

## Automated Process Control (EST 1535)

**Instructor:** Alessandro Anzalone, Ph.D.  
**Class Location:** BSSB 218  
**Class Time:** Tuesdays 2:00pm to 4:45pm  
**Office Hour:** Wednesdays 10:00am to 12:00m, other times by appointment.  
**Office:** BSSB 213e  
**Phone:** (813) 253-7852  
**Fax:** (813) 253-7868  
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### Course Description:

Introduces modern control theory and the use of sensors, actuators, and controllers. The student will be introduced to state of the art control systems used in industry and the elements that comprise a closed-loop network.

### Course Outcomes:

Upon completion of the course the student should be able to:

1. Describe an automated process control system and identify its components.
2. Understand Pipe and instrumentation symbols and create P&ID drawings.
3. Describe the operation of sensors common to the manufacturing industry, such as: temperature, pressure, flow, level, position, force and light.
4. Describe the principles of PID control.
5. Identify the difference between process regulation and sequence control.
6. Operate an automated process control system.
7. Recommend a choice of control system.
8. Participate in the tuning of a control system.
9. Describe the maintenance required for a process control system.

### Textbook and Materials:

Automated Continuous Process Control, Carlos A. Smith, 2002, Wiley-Interscience, ISBN: 978-0471215783.

### Instructional Methods (including Examination Policies):

This course includes traditional lecture, class discussions and hands on demonstrations. The course will be supported with its own website in Blackboard (<https://hccfl.blackboard.com/>). Please make sure you visit frequently in order to get up to date information, course handouts, and announcements.

Students will be evaluated with laboratory experiences, a midterm, a class project, and a final exam.

1. Unexcused absences on test day will receive a zero for that test.
2. Tests will be closed book closed notes. Reference materials will be provided if required.
3. Tests will be short answer, T/F, multiple choices, and some problems.

4. Please contact me by email or phone if at all possible before the time of the test (leave a voice message) in the event you have to miss a test.
5. No retests will be given for any exams that have been taken.
6. Every student will be required to take the final exam.
7. Make up tests from excused illnesses must be made up within 2 weeks of the absence and the test may be of a different format than the class test.
8. If you are auditing this class, it must be declared at registration.
9. Some work will be competency-based and assessed accordingly.

**Grading System:** The final grades will be determined on the following basis:

90 - 100	A
80- 89	B
70 - 79	C
60 - 69	D
0 - 59	F

**Academic Dishonesty Policy:** All parties identified as cheating or plagiarizing on an exam, project or assignment will be assigned a grade zero on that item and subject to academic discipline in accordance with HCC policy.

**Attendance Policy:** It is important that you attend every class period and be on time. Missing class means that you miss some important material. Since this course is a cumulative experience, you will put yourself at an extreme disadvantage.

1. It is your responsibility to sign the attendance sheet provide at every class meeting.
2. If you are absent, it is your responsibility to get announcements, materials, and assignments before the next class period.
3. More than 3 absences per semester are considered excessive and will result in points taken off your final grade for the unexcused absences after the third absence. Please note that excused absences must be documented and may be death or illness of family members, personal illness, military duty, car trouble, etc.

**Request for Accommodation:** Any student whose disability falls within the American Disabilities Act (ADA) and requires accommodations should contact the Office of Services for Students with Disabilities. The Brandon office is located in the Student Services Building Room 109. You may also reach the office by phone at (813) 253-7914. Requests for accommodations should be submitted to the instructor within the first two weeks of the course.

**Religious Observances:** HCC will reasonably accommodate the religious observances, practices, and beliefs of students in its admissions, class attendance, and examination policies and work assignments. Students must notify instructors at least one week prior to a religious observance.

**Recording of Class Sessions:** A student shall not, without my express authorization, make or receive any recording, including but not limited to audio and video recordings, of any class, co-curricular meeting, organizational meeting, or meeting with me. Further, it is not permissible to post my class lectures/course materials on the web.

**Equity/Equal Access Policy:** Hillsborough Community College is an equal access/equal opportunity employer that makes employment and education-related decisions without regard to race, color, gender, religion, national origin, age, disability, sexual orientation, marital status or any other bias that is or may be prohibited by laws. In addition, the college does not discriminate in employment practices or in the admission and treatment of students. HCC is committed to equitable treatment for all students and employees and to a learning and working environment free of discrimination and harassment for current as well as future students and employees. The college provides equal educational opportunities for qualified individuals with disabilities and complies with, as well as, supports the Americans with Disabilities Act. HCC's Equity Officer ensures compliance with federal and state laws prohibiting discrimination and sexual harassment. Employees and students who believe they have been a victim of discrimination or sexual harassment should contact: Dr. Joan B. Holmes, Special Assistant to the President for Equity and Special Programs, District Administrative Offices, 39 Columbia Drive, Room 718, Tampa, FL 33606, Telephone: 813-253-7043, email: jholmes16@hccfl.edu.

**Class Schedule**

<b>Date</b>	<b>Activity</b>	<b>Assignment after class</b>
08/23	Introduction	Read Chapter 1
08/30	Chapter 1: Introduction	Read Chapter 2
09/06 09/13	Chapter 2: Process Characteristics	Read Chapter 3
09/20 09/27	Chapter 3: Feedback Controllers	Read Chapter 4
10/04 10/11	Chapter 4: Cascade Controllers	Study for Midterm
10/18	Midterm	Read Chapter 5
10/25 11/01 11/08	Chapter 5: Ratio, Override, and Selective Control	Read Chapter 6
11/15	Chapter 6: Block Diagrams and Stability	Read Chapter 7
11/24-11/25	<b>Thanksgiving (no classes)</b>	
11/22 11/29	Chapter 7: Feedforward Control	Study for Final Exam Submit Project
12/06	Final Exam	

This Class Schedule is subject to change.