

This is a SouthArk Master Syllabus. The course syllabus distributed by the instructor may include additional requirements, must be followed by the student in the given term, and is considered to supersede the Master Syllabus.

Course Number
PTEC 2364

Course Title
PROCESS TECHNOLOGY II: SYSTEMS

Course Description

Prerequisites: PTEC 1113, PTEC 1123, PTEC1133, PTEC 1244, CHEM 1064 or 1024, and PHYS 2024 or PHYS 1114. This is the study of the interrelation of process equipment and process systems including related scientific principles. Students will arrange process equipment into basic systems; describe the purpose and function of specific process systems; explain how factors affecting process systems are controlled under normal conditions; and recognize abnormal process conditions.

College Mission

South Arkansas Community College promotes excellence in learning, teaching, and service; provides lifelong educational opportunities; and serves as a cultural, intellectual, and economic resource for the community.

College Wide Student Learner Outcomes

Critical Thinking Responsibility Communication

ACTS Course **Program Course**

ACTS Outcomes

Program Outcomes

1. PTEC TC and AAS graduates will be able to describe and demonstrate use of typical process industry operator level nomenclature, mathematics, physics, and chemistry.
2. PTEC TC and AAS graduates will be able to describe appropriately safe, healthful, and environmentally protective activities as specified by regulations and as practiced by process industries.
3. PTEC TC and AAS graduates will be able to relate principles of quality to process industry practices.
4. PTEC TC and AAS graduates will be able to describe and demonstrate (or simulate) standard hand and distributed control system (DCS) operation of core process industry equipment such as piping, valves, vessels, heat exchangers, pumps and compressors, mixers, separators, utilities and instruments, and AAS graduates will further demonstrate (or simulate) standard operation of distillation units and chemical reactors.
5. PTEC TC and AAS graduates will be able to describe and AAS graduates will further demonstrate (or simulate) process industry troubleshooting practices.

Course Learner Outcomes

CLO #	Course Learner Outcomes (CLO)	Unit Outcomes/ Competencies	ACTS Outcomes	Program Outcomes	Critical Thinking	Communication	Responsibility	Assessment
CLO1	Identify (virtual) major components and describe function and use of process industry utility systems such as material storage, water, air, nitrogen, natural & fuel gas, relief and flare systems.	1-17, 20-23,25, 26,38-40		1-5	CT-1			Exam

CLO2	Identify (virtual) major components and describe function and use of process industry utility systems such as electrical, refrigeration, and steam generation and distribution systems.	18, 24-26, 38-40		1-5				Exam
CLO3	Identify (virtual) major components, and describe function and use of, and simulate operation of blending & chemical reactor systems.	22,27,28, 38-40		1-5				Exam
CLO4	Identify (live & virtual) major components, and describe function and use of, and operate/simulate operation of distillation systems.	33,34, 38-40		1-5				Exam
CLO5	Identify (live & virtual) major components, and describe function and use of, separation/stripping/filtration, ad/absorption, and dehydration systems.	29-32, 35-40		1-5				Exam
CLO6	Demonstrate understanding and ability to follow operating procedures, economically operate, and troubleshoot systems on a Simtronics Simulator.	21,23,34, 38-40		1-5				Exam

Unit Outcomes/ Competencies/ Objectives

1. Describe why process industries are organized into systems.
2. Identify (virtual) components and describe function and use of potable water systems.
3. Identify (virtual) components and describe function and use of septic systems.
4. Identify (virtual) components and describe function and use of utility water systems.
5. Identify (virtual) components and describe function and use of cooling tower and cooling water systems.
6. Identify (virtual) components and describe function and use of laboratory water systems.
7. Identify (virtual) components and describe function and use of fire water systems.
8. Identify (virtual) components and describe function and use of process wastewater & ww treatment systems.
9. Identify (virtual) components and describe function and use of stormwater water systems.
10. Identify (virtual) components and describe function and use of utility air systems.
11. Identify (virtual) components and describe function and use of instrument air systems.
12. Identify (virtual) components and describe function and use of breathing air systems.
13. Identify (virtual) components and describe function and use of nitrogen systems.
14. Identify (virtual) components and describe function and use of hydrogen, oxygen, and ozone systems.
15. Identify (virtual) components and describe function and use of natural gas systems.
16. Identify (virtual) components and describe function and use of fuel gas systems.
17. Identify (virtual) components and describe function and use of relief & flare systems.
18. Identify (virtual) components and describe function and use of electrical power generation & distribution systems.
19. Identify (virtual) components and describe function and use of thermal oxidation systems.
20. Identify (virtual) components and describe function and use of material storage systems.
21. Simulate operation of Simtronics pump and tank system.
22. Identify (virtual) components and describe function and use of blending systems.
23. Simulate operation of Simtronics mix tank system.
24. Identify (virtual) components and describe function and use of refrigeration systems.
25. Identify (virtual) components and describe function and use of steam generation, distribution & condense systems.
26. Identify (virtual) components and describe function and use of boilers and boiler feedwater systems.
27. Identify (virtual) components and describe function and use of chemical mixing systems.
28. Identify (virtual) components and describe function and use of chemical reactors.
29. Identify (virtual) components and describe function and use of separation systems.
30. Identify (virtual) components and describe function and use of extraction systems.
31. Identify (virtual) components and describe function and use of absorption systems.
32. Identify (virtual) components and describe function and use of solvent recovery systems.
33. Identify (virtual) components and describe function and use of distillation systems.
34. Demonstrate operation of the Pignat Distillation trainer.
35. Identify (virtual) components and describe function and use of adsorption systems.
36. Identify (virtual) components and describe function and use of dehydration systems.
37. Identify (virtual) components and describe function and use of filtration systems.

- 38. Describe (& perform various) process industry process technician and operator responsibilities.
- 39. Describe (& demonstrate/simulate) process technician/operator role in system troubleshooting.

Assessment Description(s)

Major Test and Final Average Grading Scale:

- 90 - 100 = A
- 80 - 89 = B
- 70 - 79 = C
- 60 - 69 = D
- 59 & BELOW = F

Materials and Technological Requirements

Thomas, Charles E. Process Technology Equipment & Systems. ISBN 9781285444581. Delmar, Cengage Learning. 3rd Edition. 2011.

Wear good closed-toe leather boots and appropriate professional technician/operator apparel.

Communication to student via BlackBoard and student SouthArk email address. Communication to instructor by text msg to 870/814-9239 and/or <DCarty@southark.edu>. Check for messages daily.

NAPTA web based training (WBT) student subscription:

Go to: <http://napta.exxtend.com/index.pl?pg=Login>

Select SouthArkCC from "Company" drop-down menu.

Enter your SouthArk Login ID [usually all caps: FIRST INITIAL then LAST NAME with no spaces, e.g., DCARTY]

Enter your temporary password: Napta1

Login

You will be prompted to change password (use the password hint field)

Home page displays "To Do List - Due Before" – this is the list of modules that are assigned to you.

Click on Module. Sometimes browser must be refreshed to access a module test.

Module Description

Instructions

Run Course

Note: If WBT Module isn't completed in one session, it cannot be bookmarked for return at the stopping point. The student must return to the beginning and Run Course again to complete. After completing each of the modules, take the module test. Once you have completed the reading, click on "Exit the Module." This will return you to the course page. Click on "Final Test" to begin the test process.

Class Attendance Policy

Students are expected to attend all classes in which they are enrolled. If a student is absent from a class session, it is the student's responsibility to make arrangements to complete or make up any work missed. No make-up work for missed classes will be allowed without the approval of the instructor. Students who enroll late must assume all responsibility for work missed. Classes not attended as a result of late enrollment may be counted toward excessive absences. Students not attending the entire class period may be counted absent for that period. An instructor may drop students with a grade of "WE" if students have been absent for an excessive number of days. Warning letters will be sent to the students advising them of the consequences of nonattendance and urging them to contact their instructors immediately. Excessive absences are defined as follows:

Regular Semester

- Courses which meet once a week 2 absences
- Courses that meet twice per week 3 absences
- Courses that meet four times per week 5 absences

Summer Session

- Courses that meet four times per week in a five week session 3 absences
- Courses which meet two evenings per week in a 10 week session 3 absences

Students enrolled in special programs or individualized instruction should contact their program director/instructor regarding specific attendance requirements for the program/course. Some of the selective-admission, health-science programs have specific criteria regarding attendance. Students are encouraged to refer to program policies in these matters.

Jury Duty/Military/Official School Function

Scheduled absences are those that occur due to college-related activities or as a result of summons to jury duty or military duty. Classes missed as a result of scheduled absences will not be counted as excessive absences if the

instructor is notified and provided documentation prior to the absence(s). Make-up work for scheduled absences will be at the discretion of the instructor.

In all instances, documentation must be provided to the instructor within 24 hours of receipt. Documentation should come from an appropriate party on letterhead or other official stationery with a signature and contact information. Documentation should list the corresponding dates of the leave.

Medical leave

For medical-related absences, documentation must include written notice from the treating medical professional documenting time needed off related to medical reasons and time student may resume classes. The medical reason does not need to be listed on the documentation; the documentation must include only that there is a medical reason, the amount of time the student needs to be absent, and the time the student should be able to return to classes. Students who elect to work at home while on excused leave must meet with their instructors to make arrangements to do so. Working on coursework while on medical leave is not a requirement but can be requested by students. If students request that they be allowed to work at home while on an excused leave, the instructor will make every reasonable effort to ensure that the student is able to do so.

For students who have a medical condition necessitating time off or accommodation:

- 1) They may work at home on assignments if they choose to if on medical leave approved by a medical professional
- 2) Receive appropriate accommodations related to coursework (i.e., excused from labs with potentially harmful chemicals, have a larger desk, etc.)
- 3) Resume their studies where they left off once they return to classes
- 4) Be allowed to make up any missed work related to medical leave
- 5) Receive incompletes on their transcripts until coursework is completed, according to the incomplete grade contract.
- 6) Be given a reasonable time frame in which to complete missed coursework

Academic Honesty Policy

Students enrolled at South Arkansas Community College are expected at all times to uphold standards of integrity. Students are expected to perform honestly and to work in every way possible to eliminate academic dishonesty. Academic dishonesty includes cheating and plagiarism, which are defined as follows:

- Cheating is an attempt to deceive the instructor in his/her effort to evaluate fairly an academic exercise. Cheating includes copying another student's homework, class work, or required project (in whole or in part) and/or presenting another's work as the student's own. Cheating also includes giving, receiving, offering, and/or soliciting information on a quiz, test, or examination.
- Plagiarism is the copying of any published work such as books, magazines, audiovisual programs, electronic media, and films or copying the theme or manuscript of another student. It is plagiarism when one uses direct quotations without proper credit or when one uses the ideas of another without giving proper credit. When three or more consecutive words are borrowed, the borrowing should be recognized by the use of quotation marks and proper parenthetical and bibliographic notations.

If, upon investigation, the instructor determines that the student is guilty of cheating or plagiarism, the following penalties will apply:

- The student will receive a penalty of no less than a zero on the work in question.
- The instructor will submit a Student Academic Misconduct Form, written report of the incident, to the appropriate dean.
- The dean will submit form to Vice President for Learning to determine disciplinary action.
- The Vice President for Learning will determine whether further disciplinary action will be taken.
- All decisions may be appealed for review through the college's academic appeals procedure.

Equal Opportunity-Affirmative Action Statement

South Arkansas Community College does not discriminate on the basis of age, race, color, creed, gender, religion, marital status, veteran's status, national origin, disability, or sexual orientation in making decisions regarding employment, student admission, or other functions, operations, or activities.

Library Services

Library Homepage: <http://southark.libguides.com/homepage> Library Contact: LibraryStaff@southark.edu or 870.864.7115

Procedures to Accommodate Students with Disabilities:

If you need reasonable accommodations because of a disability, please report this to the Vice President of Student Services with proper documentation. . VPSS Contact: 870.875.7262

The Early Alert System

In an effort to ensure student retention and success, South Arkansas Community College employs an Early Alert System to identify and support at-risk students as soon as possible in a given semester. The intent of Early Alert is to provide this assistance while there is still time to address behaviors or issues that have the potential of preventing students from completing their courses and degree plans. Students referred through the Early Alert System will be required to work on a corrective action plan with their student advising coach and to include attendance accountability and mandatory academic tutoring either in the academic division or in the Testing and Learning Center (TLC).

Once the Student Advising Coach has met with the referred student, and again when the student has met the prescribed corrective actions, the coach will update the Early Alert System so that the instructor is kept informed of the progress in resolving issues.

Behavioral Review Team

At South Arkansas Community College (SouthArk), we are committed to proactive leadership in student wellbeing and campus safety. By focusing on prevention and early intervention with campus situations that involve any person experiencing distress or engaging in harmful or disruptive behaviors, the BRT will serve as the coordinating hub of existing resources to develop intervention and support strategies and offer case management. Students, faculty, staff, and campus guests are encouraged to report any person on campus who is a concern. BRT Contact: 870.875.7262
BRT@southark.edu

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