

**MASTER SYLLABUS**

**ELET-260 Instrumentation and Industrial Controls**

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

**Course Maximum Enrollment:** 15

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

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

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

**Lab Fee:** None

**Course Title:** Instrumentation and Industrial Controls

**Course Prefix and Number:** ELET-260

**Course Description**:

This course introduces the student to the theory and operation of transducers for measurement of pressure, flow, level, and temperature.  Analyze common electrical and mechanical devices used in automation.  Covers automatic process controls including On-Off and Proportional/Integral/Derivative (PID).  Learn fundamentals of Programmable Logic Controllers (PLCs) operation and programming.

**Pre- and/or Co-requisites**: None

**Course Goal**:

Students will understand how to select, install, configure, and maintain the instruments used in automation.  Students will learn how to design and apply motor control circuits.  Students will learn how to apply PLCs to common control problems.

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

1. Understand the courses required to complete the Electrical-Electronics Engineering Technology program.
2. Use college-wide resources.
3. Attribute fundamentals of control theory to select the best controller type for the given application.
4. Select the proper measurement device and apply it to the given application.
5. Plan, install and connect instruments and controllers to build a complete control system.
6. Design and build circuits to control motors.
7. Operate and program a PLC.

**Course Content**:

1. Overview of Control Theory.
2. Control Modes (on-off; PID).
3. Proximity sensors.
4. Process sensors.
5. Control relays.
6. Motor control.
7. PLCs.

**Texts and Readings**:

Industrial Control Electronics, Devices, Systems, & Applications; 3rd E.;

Author: Terry Bartelt; Publisher: Thomson/Delmar Learning;  ISBN: 1-4018-6292-6 or a similar textbook

Other: Handouts

 **Assessment**:

Quizzes

Exams

Laboratory Experiments

In class participation/attendance

**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. Design solutions for well-defined technical problems and assist with the engineering design of systems, components, or processes appropriate to the discipline.
3. Apply written, oral, and graphical communication in well-defined technical and non-technical environments; identify and use appropriate technical literature.
4. Conduct standard tests, measurements, and conduct, analyze, and interpret experiment results.
5. 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.}

 *AA-1503.1A Master Syllabus Format Approved:*

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