will not receive a final grade of "F" in a course if you choose not to attend the class once you are enrolled.

## **Student Grievance Procedures**

Procedures for student grievances are found in Title V, Rules on Student Services and Activities, of the university's *Handbook of Operating Procedures*.

In attempting to resolve any student grievance regarding grades, evaluations, or other fulfillments of academic responsibility, it is the obligation of the student first to make a serious effort to resolve the matter with the instructor, supervisor, administrator, or committee with whom the grievance originates (hereafter called "the respondent"). Individual faculty members retain primary responsibility for assigning grades and evaluations. If the matter cannot be resolved at that level, the grievance must be submitted in writing to the respondent with a copy of the respondent's School Dean. If the matter is not resolved by the written response provided by the respondent, the student may submit a written appeal to the School Dean. If the grievance is not resolved by the School Dean's decision, the student may make a written appeal to the Dean of Graduate or Undergraduate Education, and the dean will appoint and convene an Academic Appeals Panel. The decision of the Academic Appeals Panel is final. The results of the academic appeals process will be distributed to all involved parties.

Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations.

## **Incomplete Grade Policy**

As per university policy, incomplete grades will be granted only for work unavoidably missed at the semester's end and only if 70% of the course work has been completed. An incomplete grade must be resolved within eight (8) weeks from the first day of the subsequent long semester. If the required work to complete the course and to remove the incomplete grade is not submitted by the specified deadline, the incomplete grade is changed automatically to a grade of **F**.

## **Disability Services**

The goal of Disability Services is to provide students with disabilities educational opportunities equal to those of their non-disabled peers. Disability Services is located in room 1.610 in the Student Union. Office hours are Monday and Thursday, 8:30 a.m. to 6:30 p.m.; Tuesday and Wednesday, 8:30 a.m. to 7:30 p.m.; and Friday, 8:30 a.m. to 5:30 p.m.

The contact information for the Office of Disability Services is:

The University of Texas at Dallas, SU 22

PO Box 830688

Richardson, Texas 75083-0688

(972) 883-2098 (voice or TTY)

Essentially, the law requires that colleges and universities make those reasonable adjustments necessary to eliminate discrimination on the basis of disability. For example, it may be necessary to remove classroom prohibitions against tape recorders or animals (in the case of dog guides) for students who are blind. Occasionally an assignment requirement may be substituted (for example, a research paper versus an oral presentation for a student who is hearing impaired). Classes enrolled students with mobility impairments may have to be rescheduled in accessible facilities. The college or university may need to provide special services such as registration, note-taking, or mobility assistance.

It is the student's responsibility to notify his or her professors of the need for such an accommodation. Disability Services provides students with letters to present to faculty members to verify that the student has a disability and needs accommodations. Individuals requiring special accommodation should contact the professor after class or during office hours.

### **Religious Holy Days**

The University of Texas at Dallas will excuse a student from class or other required activities for the travel to and observance of a religious holy day for a religion whose places of worship are exempt from property tax under Section 11.20, Tax Code, Texas Code Annotated.

The student is encouraged to notify the instructor or activity sponsor as soon as possible regarding the absence, preferably in advance of the assignment. The student, so excused, will be allowed to take the exam or complete the assignment within a reasonable time after the absence: a period equal to the length of the absence, up to a maximum of one week. A student who notifies the instructor and completes any missed exam or assignment may not be penalized for the absence. A student who fails to complete the exam or assignment within the prescribed period may receive a failing grade for that exam or assignment.

If a student or an instructor disagrees about the nature of the absence [i.e., for the purpose of observing a religious holy day] or if there is similar disagreement about whether the student has been given a reasonable time to complete any missed assignments or examinations, either the student or the instructor may request a ruling from the chief executive officer of the institution, or his or her designee. The chief executive officer or designee must take into account the legislative intent of TEC 51.911(b), and the student and instructor will abide by the decision of the chief executive officer or designee.

***These descriptions and timelines are subject to change at the discretion of the Professor.***