BIOMANUFACTURING TECHNOLOGY, LEVEL 2 CERTIFICATE

From Lab to Life: Your Biotech Career Starts Here

San Jacinto College's Biomanufacturing Technology program equips students with specialized, hands-on training in the biotechnology industry. Biotechnology is the use of living systems, cells, and biological processes to develop products that improve our health and quality of life. Biomanufacturing is where biotechnology meets large-scale production to create medicines, vaccines, chemicals, and other products.

The program offers advanced instruction in core areas such as upstream and downstream processing, quality assurance, and regulatory compliance. Designed for individuals seeking to enhance their foundational knowledge, this pathway prepares candidates for immediate entry into the workforce or career advancement in the fast-growing biomanufacturing sector.

Career Opportunities and Income

Visit sanjac.edu (https://www.sanjac.edu/programs/areas-of-study/stem/biomanufacturing-tech/) for information regarding career opportunities and potential earnings in the Greater Houston region.

Learning & Career Pathway

This learning pathway — a series of related and "stacked" certificates and degrees — includes the following awards. You can start at any point on the path and earn certificates on your way to completing the degree.

- Biomanufacturing Technology, Occupational Certificate (https://publications.sanjac.edu/areas-study/science-technology-engineering-math/biomanufacturing-tech-occupational-certificate/) (6 months)
- Biomanufacturing Technology, Level II Certificate (https://publications.sanjac.edu/areas-study/science-technology-engineering-math/biomanufacturing-tech-level-2-certificate-technology/) (1.5 years)
- Biomanufacturing Technology, Associate of Applied Science Degree (https://publications.sanjac.edu/areas-study/science-technology-engineering-math/biomanufacturing-tech-aas/) (2 years)

The **Advanced Technical Certificate (ATC)** in Biomanufacturing is designed for students who already hold an associate's or bachelor's degree. Providing focused, specialized training to build advanced skills for industry needs, the ATC offers a faster path to career entry or advancement in this field. If you have a prior degree and want to gain expertise in biomanufacturing, this certificate is an efficient way to upskill.

- Biomanufacturing Technology, Advanced Technical Certificate (https://publications.sanjac.edu/areas-study/science-technology-engineering-math/biomanufacturing-tech-advanced-tech-certificate/) (1 year)

Learning Outcomes and Career Skills

A student completing the last award in the pathway will be able to:

- Follow Standard Operating Procedures (SOP).
- Record results following Good Document Practices (GDP).
- Conduct all processes under Good Manufacturing Practices (GMP) standards.
- Exhibit clean and safe work practices and procedures.
- Observe and interpret work conditions and report unsafe conditions.
- Prepare, maintain and troubleshoot biomanufacturing process equipment.
- Prepare materials and properly store media, buffers, solutions, and reagent batches.
- Perform cell culture and fermentation.
- Prepare, initiate (inoculation), and monitor (media addition) cell culture.
- Perform scale-up operations.
- Execute sampling and assessment of product for release.
- Perform testing and data analysis.
- Perform microbiology and chemical testing.
- Apply physics and chemistry involved in common manufacturing processes.
- Demonstrate ability to perform basic upstream and downstream testing.
- Interpret and report aberrant parameters and results.
- Perform product purification.
- Perform filtration and purification of released product.
- Apply quality control and quality assurance methods.
- Exhibit quality communication and collaboration skills.

Locations

- Generation Park (https://www.sanjac.edu/about/locations/generation-park/)
- South (https://www.sanjac.edu/about/locations/south/)

College Admission

San Jacinto College is an open admission institution. All students are welcome to apply and will be admitted to the College. You may begin the process on the College's "How to Apply (https://www.sanjac.edu/admissions/how-to-apply/)" webpage.

Program Admission

In addition to being admitted to the College, students must also be admitted to the Biomanufacturing Technology program, which has additional requirements and/or steps. Meeting the minimum admission requirements does not guarantee acceptance into the program.

Plan of Study

5BIO-MFG

First Year		
First Term		**Credits**
Select one of the following:		4
BIOL 1306 & BIOL 1106	Biology for Science Majors I (lecture) and Biology for Science Majors I (lab)	
BIOL 2301 & BIOL 2101	Anatomy and Physiology I (Lecture) and Anatomy and Physiology I (Lab)	
BITC 1411	Introduction to Biotechnology	4
BITC 1191	Special Topics in Biological Technology/ Technician	1
BCIS 1305	Business Computer Applications	3
	Credits	**12**
Second Term		
BITC 1340	Quality Assurance for the Biosciences	3
BITC 2411	Biotechnology Laboratory Instrumentation	4
BITC 2277	Product Development to Commercialization	2
BITC 1402	Biotechnology Laboratory Methods and Techniques	4
	Credits	**13**
Second Year		
First Term		
BITC 2445	Medical Biotechnology	4
BITC 2475	Upstream and Downstream Manufacturing of Biologics	4
BITC 2431	Cell Culture Techniques	4
	Credits	**12**
	Total Credits	**37**

Capstone Experience: The students will qualify for the NIBRT Global assessments Credentials.