

Pre-Engineering

Associate in Science Degree

Why Pre-Engineering?

The word "engineer" is synonymous with inventor, designer, and researcher. Engineers are builders, innovators, and critical thinkers. They are responsible for building bridges and roads, developing fuel-cell technology for our vehicles, researching cures for cancer, and everything in between. Engineering is a high demand field with many specializations including Aerospace, Biomedical, Chemical, Civil, Computer, Electrical, Environmental, Material, Mechanical, and more.

Why Bay College?

Bay College provides a solid foundation for a degree in Engineering or Engineering Technology. Students can take Calculus I, Calculus II, Calculus III, Differential Equations, and Linear Algebra math courses, and in some cases Statistics, required for their engineering degree at Bay College. Depending on one's engineering specialty (for example Chemical or Mechanical Engineering), students can take their General Chemistry I and II, Organic Chemistry I and II, Elements of Physics I and II or Engineering Physics I and II, Statics, Dynamics, Biology I and II, and/or Anatomy and Physiology I and II courses at Bay. Students can also take required General Education (English, Humanities, and Social Sciences) courses at Bay College. Instead of being in a classroom lecture with 100 or 200 students, as is typical at most universities, students get much more one-on-one attention with class sizes averaging 15-25 students. Courses transfer with ease, and Bay instructors are passionate about teaching.

Beyond Bay College

Students interested in transferring to a four-year institution to obtain a bachelor's degree or higher may find opportunities in the following areas of study:

- **Civil Engineering**
- **Computer Engineering**
- **Electrical Engineering**
- **Environmental Engineering**
- **Mechanical Engineering**
- **Nuclear Engineering**

Career Opportunities

A degree in Engineering opens the door to many careers in a diverse and growing field. Students can go on to be many things, such as:

- **Biomedical Engineers**
- **Software Engineers**
- **Robotics Engineers**
- **Industrial Engineers**
- **Automotive Engineers**
- **Nuclear Engineers**

Contact

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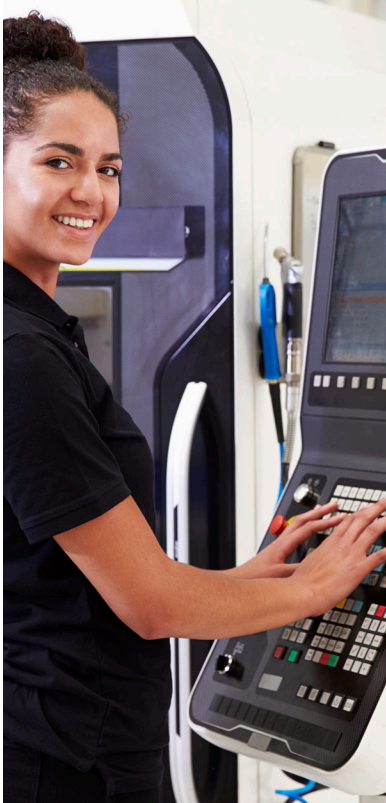
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baycollege.edu



Associate in Science

2019-2020 Catalog

Concentration in Pre-Engineering

Award Granted Upon Completion: Associate in Science

Credits/Contacts Required: **63/67**

Major code: 02/225

CIP Code: 140102

Description

The Pre-Engineering Degree is designed for students who wish to transfer to a four-year college or university to obtain a degree in engineering. In addition to preparation for transfer, this program provides students with a strong general education background. By satisfying the program requirements listed below, a student also satisfies the Michigan Transfer Agreement requirements listed in the catalog. ☺

General Education Requirements – Min 33 credits

		<u>Cr</u>
ENGL-101	Rhetoric & Composition	3
XXXX-xxx	Communication Elective	3
	ENGL-102 or 145; COMM-103, 104, or 120	
MATH-141	Analytical Geometry & Calc I	5
CHEM-110	General Chemistry I * -OR-	5
CHEM-108	Technical Chemistry *	
PHYS-205	Engineering Physics I	5
XXXX-xxx	Social & Behavioral Science Electives **	6
XXXX-xxx	Humanities Electives **	6

☺ This degree requires fulfillment of the Michigan Transfer Agreement General Education requirements. All courses used to fulfill the MTA must have a grade of "C" or higher.

Requirements – Min 30 credits

		<u>Cr</u>
MATH-142	Analytical Geometry & Calculus II	5
MATH-243	Analytical Geometry & Calculus III	5
MATH-244	Differential Equations	3
MATH-250	Linear Algebra	3
PHYS-206	Engineering Physics II @ -OR-	5
CHEM-112	General Chemistry II @	
XXXX-xxx	Natural Science Elective #	3-5
XXXX-xxx	Computer Science -OR- Engineering Course ##	3-4
XXXX-xxx	Approved Electives ###	3-4

Suggested Sequences Per Semester

		<u>Cr / Ct</u>
First Semester		
CHEM-110	General Chemistry * -OR-	5/7
CHEM-108	Technical Chemistry I *	
ENGL-101	Rhetoric & Composition	3/3
MATH-141	Analytical Geometry & Calculus I	5/5
XXXX-xxx	Computer Science -OR- Engineering Course ##	3-4/3-4
		16-17/18-19
Second Semester		
CHEM-112	General Chemistry II @ -OR-	3-5/3-7
XXXX-xxx	Approved Elective ###	
MATH-142	Analytical Geometry & Calculus II	5/5
PHYS-205	Engineering Physics I	5/6
XXXX-xxx	Communication Elective	3/3
		16-18/17-21
Third Semester		
MATH-243	Analytical Geometry & Calculus III	5/5
PHYS-206	Engineering Physics II @ -OR-	
XXXX-xxx	Natural Science Elective #	3-5/3-7
XXXX-xxx	Social/Behavioral Science**	3/3
XXXX-xxx	Humanities **	3/3
		14-16/14-18
Fourth Semester		
MATH-244	Differential Equations	3/3
MATH-250	Linear Algebra	3/3
XXXX-xxx	Social/Behavioral Science **	3/3
XXXX-xxx	Humanities **	3/3
XXXX-xxx	Natural Science Elective # -OR- Approved Elective ###	3-5/3-7
		15-17/15-19

* Students should contact their transfer institution to determine which chemistry course is required for their engineering degree.

** Students must choose courses in Social & Behavioral Sciences and Humanities, each from two different subject areas to meet MTA. See advisor for details.

Choose one natural science from BIOL-110, 112, 213, 214, 255, 256; CHEM-112, 201, 202; PHYS-206, 260, or 261.

Select a computer science or engineering course from the following: CSCI-121, CSCI-122, CADD-115, or CADD-120.

Students should contact their transfer institution to determine an appropriate approved elective for their degree.

@ Students should contact their transfer institution to determine if PHYS-206 or CHEM-112 is required for their engineering degree. Some engineering degrees will require both PHYS-206 and CHEM-112.