

BIOMANUFACTURING TECHNOLOGY, ADVANCED TECHNICAL CERTIFICATE

program information

Are you passionate about making a difference in people's lives through science and innovation? If so, the Advanced Technical Certificate in Biomanufacturing at San Jacinto College could be your next step. Designed for individuals seeking specialized hands-on training in the biotechnology industry, this program offers advanced instruction in the core areas of upstream and downstream processing, quality assurance, and regulatory compliance. With access to state-of-the-art equipment and real-world bioprocessing labs—including fill-finish operations—students gain the hands-on skills required in modern biopharmaceutical production environments.

As a program graduate, you will be prepared to start a career as a:

- Manufacturing Associate
- Biomanufacturing Technician – Downstream
- Biomanufacturing Technician – Upstream

The Advanced Technical Certificate builds on foundational knowledge and prepares candidates for immediate entry into the workforce or career advancement in the fast-growing biomanufacturing sector. Courses are offered at the South Campus and Generation Park Campus, beginning Fall 2025. For more information or to apply, contact Program Director Dr. Nicole Bradley at nicole.bradley@sjcd.edu.

Career opportunities

Houston, Texas offers strong career opportunities in biomanufacturing, driven by its growing biotech sector, renowned medical institutions, and expanding pharmaceutical and biologics production facilities.

Earning potential

Biomedical Technicians: \$61,952+¹

¹ Source: <https://govsalaries.com/salaries/biomedical-technician-salary/texas> (<https://govsalaries.com/salaries/biomedical-technician-salary/texas/>)

campus

Generation Park

South Campus

Program goals and student learning outcomes

Program Goals:

The Advanced Technical Certificate in Biomanufacturing is designed to prepare students with the advanced technical knowledge and hands-on experience necessary for employment in the biotechnology and biopharmaceutical manufacturing industries. The program aims to:

1. Provide students with in-depth knowledge of biomanufacturing processes, including upstream and downstream operations.

2. Equip students with practical skills in laboratory methods, instrumentation, and quality control procedures used in the biosciences.
3. Foster an understanding of regulatory and quality assurance standards applicable to the production of medical and industrial biotechnology products.
4. Prepare students for immediate employment or career advancement in roles such as Biomanufacturing Technician or Manufacturing Associate.
5. Support students in developing professional skills necessary for success in a regulated, team-oriented, and safety-conscious industry environment.

Student Learning Outcomes:

Upon successful completion of the Advanced Technical Certificate in Biomanufacturing, students will be able to:

1. Demonstrate foundational knowledge of biotechnology by explaining key concepts in molecular biology, genetic engineering, and the role of biotechnology in healthcare and industry. (*Intro to Biotechnology*)
2. Apply laboratory skills and techniques used in biomanufacturing, including aseptic technique, pipetting, and spectrophotometry. (*Biotechnology Laboratory Methods and Techniques*)
3. Interpret and implement quality assurance and control protocols relevant to bioscience industries, including Good Manufacturing Practices (GMP) and standard operating procedures (SOPs). (*Quality Assurance for Biosciences*)
4. Operate and troubleshoot advanced laboratory instrumentation used in bioprocessing and analytical testing. (*Biotechnology Laboratory Instrumentation*)
5. Perform cell culture techniques for both research and production settings, including maintenance, subculturing, and harvesting of cells. (*Cell Culture Techniques*)
6. Explain the applications of biotechnology in medical contexts, including diagnostics, therapeutics, and vaccine production. (*Medical Biotechnology*)

plan of study

ABIO-MFG

First Year		
First Term		Credits
BITC 1411	Introduction to Biotechnology	4
BITC 1340	Quality Assurance for the Biosciences	3
BITC 1402	Biotechnology Laboratory Methods and Techniques	4
Credits		11
Second Term		
BITC 2411	Biotechnology Laboratory Instrumentation	4
BITC 2431	Cell Culture Techniques	4
BITC 2445	Medical Biotechnology	4
Credits		12
Total Credits		23

Capstone Experience: The Students will qualify for the NIBRT Global Assessment Credentials