

# Brazosport College

## Syllabus for PTAC 1454 – Industrial Processes

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### I. COURSE DESCRIPTION:

**PTAC 1454 - Industrial Processes CIP 4103010003**

The study of the common types of industrial processes. **Credit Hours: 4** (4 lecture, 0 lab)

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Chad Abney

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Ron Colwell

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Gregg Curry

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Mark Mehl

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Kenneth Resecker

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Ed Smolen

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Mark Stoltenberg

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Gary Hicks

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Jeff Detrick

January 2021

**A. Prerequisite:** Grade of “C” or better in **PTAC 1432** and **PTAC 1410**.

**Required skill level:** College - level reading and writing. Math: College-level with corequisite (placement code 3).

## **II. COURSE OBJECTIVES**

Explain and demonstrate the operation through simulation of various process control strategies used in industrial processes

- Close Loop
- Cascade
- Feed-forward
- Ratio
- Multi-variable

Explain and demonstrate the operation through simulation of equipment used in industrial processes.

- Pumps
- Heat Exchangers/Condensers
- Mixed Tanks
- Flash Tanks
- Boilers
- Furnaces
- Cooling Towers
- Compressors

Describe some common unit operations used in industrial processes

- pH Control
- Distillation

## **III. STUDENT LEARNING OUTCOMES**

<b>OUTCOME</b>	<b>METHOD OF ASSESSMENT</b>
Explain the operation of common instrumentation and process control strategies used in industrial processes	Exam 1
Explain the operation of common equipment used in industrial processes	Exam 2
Operate computer simulators of common industrial equipment and processes	Simulation/project grade.

## **IV. TEXTBOOK OR COURSE MATERIAL INFORMATION**

### **A. Textbook**

1. No textbook, materials provided by instructor.

Required course materials are available at the Brazosport College bookstore, on campus or online at <http://brazosport.edu/bookstore/home.html>. A student of this institution is not under any obligation to purchase a textbook from the college bookstore. The same textbook is/may also be available from an independent retailer, including an online retailer.

**For Distance Education Courses include the following:** Contact the Brazosport College Bookstore with a credit card for course materials. Phone: 979-230-3651. Fax: 979-230-3653. Email: [bookstore@brazosport.edu](mailto:bookstore@brazosport.edu). Website: <http://brazosport.edu/bookstore/home.html>

## **B. Course Outline**

The course will cover the components of industrial processes from the equipment/instruments which are the building blocks for a unit operation and then how the various unit operations form a chemical/refining plant. Many of these topics will be reinforced through computer simulation.

**This is a sample outline which may vary with individual instructors. It will also vary based on whether the course is a summer course or a fall/spring course. Students should contact their instructor for the outline of the course they are taking.**

### **Weeks 1-4:**

- Process Control

### **Weeks 5-12**

- Equipment

### **Weeks 12-15**

- Unit Operations

The course will be a capstone course, which will cover the components of industrial processes from the equipment/instruments which are the building blocks for a unit operation and then how the various unit operations form a chemical/refining plant. Most of these topics will be reinforced through computer simulation.

### **Important Semester Dates:**

Last Day to Withdraw from Classes– Check BC Academic Calendar at <http://catalog.brazosport.edu/index.php>

## **V. STUDENTS WITH DISABILITIES**

Brazosport College is committed to providing equal education opportunities to every student. BC offers services for individuals with special needs and capabilities including counseling, tutoring, equipment, and software to assist students with special needs. For student to receive any accommodation, documentation must be completed in the Office of Disability Services. Please contact Phil Robertson, Special Populations Counselor at 979-230-3236 for further information.

## **VI. TITLE IX STATEMENT**

Brazosport College faculty and staff are committed to supporting students and upholding the College District's non-discrimination policy. Under Title IX and Brazosport College's policy FFDA (Local), discrimination based on sex, gender, sexual orientation, gender identity, and gender expression is prohibited. If you experience an incident of discrimination, we encourage you to report it. While you may talk to a faculty or staff member at BC, please understand that they are "Responsible Employees" and must report what you tell them to college officials. You can also contact the Title IX Coordinators directly by using the contact information below. Additional information is found on the Sexual Misconduct webpage at [www.brazosport.edu/sexualmisconduct](http://www.brazosport.edu/sexualmisconduct).

## **VII. ACADEMIC HONESTY**

Brazosport College assumes that students eligible to perform on the college level are familiar with the ordinary rules governing proper conduct including academic honesty. The principle of academic honesty is that all work presented by you is yours alone. Academic dishonesty including, but not limited to, cheating, plagiarism, and collusion shall be treated appropriately.

Academic dishonesty violates both the policies of this course and the Student Code of Conduct. In this class, any occurrence of academic dishonesty will be referred to the Dean of Student Services for prompt adjudication, and may, at a minimum, result in F, in this course. Sanctions may be imposed beyond your grade in this course by the Dean of Student Services. Please refer to the Brazosport College Student Guide for more information. This is available online at <http://brazosport.edu/students/for-students/student-services/>.

## **VIII. ATTENDANCE AND WITHDRAWAL POLICIES**

Class attendance contributes to your final grade, but you must attend class to successfully complete the course. If you are unable to complete this course, you must complete and submit a withdrawal form with the registrar's office. If the student decides to drop out of the class, it is the responsibility of the student to initiate a withdrawal before the withdrawal deadline in order to get a "W" on their transcript. If this is not done the student will receive a grade based on test grades and class grades earned during their attendance and absence (i.e., zeros on all missed materials, exams, skills tests, and final exam).

## **IX. COURSE REQUIREMENTS AND GRADING POLICY TESTING MAKE-UP POLICY**

The final grade will be based on the following:

Simulation/Class Assignments/Participation	40%
Lecture Exams/Final	60%

Grades are assigned as follows:

Grade	Final Average
A	90-100
B	80-89
C	70-79
D	60-69
F	Below 60

**1. Class Attendance**

Much of the learning occurs in the classroom setting and cannot be made up by reading the textbook. Therefore, class participation is essential to your learning and attendance will be taken.

**2. Class Participation**

Your participation grade is based on the quality (not frequency) of your contribution. Those receiving high grades in class participation will be those who:

- Are prepared for class
- Arrive to class on time
- Have excellent attendance
- Make comments and ask questions that significantly contribute to the learning environment of the class
- Participate in simulator exercises and class assignments

**X. STUDENT CONDUCT STATEMENT**

Students are expected to be aware of and follow the Brazosport College Student Code of Conduct. Students have violated the Code if they “fail to comply with any lawful directions, verbal or written, of any official at BC.” Lawful directions include precautions and requirements taken to prevent the spread of COVID-19 at Brazosport College. Students who do not follow safety requirements, including the wearing of a mask, may be removed from class by their instructor and referred to the Dean of Student Services.

**XI. CAMPUS CLOSURE STATEMENT**

Brazosport College is committed to the health and safety of all students, staff, and faculty and adheres to all federal and state guidelines. The College intends to stay open for the duration of the semester and provide access to classes and support services on campus in the safest way possible. The College will also comply with lawful orders given by applicable authorities, including the Governor of Texas, up to and including campus closure. It is possible that on campus activities may be moved online and/or postpone if such orders are given.

## **XII. STUDENT RESPONSIBILITIES**

Students are expected to fully participate in this course. The following criteria are intended to assist you in being successful in this course:

1. Understand the syllabus requirements
2. Use appropriate time management skills
3. Communicate with the instructor
4. Complete course work on time, and
5. Utilize online components (such as Desire2Learn) as required.

## **XIII. OTHER STUDENT SERVICES INFORMATION**

Information about the Library is available at <http://brazosport.edu/students/for-students/places-services/library/about-the-library/> or by calling 979-230-3310.

For assistance with online courses, an open computer lab, online and make-up testing, audio/visual services, and study skills, visit Learning Services next to the Library, call 979-230-3253, or visit <http://brazosport.edu/students/for-students/places-services/learning-services/>.

For drop-in math tutoring, the writing center, supplemental instruction and other tutoring including e-tutoring, visit the Student Success Center, call 979-230-3527, or visit <http://brazosport.edu/students/for-students/student-success-center/math-center/>.

To contact the Physical Sciences and Process Technologies Department call 979-230-3618.

The Student Services provides assistance in the following:

Counseling and Advising	979-230-3040
Financial Aid	979-230-3294
Student Life	979-230-3355

To reach the Information Technology Department for computer, email, or other technical assistance call the Helpdesk at 979-230-3266.



Get the information you need – when you need it. Click <http://geni.us/BRAZO> to install **BC Connect** on your mobile device to receive reminders, explore careers, map your educational plan, be in the know about events, find out about scholarships, achieve your goals and much more.