

ENVIRONMENTAL ENGINEERING BACHELOR'S PROGRAM

Environmental engineers integrate principles of engineering, mathematics, earth science, soil science, life science and materials science with emphasis on the design and development of solutions to environmental challenges, such as improvement of water, air pollution control, safe disposal of wastes and the stewardship of our natural resources.

Environmental Engineering Educational Objectives and Student Outcomes

The Environmental Engineering program strongly supports the educational objectives and learning outcomes of the College of Engineering and Computer Science (see the [Educational Objectives](#) and [Expected Student Learning Outcomes](#) subsections previously listed in this section).

Program Educational Objectives are broad statements that describe the expected accomplishments and professional status of Environmental Engineering graduates a few years beyond the baccalaureate degree.

The Environmental Engineering program at Florida Atlantic University is dedicated to graduating environmental engineers who, within a few years after graduation will:

- A. **Practice environmental engineering** within the general areas of water and wastewater, air quality, solid and hazardous waste, and groundwater and soils in the organizations that employ them;
- B. **Advance their knowledge of environmental engineering**, both formally and informally, by engaging in lifelong learning experiences including attainment of professional licensure and/or graduate studies;
- C. **Serve as effective professionals** based on strong interpersonal and teamwork skills, an understanding of professional and ethical responsibility and a willingness to take the initiative and seek progressive responsibilities;

D. Participate as leaders in activities that support service to, and/or economic development of, the community, the region, the state and the nation.

The educational objectives of the Bachelor of Science in Environmental Engineering program are achieved by ensuring that graduates have the following characteristics or student outcomes:

1. An ability to identify, formulate and solve complex engineering problems by applying principles of engineering, science and mathematics;
2. 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. An ability to communicate effectively with a range of audiences;
4. 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. 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. An ability to develop and conduct appropriate experimentation, analyze and interpret data and use engineering judgment to draw conclusions;
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

[Link to Combined Programs](#)

**ENVIRONMENTAL ENGINEERING
BACHELOR OF SCIENCE IN ENVIRONMENTAL ENGINEERING (B.S.E.V.)**

(Minimum of 120 credits required)

Admission Requirements

All students must meet the minimum admission requirements of the University. Please refer to the [Admissions section](#) of this catalog.

All students must meet the preprofessional requirements listed [above](#) to be accepted in the Environmental Engineering program.

Prerequisite Coursework for Transfer Students

Students transferring to Florida Atlantic University must complete both lower-division requirements (including the requirements of the General Education Program) and requirements for the college and major. Lower-division requirements may be completed through the A.A. degree from any Florida public college, university or community college or through equivalent coursework at another regionally accredited institution. Before transferring and to ensure timely progress toward the baccalaureate degree, students must also complete the prerequisite courses for their major as outlined in the [Transition Guides](#) and below.

All courses not approved by the Florida Statewide Course Numbering System that will be used to satisfy requirements will be evaluated individually on the basis of content and will require a catalog course description and a copy of the syllabus for assessment. [Transfer students who enter with over 60 credits from an Associate in Arts \(AA\) degree are not required to take EGN1002 Fundamentals of Engineering. Instead, they could substitute it with an Environmental Engineering design core.](#)

Degree Requirements

The Bachelor of Science in Environmental Engineering degree will be awarded to students who:

1. Meet all general degree requirements of the University;
2. Complete the curriculum for the B.S. in Environmental Engineering degree (see below);
3. Take the Fundamentals of Engineering examination (the first of two exams necessary for professional licensure; contact the department for details).

Curriculum

The Bachelor of Science in Environmental Engineering degree requires 120 credits. For credit toward the degree,

a grade of "C" or better must be received in each course listed. In addition, all prerequisites for each mathematics, science or engineering course must be completed with a grade of "C" or better before enrollment is permitted. The degree components are listed below.

General Education Program

College Writing 1 (1), (2)	ENC 1101	3
College Writing 2 (1), (2)	ENC 1102	3
General Education Program : Society and Human Behavior Courses (1), (3)		6
General Education Program : Global Citizenship Courses (1), (3)		6
General Education Program : Humanities Courses (1), (3)		6

Foundations of Math and Quantitative Reasoning

Calculus with Analytic Geometry 1 (1), (4)	MAC 2311	4
Calculus with Analytic Geometry 2 (1), (4)	MAC 2312	4

Foundations of Science and the Natural World

General Chemistry 1 or Engineering Chemistry (1)	CHM 2045 or EGN 2095	3 and
General Chemistry Lab 1 or Engineering Chemistry Lab (1)	CHM 2045L or EGN 2095L	1
General Physics for Engineers 1 (1), (9)	PHY 2048	3 and
General Physics 1 Lab	PHY 2048L	1

Total

40

Basic Mathematics and Sciences

General Chemistry 2 (1)	CHM 2046	3 and
General Chemistry 2 Lab (1)	CHM 2046L	1
Engineering Mathematics 1	MAP 3305	3 or
Differential Equations	MAP 3302	3

Earth Science Elective (1)		3
Biological Science Elective (1)		4
Statistics Restricted Elective		3
Total		17

Statistics Restricted Elective: Probability and Statistics for Engineers (STA 4032), Stochastic Models for Computer Science (STA 4821), Probability and Statistics 1 (STA 4442) or equivalent.

Engineering Fundamentals		
Engineering Graphics Elective		
Computer-Aided Design	CGN 2327	3 or
Engineering Graphics	EGN 1111C	3
Fundamentals of Engineering	EGN 1002	3
Computer Programming Elective		
Programming 1	COP 2220	3 or
Computer Applications in Engineering 1	EGN 2213	3 or
C for Engineers	EEL 2161	3
Statics	EGN 3311	3
Strength of Materials	EGN 3331	3
Engineering Thermodynamics	EGN 3343	3
Total		18

Environmental Engineering Technical Core		
Soil Mechanics (5)	CEG 3011C	3
Applied Hydraulics (5)	CWR 3201C	3
Environmental Science and Engineering (5)	ENV 3001C	3
RI: Environmental Fate and Transport	ENV 4053	3

Introduction to Pollution Prevention and Sustainability	ENV 4072	3
Total		15
Environmental Engineering Design Core		
Hydrologic Engineering	CWR 4202	3
Air Pollution and Control Systems	ENV 4112	3
Air Pollution Lab	ENV 4112L	1
RI: Solid and Hazardous Waste and Site Remediation	ENV 4341	3
RI: Water and Wastewater Treatment Systems	ENV 4514	3 or
Water and Wastewater Treatment	ENV 5510	3
Subdivision Design	SUR 4463	2
Total		15
Capstone Design Core		
RI: Civil, Environmental and Geomatics Engineering Design 1 (2), (5), (10)	CGN 4803C	3
RI: Civil, Environmental and Geomatics Engineering Design 2 (2), (5), (11)	CGN 4804C	3
Total		6
Technical Electives (Select 9 credits from the list) (6)		
Environmental Geochemistry	GLY 4241	3
Hydrogeology	GLY 4822	3

Oceanography	OCE 3008	3
Sustainable Cities	URP 4403	3
Environmental Planning Methods	URP 4420	3
Environment and Disease	ANT 4463	3
Environmental Ethics	PHI 3640	3
Global Environmental Politics and Policies	INR 4350	3
Environmental Economics	ECP 4302	3
Entrepreneurship	ENT 4024	3
Engineering Professional Internship	EGN 3941	0-4
Professional Internship	IDS 3949	0-4
Directed Independent Research in Engineering and Computer Science (8)	EGN 4911	0-3
Directed Independent Research in Engineering and Computer Science	EGN 4915	1-3
Total		9

Notes:

1. Contributes to University Core Curriculum requirements.
2. Contributes to Writing Across Curriculum (Gordon Rule) writing requirement.
3. General Education Program courses, totaling 6 credits, must be selected to satisfy Writing Across Curriculum (Gordon Rule) writing requirements.
4. Contributes to Gordon Rule mathematics requirement.
5. Includes a 1-credit laboratory.
6. All design core courses contain a communications component (writing or speaking).
7. Grading: S/U.
8. PHY 2048, General Physics 1 (4 credits) is an acceptable substitute, but only 3 credits will apply toward the degree.
9. Prerequisites are ENV 4514 and SUR 4463.
10. Prerequisite is CGN 4803C.

Sample Four-Year Program of Study

For the sample four-year program of study for the Bachelor of Science in Environmental Engineering, refer to the Curriculum Sheets and Flight Plans by major.

Internships

Environmental Engineering students are strongly encouraged to gain practical experience through participation in internship opportunities. However, internships may only substitute for one environmental engineering technical elective with prior approval from the department chair and only if taken for a grade (IDS 3949, Professional Internship) for a total of three semesters. For more information, contact the FAU Career Center at 561-297-3533 or visit its [website](#).

COMBINED PROGRAMS

ENVIRONMENTAL ENGINEERING TO CIVIL ENGINEERING BACHELOR OF SCIENCE IN ENVIRONMENTAL ENGINEERING (B.S.E.V.) TO MASTER OF SCIENCE (M.S.) COMBINED PROGRAM

Degree Program

This program allows Bachelor of Science in Environmental Engineering (B.S.E.V.) students the opportunity to complete the Master of Science (M.S.) with Major in Civil Engineering in less time than the traditional M.S. program. This combined degree program is intended for academically talented students and high achievers. After application and admittance to the M.S. graduate program at the beginning of the senior year, up to 12 credits of approved graduate-level courses may be taken and counted toward both the B.S.E.V. and the M.S. with Major in Civil Engineering degrees as long as the following criteria are met:

1. The student has met the minimum of 120 credits for the B.S.E.V. degree, and
2. The student has taken a minimum of 30 credits (5000 level or higher) for the M.S. with Major in Civil Engineering.

The combined degree program is 150 credits, 120 for the undergraduate degree and 30 for the master's degree. Students complete the undergraduate degree first, taking no more than 12 credits of graduate coursework in their senior year, which will then be used to satisfy both degrees.

Prerequisite Coursework for Transfer Students

Students transferring to Florida Atlantic University must complete both lower-division requirements (including the requirements of the General Education Program) and requirements for the college and major. Lower-division requirements may be completed through the A.A. degree from any Florida public college, university or community college or through equivalent coursework at another regionally accredited institution. Before transferring and to ensure timely progress toward the baccalaureate degree, students must also complete the prerequisite courses for their major as outlined in the [*Transition Guides*](#).

All courses not approved by the Florida Statewide Course Numbering System that will be used to satisfy requirements will be evaluated individually on the basis of content and will require a catalog course description and a copy of the syllabus for assessment.

To be eligible for the joint B.S.E.V./M.S. program, students must:

1. Have a cumulative GPA of 3.25 or higher (FAU and transfer courses);
2. Have a total institution GPA of 3.25 or higher (FAU courses); and
3. Formally apply to the joint program, completing the admissions process at least one semester prior to beginning the M.S. portion of the program.

BIOLOGICAL AND PHYSICAL SCIENCES TO CIVIL, ENVIRONMENTAL OR GEOMATICS ENGINEERING TO CIVIL ENGINEERING

BACHELOR OF ARTS (B.A.) OR BACHELOR OF SCIENCE (B.S.) TO SECOND BACHELOR OF SCIENCE (B.S.) TO MASTER OF SCIENCE (M.S.)

COMBINED PROGRAM

Details for this [combined degree program](#) are listed in the [Wilkes Honors College](#) section.