



Engineering
Accreditation
Commission

	VaughnCollege <small>of aeronautics and technology</small>
	Bachelor of Science in Mechatronic Engineering
	COMPLIANCE WITH EAC ABET POLICY

Department of Engineering and Technology Mission Statement

The mission of the department of engineering and technology is to provide career-oriented education, support application-oriented research, and offer service in the public interest. Consistent with this mission, the primary goals of the department of engineering and technology is to produce a versatile engineering technology graduate capable of growth within industry, prepared to pursue advanced education, and to contribute to the economic development of the country.

The engineering and technology department at Vaughn College implemented a set of in-class and out-of-class academic activities with the intent to prepare students for the growing demands of today's technology as well as to prepare them for both workplace and graduate study. These activities intend to instill a mind-set in our students that changes in technology are constant and that lifelong learning is necessary to meet future professional challenges.

Program Description

Consistent with the mission, the BS mechatronic program is designed to provide career, research, and engineering application-oriented education to our students. The program provides a link between academia and industry; and provides students with the knowledge of analytical, computational and experimental methods. Core courses include a strong foundation in mechanical engineering and electronics with emphasis on control and automation. Students choose technical electives in engineering analysis, design, control, power systems, and computer programming. In the last year of the program, students will work on design projects related to mechatronics components development.

The BS mechatronic engineering program strives to provide an in-depth application of engineering to our students with a focus on engineering design, analysis, programming, automation and robotics. The main focus of the program is to give our students the necessary skills in all aspects of mechatronic engineering to find employment in industry. To this end we have initiated a curriculum that incorporates leading edge equipment in automation, robotics, control system, mechanical testing, thermo-fluid, computer aided design, computer additive

manufacturing, and computer aided engineering software that allows the student to go from a preliminary product design to a mechatronics system development through several iterations. The program instills a broad-based understanding of the fundamental technical subject areas associated with mechatronic engineering so they are ready for immediate employment in industry or graduate study.

Program Educational Objectives

The BS Mechatronic engineering program educational objectives are developed to prepare students for the post-graduation activities. With input from industry advisory members and alumni, faculty members of the Mechatronic engineering program have designed a set of program educational objectives. These program objectives are intended to produce versatile engineering graduates who:

1. Will be successful and in their chosen career. graduates will obtain positions that require design, development, analysis, control, and automation of mechatronic systems and processes.
2. Will pursue graduate program, professional and/or continued education.
3. Will conduct themselves as responsible members of society through involvement in community and professional engagement.

Student Learning Outcomes

The BS Mechatronic Engineering program seeks to provide an engaging educational experience for students. These form the basis for particular abilities that students should be able to demonstrate prior to graduation. These abilities coincide with new EAC ABET criterion 3 (1) through (7) student outcomes requirements as presented below:

1. Graduate of mechatronic engineering will demonstrate an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. Graduate of mechatronic engineering will demonstrate an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. Graduate of mechatronic engineering will demonstrate an ability to communicate effectively with a range of audiences
4. Graduate of mechatronic engineering will demonstrate an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. Graduate of mechatronic engineering will demonstrate an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. Graduate of mechatronic engineering will demonstrate an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. Graduate of mechatronic engineering will demonstrate an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Assessment Process and Plan

To quantitatively measure the students' attainment of the student outcomes, only the student outcomes assessment results included in the Faculty Course Assessment Report (FCAR) is used. The data from assessment results in the FCARs are compiled and graphed in the Mechatronic Engineering Assessment Report. The assessment is conducted on an annual basis during the fall or spring semester with assessment taking place in higher level engineering and program's design courses including capstone degree project. No more than four, but usually two to three courses will be used to assess an outcome as a way to achieve "triangulation" of the result. In addition, other assessment tools such as Exit Survey, Alumni Survey, Internship survey, Employer survey, and Tech Day Capstone Evaluation Survey by Industry advisory members that program uses for continuous improvement. These constituents feedback surveys are used to address the currency of program educational objectives and attainment of student outcomes.

Assessment Schedule and Frequency

ASSESSMENT TYPE	Year & Semester when Data Were Collected	FREQUENCY OF ASSESSMENT	DOCUMENTS LOCATION
Faculty Course Assessment Reports (FCARS)	Spring 2024, Spring 2023, and Fall 2022	Annually	Available during Site Visit
Program Assessment Report	Spring 2024, Spring 2023, and Fall 2022	Annually	Disseminating in VCJET Journal Annually and Available during Site Visit
Exit Surveys		Rolling Basis	
Alumni Survey		Rolling Basis	
Internship Surveys		Rolling Basis	
Employer Surveys		Rolling Basis	
Tech Day Surveys of Capstone Evaluation by Industry Advisory Board		Rolling Basis	
PEO's Relevancy Surveys by Students and Alumni		Every 3 Years	Available during Site Visit
PEO's Relevancy Surveys by IAC		Every 3 Years	Available during Site Visit

The BS Mechatronic Engineering Program Enrollment and Graduation Data

Academic Year	Program Enrollment	Program Graduation Numbers
2023-2024	50	21
2022-2023	60	18
2021-2022	79	12
2020-2021	78	7

Why We're Nonprofit

As a nonprofit (not-for-profit) college, Vaughn is in the business of training skilled professionals to make a difference in the world – not gaining profit, revenue, or producing dividends for shareholders. In keeping with our commitment to your education, we invest our resources back into degree programs and into your student experience.

While many other colleges have raised tuition, **Vaughn has been able to keep costs low as a nonprofit college and has only moderately increased tuition when necessary.** Lower tuition means less student loan debt for students.

For Vaughn College, nonprofit is more than a status; it is a valuable opportunity to invest in the lives of students who will go out and impact the world.