

 <b>FLORIDA ATLANTIC UNIVERSITY</b>	<b>NEW/CHANGE PROGRAM REQUEST</b> <b>Undergraduate Programs</b>	UUPC Approval <u>1/29/24</u> UFS Approval _____ Banner _____ Catalog _____
	<b>Department</b> Civil, Environmental and Geomatics Engineering  <b>College</b> College of Engineering and Computer Science	
<b>Program Name</b> BACHELOR OF SCIENCE IN GEOMATICS ENGINEERING	<input type="checkbox"/> <b>New Program*</b> <input checked="" type="checkbox"/> <b>Change Program*</b>	<b>Effective Date</b> (TERM & YEAR) Fall, 2024
<p><b>Please explain the requested change(s) and offer rationale below or on an attachment.</b></p> <p>The upper level courses (such as Land Subdivision and Platting Lab: SUR 3463L, Civil, Environmental and Geomatics Engineering Design 1: CGN 4803C and Engineering Technology Capstone: ETG 4951) for Geomatics engineering students need a high skill in AutoCAD. In the current catalog, the 1000 level course Engineering Graphics: EGN 1111C is used as an equivalent course to Computer-Aided Design: CGN 2327. Engineering Graphics: EGN 1111C is not sufficient for Geomatics student to gain the skills of using AutoCAD.</p> <p>We request to remove Engineering Graphics: EGN 1111C from the course list of Engineering Fundamentals and add this Engineering Graphics: EGN 1111C to the list of Business Electives.</p>		
<p><small>*All new programs and changes to existing programs must be accompanied by a catalog entry showing the new or proposed changes.</small></p>		
<b>Faculty Contact/Email/Phone</b> Hongbo Su/suh@fau.edu/7-3936	<b>Consult and list departments that may be affected by the change(s) and attach documentation</b> None	
<b>Approved by</b> Department Chair _____ College Curriculum Chair _____ College Dean _____ UUPC Chair <i>Korey Sorge</i> Undergraduate Studies Dean <i>Dan Meeroff</i> UFS President _____ Provost _____		<b>Date</b> <u>11/21/23</u> <u>11/21/2023</u> <u>11/21/23</u> <u>1/29/24</u> <u>1/29/24</u> _____ _____

Email this form and attachments to [mjenning@fau.edu](mailto:mjenning@fau.edu) seven business days before the UUPC meeting.

# **GEOMATICS ENGINEERING**

## **BACHELOR OF SCIENCE IN GEOMATICS ENGINEERING**

### **(B.S.G.E.)**

*(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](#) in order to be accepted into the Geomatics Engineering program.

#### **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 [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.

#### **Degree Requirements**

The Bachelor of Science in Geomatics 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.G.E. in Geomatics Engineering degree (see below);
3. Take the National Council of Examiners for Engineering and Surveying (NCEES) Fundamentals of Surveying Examination (the first of two exams necessary for the professional surveyors and mappers license). Contact Geomatics Engineering for details.

## Curriculum

The Bachelor of Science in Geomatics Engineering degree requires 120 credits. For credit toward the degree, a grade of "C" or better must be received in each course listed, except for humanities and social science courses not applied toward Writing Across Curriculum (Gordon Rule) writing requirements. 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.

### Intellectual Foundations Program - 39 credits

#### **Foundations of Written Communication Courses - 6 credits**

College Writing 1 (1), (2)	ENC 1101
College Writing 2 (1), (2)	ENC 1102

#### **Foundations of Mathematics and Quantitative Reasoning Courses - 6 credits**

Calculus with Analytic Geometry 1 (1), (4)	MAC 2311
Introductory Statistics	STA 2023

#### **Foundations of Science and the Natural World Courses - 6 credits**

General Physics for Engineers 1 (1), (8)	PHY 2048 <b>and</b>
General Physics 1 Lab	PHY 2048L

#### **Students must take one additional course from the list below:**

General Chemistry 1	CHM 2045 <b>and</b>
General Chemistry 1 Lab	CHM 2045L
Physical Geology/Evolution of the Earth	GLY 2010C

#### **Foundations of Society and Human Behavior Courses - 6 credits (1), (3)**

#### **Foundations of Global Citizenship Courses - 6 credits (1), (3)**

#### **Foundations of Humanities Courses - 6 credits (1), (3)**

#### **Total**

### **Additional Basic Mathematics and Sciences Electives - 15 credits**

Introduction to Calculus with Applications	MAC 2210 or
Calculus with Analytic Geometry 2	MAC 2312

**Or** any mathematics course for which one of the math courses is a direct prerequisite

Introduction to Physical Geography	GEO 2200C
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Select 8 credits from the [Foundations of Science and the Natural World](#) Group A or B not already taken

### **Business Electives - 3 credits (select one course)**

Principles of Accounting 1	ACG 2021
Entrepreneurship	ENT 4024
Entrepreneurial Assistance Project	ENT 4934

Introduction to Business	GEB 2011
Information Systems Fundamentals	ISM 2000
Introduction to Management and Organizational Behavior	MAN 3025
Principles of Real Estate	REE 3043
<b>Engineering Graphics</b>	<b>EGN 1111C</b>

**Engineering Fundamentals - 15 credits**

Fundamentals of Engineering	EGN 1002
Introduction to Mapping and GIS (5)	GIS 3015C <b>or</b>
GIS for Civil Engineering Applications	CGN 4321
Geomatics	SUR 3103 <b>and</b>
Geomatics Lab	SUR 3103L

**Engineering Graphics Elective**

Computer-Aided Design	<b>or</b>
<b>Engineering Graphics</b>	<b>EGN 1111C</b>

**Computer Programming Elective**

Programming 1	COP 2220 <b>or</b>
Computer Applications in Engineering 1	EGN 2213 <b>or</b>
C for Engineers	EEL 2161

**Construction Engineering Core - 6 credits**

Engineering and Construction Surveying	SUR 3205
Engineering and Construction Surveying Lab	SUR 3205L
RI: Construction Project Management	CCE 4031 <b>or</b>
Introduction to Transportation Engineering (5)	TTE 3004C

**Surveying Engineering Core - 12 credits**

Automated Surveying and Mapping	SUR 3141 <b>and</b>
Automated Surveying and Mapping Lab	SUR 3141L
Measurement Theory and Data Analysis	SUR 3520
Cadastral Principles and Legal Aspects	SUR 4403
Geodesy and Geodetic Positioning	SUR 4530 <b>and</b>
Geodesy and Geodetic Positioning Lab	SUR 4530L

**Reality Capture Core - 6 credits**

*Select any combination to total 6 credits.*

Introduction to Laser Mapping Technology	CCE 4514C
Digital Photogrammetry Principles and Applications	SUR 4331C
Thermal Infrared Remote Sensing and Applications	SUR 4384

**Capstone Design - 6 credits**

Subdivision Design	SUR 4463 <b>and</b>
Land Subdivision and Platting Lab	SUR 3463L

**Capstone Elective - Select one**

RI: Civil, Environmental and Geomatics Engineering Design 1	CGN 4803C <b>or</b>
RI: Engineering Technology Capstone	ETG 4951

**Technical Electives - Select 18 credits from the list****Any approved College of Engineering and Computer Science course 3000-level and above**

Remote Sensing of the Environment (5) (6)	GIS 4035C
Principles of Geographic Information Systems (5) (6)	GIS 4043C
Digital Image Analysis (5) (6)	GIS 4037C
Engineering Professional Internship	EGN 3971
Directed Independent Research in Engineering and Computer Science (7)	EGN 4911
Directed Independent Research in Engineering and Computer Science	EGN 4915
New Venture Launch	ENT 4015
Advanced Business Planning	ENT 4114
Entrepreneurship Internship	ENT 4940
Environmental Issues in Atmospheric and Earth Science	ESC 3704
Principles of Financial Management	FIN 3403
Sea-Level Rise: Impacts and Responses	GEO 3342
Quantitative Methods	GEO 4022
Spatial Data Analysis	GEO 4167C
Water Resources	GEO 4280C
Biogeography	GEO 4300
Urban Geography	GEO 4602
Transportation and Spatial Organization	GEO 4760
Introduction to Mapping and GIS	GIS 3015C
Digital Image Analysis (5)	GIS 4037C
Applications of GIS (5)	GIS 4048C
Programming in GIS (5)	GIS 4102C
Geovisualization and GIS (5)	GIS 4138C
Coastal and Marine Science	GLY 3730
Field Methods	GLY 4750C
Hydrogeology	GLY 4822
Engineering Geology	GLY 4830
Introduction to Hydrogeology Modeling and Aquifer Test (5)	GLY 4832C
Professional Internship	IDS 3949
Leadership, Supervisory Skills and Team Development	MAN 4046
Marketing Management	MAR 3023

Planning Methods	URP 4011
City Structure and Change	URP 4055
Planning Implementation Strategies	URP 4120
Introduction to Visual Planning Technology	URP 4254
Plan Making and Design	URP 4343
Sustainable Cities	URP 4403
Environmental Planning Methods	URP 4420
Urban Development Planning Methods	URP 4546
Capital Facilities Planning	URP 4730
Site Planning	URP 4870

### Notes:

1. Contributes to University Core Curriculum requirements.
2. Contributes to Writing Across Curriculum (Gordon Rule) writing requirement.
3. Intellectual Foundations 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. Students pursuing the [GIS certificate](#) should consider taking these courses.
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.