

**MASTER SYLLABUS**

**ELET-102 Electrical Circuits II**

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

**Course Maximum Enrollment:** 16

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

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

This course requires a lab environment. (Lab equipment, Calculator and ELET Safety Rules)

**Lab Fee:** $15.00

**Course Title:** Electrical Circuits II

**Course Prefix and Number:** ELET-102

**Course Description**:

The course covers the principles of alternating current (AC) electricity, including generation and characteristics, the effect of the electrical circuit properties of resistance inductance, and capacitance on AC, the analysis of series, and parallel circuits, series parallel arrangements, and complex networks. Single phase and polyphase, non-sinusoidal waveforms, and transformers. Electronic Workbench –MULTISIM Circuit Analysis simulation tools will be utilized. In the Technical field it is important to report your work orally as well as in written form. Students are expected to make at least two oral presentations on their laboratory experience.

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

Pre-requisite: ELET 101

**Course Goal**:

Students will demonstrate knowledge of the AC principles and the applications of the test and measurement lab equipment based on industry needs in order to prepare them for the specialized courses such as electrical power generation, distribution and process control as utilized in electronics technology.

The students will execute the use of alternating current (AC) electricity principles and circuit analysis and correlate electrical theory and practical application.

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

1. Summarize the concepts of voltage, current, resistance, capacitance and inductance as they relate to AC circuits.
2. Demonstrate proficiency in the use of electrical meters in analyzing AC circuits.
3. Demonstrate proficiency in the use of function generators and oscilloscopes to analyze and troubleshoot circuits.
4. Demonstrate proficiency in the identifying AC circuit components on a schematic drawing and in a lab setting.
5. Analyze and solve series and parallel AC circuits.
6. Explain the concepts and related mathematical relationships for Sinusoidal A.C. Waveforms, Complex numbers and phasors.
7. Demonstrate proficiency in the use of network theorems involving Source conversions, MeshNodal analysis, Superposition Thevenin's, Norton's, Maximum power transfer theorems.

**Course Content**:

1. Sinusoidal A.C. Waveforms
2. Complex numbers and phasors
3. Mathematical operations with complex numbers
4. Series/Parallel AC circuits
5. Independent sources Vs Dependent (controlled) sources
6. Source conversions
7. Mesh Nodal analysis
8. Bridge networks   y conversions
9. Superposition Thevenin's, Norton's, Maximum power transfer theorems
10. Power in A.C. circuits (P, Q, and S)
11. Resonance Selectivity
12. Decibels, Filters and Bode plots
13. Pulse waveforms and the RC response
14. Polyphase systems
15. Non-Sinusoidal circuits (Fourier analysis)
16. Transformers

**Texts and Readings**:

Required: Introductory Circuit Analysis & Experiments in Circuit Analysis by Boylestad (latest edition, 10th) and corresponding lab book or similar textbook/lab manual

**Assessment**:

1. Quizzes
2. Midterm
3. Lab Reports
4. Final Exam
5. Class participation

**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. Conduct standard tests, measurements, and conduct, analyze and interpret experiment results.
4. Function effectively as a member of a technical team. **(Teamwork)**
5. Explain the need for and engage in self-directed continuing professional development. **(Professional Development)**
6. Address professional and ethical responsibilities, including a respect for diversity. **(Ethics & Respect for Diversity)**

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.}

*AA-1503.1A Master Syllabus Format Approved:*

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