Bachelor's of Science in Engineering Technology

Graduates of the Bachelor of Science in Engineering Technology (B.S.E.T) will have the technical and managerial skills necessary to enter careers in planning, design, construction, operation or maintenance of the built environment and global infrastructure in support of engineering projects.

Degree Vision and Mission

The program strives to deliver a top class educational experience in engineering technologies throughout the FAU service area and beyond, and makes a significant contribution to the needs of a growing southeast Florida community. Program faculty focus on student-centered learning methodologies that require students to be active, responsible participants in their own learning. This program values ethical behavior, use of state-of-the-art tools and equipment, problem solving, innovation, individual responsibility, thoughtful risk taking, teamwork and leadership.

The Bachelor of Science in Engineering Technology program at Florida Atlantic University is dedicated to graduating majors who, within a few years after graduation will:

(A) Practice within engineering technical fields such as planning and preparing documents appropriate for analysis, design, and other engineering related activities in organizations that employ them

(B) Advance their knowledge of engineering practice, both formally and informally, by engaging in lifelong learning experiences, including graduate studies

(C) Serve as effective professionals, based on strong interpersonal and teamwork skills, capable of performing economic analyses and cost estimates to select appropriate engineering materials and practices related to design of engineering systems

(D) Participate as leaders in activities that support the performance of standard analysis and design in engineering fields.

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

(a) an ability to select and apply the knowledge, techniques, skills, and modern

tools of the discipline to broadly-defined engineering technology activities including utilizing modern measurement technologies to acquire data;

(b) an ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies;

(c) an ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; to analyze data for conformance with precision and accuracy requirements; and to apply experimental results to improve processes;

(d) an ability to design systems, components, or processes for engineering technology problems;

(e) an ability to function effectively as a member or leader on a technical team;

(f) an ability to identify, analyze, and solve broadly-defined engineering technology problems including the use of industry-standard software to solve technical problems;

(g) an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature and to apply technical concepts to the design of measurement systems to meet project requirements;

(h) an understanding of the need for and an ability to engage in self-directed

continuing professional development;

(i) an understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity;

(j) a knowledge of the impact of engineering technology solutions in a societal and global context; and

(k) a commitment to quality, timeliness, and continuous improvement.

[Link to Surveying and Mapping](http://www.fau.edu/academic/registrar/PREcatalog/engineering.php#geocert) [Certificate](http://www.fau.edu/academic/registrar/PREcatalog/engineering.php#geocert)

[Link to Combined Program](http://www.fau.edu/academic/registrar/PREcatalog/engineering.php#bsge)

Bachelor of Science in Engineering Technology

(Changes effective Fall 2018.)
(Requires 120 credits.)

Admission Requirements
All students must meet the minimum admission requirements of the University. Please refer to the [Admissions section](http://www.fau.edu/academic/registrar/PREcatalog/admissions.php) of this catalog.

Prerequisite Coursework for Transfer Students
Students transferring to Florida Atlantic University must complete both lower-division requirements (including the requirements of the Intellectual Foundations 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 [*Transfer Student Manual*.](http://www.fau.edu/registrar/registration/transfer.php)

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.

Degree Requirements
The Bachelor of Science in Engineering Technology degree will be awarded to students who:

1. Meet all general degree requirements of the University;

2. Complete the Bachelor of Science in Engineering Technology curriculum (see below);

Curriculum
The Bachelor of Science in Engineering Technology degree requires 120 credits. For credit toward the degree, a grade of "C" or better must be received in each course listed, except for the following, which require a grade of “D” or better:

* Humanities and social science courses not applied toward Writing Across Curriculum (Gordon Rule) writing requirements
* MAC2311 - Calculus with Analytical Geometry 1
* PHY2048 – General Physics for Engineers 1 AND PHY2048L – General Physics 1 Lab

The degree components are listed below.

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| **Intellectual Foundations Program** |
| Foundations of Written Communication | 6 |
| Foundations of Society and Human Behavior | 6 |
| Foundations of Global Citizenship | 6 |
| Foundations of Creative Expression | 6 |
| TOTAL | 24 |

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| **Basic Mathematics and Sciences** |
| Calculus with Analytic Geometry 1  | MAC 2311 | 4 |
| General Physics for Engineers 1 AND | PHY 2048 | 3 AND |
| General Physics 1 Lab  | PHY 2048L | 1 |
| Mathematics Restricted Elective\* |  | 3 |
| Statistics Restricted Elective\*\* |  | 3 |
| Physical and Natural Science Restricted Electives\*\*\*  |  | 7 |
| Total | 21 |

\*Mathematics Restricted Electives include courses that involve the application of integral and differential calculus or other mathematics above the level of algebra and trigonometry, such as but not limited to the following: Calculus with Analytical Geometry 2 (MAC 2312), Matrix Theory (MAS 2103), Engineering Math 1 (MAP 3305) or equivalent.

\*\*Statistics Restricted Elective: Introductory Statistics (STA 2023), Probability and Statistics for Engineers (STA 4032), Stochastic Models for Computer Science (STA 4821), Probability and Statistics 1 (STA 4442) or equivalent

\*\*\*Physical and Natural Science Restricted Electives: include but are not limited to General Physics for Engineers 2 (PHY 2044 (5)) with lab (PHY 2049L), General Chemistry 1 (CHM 2045) with lab (CHM 2045L), Physical Geology/Evolution of the Earth with Lab (GLY 2010C), Biological Science with Lab, Earth Science, or equivalent.

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| **Engineering Technology Fundamentals** |
| Fundamentals of Engineering | EGN 1002 | 3 |
| Computer Programming Elective  |  |  |
|  Introduction to Programming in C OR | COP 2220 | 3 or |
|  Computer Applications in Engineering 1 | EGN 2213 | 3 |
| Engineering Graphics Elective |  |  |
|  Engineering Graphics OR | EGN1111C | 3 or |
|  Computer Aided Design | CGN 2327 | 3 |
| Geomatics | SUR 3103 | 2 |
| Geomatics Lab | SUR 3103L | 1 |
| Thermal Infrared Remote Sensing and Applications | SUR 4384 | 3 |
| Digital Photogrammetry Principles and Applications/Lab  | SUR 4331/L | 2+1 |
| Total | 18 |

Choose 3 of the following 5 Engineering Technology Core course groupings.

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| **Construction Engineering Technology Core (12 credits)** |
| Construction Project Management | CCE 4031 | 3 |
| Engineering and Construction Surveying | SUR 3205 | 2 |
| Engineering and Construction Surveying Lab | SUR 3205L | 1 |
| Introduction to Laser Mapping Technology | CCE 4516 | 3 |
| Introduction to Transportation Engineering | TTE 3004C | 3 |

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| **Surveying Engineering Technology Core (12 credits)** |
| Automated Surveying and Mapping/Lab | SUR 3141/L | 2+1 |
| Geodesy and Geodedic Positioning/Lab | SUR 4530/L | 2+1 |
| Measurement Theory and Data Adjustments | SUR 3643 | 3 |
| Cadastral Principles and Legal Aspects | SUR 4403 | 3 |

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| **Environmental Engineering Technology Core (12 credits)** |
| Introduction to Pollution Prevention and Sustainability | ENV 4072 | 3 |
| Remote Sensing of the Environment  | GIS 4035C | 3 |
| Oceanography | OCE 3008 | 3 |
| Geo-Environmental Elective |  |  |
| Environmental Issues in Atmospheric and Earth Science OR | EVR 3704 | 3 OR |
| Water Resources OR | GEO 4280C | 3 OR |
| Coastal and Marine Science | GLY 3730 | 3 |

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| **Engineering Mechanics Technology Core (12 credits)** |
| Statics | EGN 3311 | 3 |
| Dynamics | EGN 3321 | 3 |
| Strength of Materials | EGN 3331 | 3 |
| Materials Elective (EGN 3365 OR CGN 3501C OR Equivalent) |  | 3 |

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| **Computing Technology Core (13 credits)\*** |
| Introduction to Logic Design | CDA 3201C | 4 |
| Foundations of Computer Science | COP 3014 | 3 |
| Introduction to Microprocessor Systems | CDA 3331C | 3 |
| Data Structures | COP 3530 | 3 |

\*Computing Technology core is 13 credits, so only 17 credits of technical electives are required.

One additional upper division computer science course will grant minor in CS

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| **Engineering Technology Capstone**  |
| Engineering Technology Capstone | ETG 4670 | 3 |
| Total | 3 |

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| **Engineering Technical Electives (select 18 credits from the list below)**  |
| Approved College of Engineering and Computer Science course 3000 level or above |  |  |
| Engineering Professional Internship | EGN 3941 | 0-4 |
| Introduction to Mapping and GIS  | GIS 3015C | 3 |
| Programming in GIS | GIS 4102C | 3 |
| Field Methods | GLY 4750C | 3 |
| Transportation and Spatial Organization | GEO 4700 | 3 |
| Application in GIS | GIS 4048C | 3 |
| Introduction to Hydrogeology Modeling and Aquifer Test | GLY 4832C | 3 |
| Digital Image Analysis | GIS 4037C | 3 |
| Geovisualization and GIS | GIS 4138C | 3 |
| Environmental Issues in Atmospheric and Earth Science | EVS 3704 | 3 |
| Water Resources | GEO 4280C | 3 |
| Coastal and Marine Science | GLY 3730 | 3 |
| Sea-Level Rise: Impacts and Responses  | GEO 3342 | 3 |
| Quantitative Methods | GEO 4022 | 3 |
| Spatial Data Analysis | GEO 4167C | 3 |
| Biogeography | GEO 4300 | 3 |
| Urban Geography  | GEO 4602 | 3 |
| Planning Methods  | URP 4011 | 3 |
| City Structure and Change  | URP 4055 | 3 |
| Planning Implementation Strategies  | URP 4120 | 3 |
| Introduction to Visual Planning Technology  | URP 4254 | 3 |
| Plan Making and Design  | URP 4343 | 3 |
| Sustainable Cities  | URP 4403 | 3 |
| Environmental Planning Methods  | URP 4420 | 3 |
| Urban Development Planning Methods  | URP 4546 | 3 |
| Capital Facilities Planning  | URP 4730 | 3 |
| Site Planning  | URP 4870 | 3 |
| Entrepreneurship | ENT 4024 | 3 |
| Total  | 12 |

**Minors and Certificate Programs Appropriate for Engineering Technology**

Various departments offer minors and certificate programs that augment a student's engineering education. The faculty encourages students to pursue a minor or certificate, such as:

* Survey and Mapping certificate program, highly recommended (Department of Civil, Environmental and Geomatics Engineering)
* Geographic Information Systems certificate program, highly recommended (Department of Geosciences)

**Internships**

Engineering Technology students are strongly encouraged to gain practical experience through participation in internship opportunities. However, internships may only substitute for one technical elective with prior approval from the department chair and only if taken for a grade (IDS 3949, Professional Internship or EGN 3941, Engineering Professional Internship). For more information, contact the FAU Career Center at 561-297-3533 or visit www.fau.edu/cdc.

**Surveying and Mapping Certificate**The Department of Civil, Environmental & Geomatics Engineering offers undergraduates a certificate in Surveying and Mapping. Students are entitled to the certificate by completing a minimum of 12credits of coursework with a grade of "C" or better. Selected courses must be checked for the proper prerequisites. The certificate is open to both degree-seeking and non-degree-seeking students.

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| **Required Courses (**3 **credits)**  |
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| Geomatics (1) | SUR 3103 | 2 |
| Geomatics Lab (1) | SUR 3103L | 1 |

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| **Select additional courses from below for a minimum of 9 credits** |
| Digital Photogrammetry Principles andApplications (2) | SUR 4331 | 2 |
| Digital Photogrammetry Principles and Applications Lab (2) | SUR 4331L | 1 |
| Automated Surveying and Mapping (2) | SUR 3141 | 2 |
| Automated Surveying and Mapping Lab (2) | SUR 3141L | 1 |
| Geodesy and Geodedic Positioning/Lab | SUR 4530/L | 2+1 |
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| Measurement Theory and Data AdjustmentsSUR 36433Cadastral Principles and Legal Aspects | SUR 4403 | 3 |
| Engineering and Construction Surveying (2) | SUR 3205 | 2 |
| Engineering and Construction Surveying Lab (2) | SUR 3205L | 1 |
| Thermal Infrared Remote Sensing and Applications | SUR 4384 | 3 |
| Principles of Geographic Information System | GIS 4043C | 3 |
| Introduction to Laser Mapping Technology | CCE4516 | 3 |
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**Notes:**
(1) Requires knowledge of geometry and trigonometry.

(2) Requires SUR 3101/SUR 3101L, Geomatics and Geomatics Lab, as prerequisites.