



**Bioprocess Manufacturing Technology
 Credential: Certificate in Bioprocess
 Manufacturing Technology
 C5044000**

This program prepares individuals to enter the workforce with biological products manufacturing facilities.

Course work includes computer or math skill development, exposure to the industrial work environment, basic bioprocessing operations, and a major course elective.

Graduates should be qualified to become entry-level trainees in bioprocess manufacturing and bioprocess quality control.

Program Length: 2 semesters

Career Pathway Options: Certificate in Bioprocess Manufacturing Technology, Associate in Applied Science Degree in Bioprocess Manufacturing Technology.

Program Site: Lee Campus – Day or Evening Program

Course Requirements for Bioprocess Manufacturing Technology Certificate

A. Required Major Core Courses (8 SHC)

BPM 110	Bioprocess Practices	3-4-5
PTC 110	Industrial Environment	3-0-3

B. Other Courses (7 SHC)

CIS 110	Introduction to Computers	2-2-3
	OR	
MAT 121	Algebra & Trigonometry	2-2-3
	OR	
MAT 161	College Algebra	3-0-3
ISC 110	Workplace Safety	1-0-1
	Major Elective	3

Major Elective may be selected from the following list:

BIO 110	Principles of Biology	3-3-4
CHM 131	Intro to Chemistry	3-0-3
CHM 131A	Intro to Chemistry Lab	0-3-1
CIS 110	Intro to Computers	2-2-3
ISC 221	Statistical Quality Control	3-0-3
MAT 121	Algebra & Trigonometry	2-2-3
MAT 161	College Algebra	3-0-3

Total Semester Hours Credit required for Graduation: 15

Semester Curriculum for Bioprocess Manufacturing Technology Certificate

First Semester (Fall)		C-L-SHC
CIS 110	Introduction to Computers	2-2-3
	OR	
MAT 121	Algebra and Trigonometry	2-2-3
	OR	
MAT 161	College Algebra	3-0-3
PTC 110	Industrial Environment	3-0-3
ISC 110	Workplace Safety	<u>1-0-1</u>
		7
2 nd Semester (Spring)		
BPM 110	Bioprocess Practices	3-4-5
	Major Elective	<u>3</u>
		8

Total Semester Hours Credit: 15

BPM 110 Biomufacturing Practice 3-4-5

This course provides a study of plant operations including various plant utility systems and detailed study of the varied plant environments in a biomufacturing facility. Emphasis is placed on quality mindset and principles of validation through applications of monitoring procedures. Upon completion, students should be able to appreciate the rigors of industry regulation and its necessity.

CIS 110 Intro to Computers 2-2-3

This course provides an introduction to computers and computing. Topics include the impact of computers on society, ethical issues, and hardware/software applications, including spreadsheets, databases, word processors, graphics, the Internet, and operating systems. Upon completion, students should be able to demonstrate an understanding of the role and function of computers and use the computer to solve problems. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.*

ISC 110 Workplace Safety 1-0-1

This course introduces the basic concepts of workplace safety. Topics include fire, ladders, lifting, lock-out/tag-out, personal protective devices, and other workplace safety issues related to OSHA compliance. Upon completion, students should be able to demonstrate an understanding of the components of a safe workplace.

MAT 121 Algebra/Trigonometry I 2-2-3

Prerequisites: CPT arithmetic score of 57 and algebra score of 38, or ACT score of 18, or SAT mathematics score of 450, or successful completion of developmental requirements

This course provides an integrated approach to technology and the skills required to manipulate, display, and interpret mathematical functions and formulas used in problem solving. Topics include simplification, evaluation, and solving of algebraic and radical functions; complex numbers; right triangle trigonometry; systems of equations; and the use of technology. Upon completion, students should be able to demonstrate an understanding of the use of mathematics and technology to solve problems and analyze and communicate results.

MAT 161 College Algebra

3-0-3

Prerequisites: CPT arithmetic score of 57 and algebra score of 70, or ACT score of 18, or SAT mathematics score of 450, or successful completion of developmental requirements

This course provides an integrated technological approach to algebraic topics used in problem solving. Emphasis is placed on applications involving equations and inequalities; polynomial, rational, exponential and logarithmic functions; and graphing and data analysis/modeling. Upon completion, students should be able to choose an appropriate model to fit a data set and use the model for analysis and prediction. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics for the Associate in Arts Degree.*

PTC 110 Industrial Environment

3-0-3

This course introduces the pharmaceutical industry, including a broad overview of work in this field. Emphasis is placed on good manufacturing practices (GMP), work conduct, company organization, job expectations, personal safety, hygiene, and company rules and regulations. Upon completion, students should be able to follow good manufacturing practice regulations and inspect a pharmaceutical manufacturing facility for compliance with GMP.