

**MASTER SYLLABUS**

**ELET-283 Electronics Communications**

**Course Lecture-Lab-Credit and/ Contact Hours**: 3-3-4 / 6

**Course Maximum Enrollment:** 10

**Lab Fee**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Special Facility or Equipment Needs/Safety Rules and Issues**:

This course requires a controls equipment lab/environment. (Digital Lab/Controls equipment and ELET Safety Rules)

**Lab Fee:** $15.00

**Course Title:** Electronics Communications

**Course Prefix and Number:** ELET-283

**Course Description**:

Electronics Communications theory and laboratory experience including transmitting and receiving techniques using Amplitude, Frequency and Phase Modulation. In this course the students will be provided a complete set of a discrete components to build a ‘Super-Heterodyne AM Receiver”.

**Pre- and/or Co-requisites**:

Pre-Requisites: ELET 155

**Course Goal**:

Students will conduct signal transmission using different types of modulation, sidebands, frequency spectrum, resonance, detection and demodulation. Single-Side-band systems, impedance matching concepts on transmission of signals. Student will demonstrate troubleshooting and soldering techniques.

**Student Learning Outcomes**: A student who successfully completes this course will be able to:

1. Analyze signal modulation used for transmission.
2. Explain FCC guidelines and concepts they employ.
3. Build and troubleshoot resonant circuits such as series, parallel resonance, and the tank circuit.
4. Demonstrate coupling circuits using impedance matching techniques.
5. Construct the signal response curve including bandwidth, quality and selectivity.
6. Outline amplitude modulation and the class C operation mode.
7. Evaluate frequency spectrum measurements to show proficiency based on a mathematical analysis.
8. Use digital oscilloscopes measurement techniques to demonstrate proficiency using the Trapezoid and Lissajous patterns
9. Critique the Single-Side-Band system and the use of special high-quality filters.
10. Implement demodulation analysis, using diode detection, phase demodulation and phase locked-loops.
11. Analyze transmission lines in power transfer analysis.
12. Demonstrate soldering techniques used to build the AM radio receiver.
13. Analyze the schematic diagram from the front-end to the back end.
14. Summarize the Information Theory and Noise Concepts.
15. Use signal tracking, signal injection and DC analysis to demonstrate troubleshooting proficiency

**Course Content**:

After finishing the course students will be able to explain, apply the operation and theory of electronics communications.  Students will be able to build a complete Super-heterodyne Radio Receiver using single-discrete components.  Students will be able to troubleshoot electronics communications equipment.  The concept of Fourier Analysis for frequency spectrum understanding. It will prepare the students for more advanced topics in electronics. Students will learn the skills for electronic soldering.

**Texts and Readings**:

Modern Electronic Communication by Gary Miller. The latest edition.  (Prentice Hall)

Experiments in Electronic Devices and Circuits by Bogart (Prentice Hall)

Or similar textbook and lab manual

 **Assessment**:

Oral communication required and tested in form of special assignments.

Tests

Lab reports

Midterm

Final: Radio analysis, troubleshooting and alignment procedure in the lab using the function generator and digital oscilloscope.

**ELET Student Outcomes Realized:**

1. Apply the knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve well-defined engineering problems appropriate to the discipline.
2. Apply written, oral, and graphical communication in well-defined technical and non-technical environments; identify and use appropriate technical literature.
3. Function effectively as a member of a technical team.

This course contributes 4 (of 42) technical content credit hours.

**DISABILITY STATEMENT:** It is the general policy of Delgado Community College to provide an equal opportunity for academic success to all students. Reasonable accommodations for a student with a disability will be made provided the student has self-identified with the Office of Disability Services and has provided the required documentation. Instructors will appropriately modify their methods of instruction, course and examination requirements and general procedures to accommodate the special needs of the student provided the academic integrity of the course or examination is not violated and the accommodation does not jeopardize the health and welfare of all students. Accommodations will not be made without the letter of accommodation from the Office of Disability Services. {[Contact Information](http://www.dcc.edu/student-services/advising/disability-services/faculty-staff-resources/syllabi-statement.aspx) is included on Course Syllabus and is not listed on the Master Syllabus. The Master Syllabus statement ends prior to bracketed sentence.}

**Academic Honesty Statement:** Delgado Community College requires that students adhere to the highest standards of academic integrity. Students are entrusted to be honest in every phase of their academic life and to present as their own work only that which is genuinely theirs. Cheating, plagiarism, violation of test conditions, complicity in dishonest behavior, or other falsification of academic work is a serious breach of College standards.

Plagiarism is defined as any attempt to represent the work of another as one's own original work. More specifically, plagiarism is the direct appropriation of the language, thoughts, or ideas of another--either literally or in paraphrase--without appropriate notation on the source and in such fashion as to imply that the work is one's own original work.

Depending upon the nature of the case, a student guilty of academic dishonesty may receive penalties ranging from a grade of "F" for the work submitted to expulsion from the College. Such penalties may be of both an academic and disciplinary nature.  Please see the *College Catalog* for additional information.

**Title IX Statement:** Delgado Community College is committed to creating and maintaining an environment in which sexual violence against men and women is not tolerated. Intervening in such instances helps to foster a safe environment for all, while sending a message that this kind of behavior will not be tolerated and is unacceptable in our community. As part of its commitment to providing an educational environment free from discrimination, Delgado Community College complies with Title IX of the Education Amendments, which prohibits discrimination and harassment based upon sex in an institution’s education programs and activities. Title IX prohibits sexual harassment, including sexual violence, of students at Delgado Community College sponsored activities and programs whether occurring on-campus or off-campus. {[Contact Information](http://www.dcc.edu/title-ix/default.aspx) included on Course Syllabus and is not listed on the Master Syllabus. The Master Syllabus statement ends prior to bracketed sentence.}

 *Pending Curriculum Committee Approval
AA-1503.1A Master Syllabus Format Approved:*

*Curriculum Committee 9/29/17, Vice Chancellor for Academic Affairs 11/20/17*