

 FLORIDA ATLANTIC UNIVERSITY	NEW/CHANGE PROGRAM REQUEST Undergraduate Programs		UUPC Approval <u>9/8/25</u> UFS Approval _____ Banner _____ Catalog _____
	Department Civil, Environmental and Geomatics Engineering College COECS		
Program Name Geomatics Engineering Program		<input type="checkbox"/> New Program* <input checked="" type="checkbox"/> Change Program*	Effective Date (TERM & YEAR) Spring 2026
<p>Please explain the requested change(s) and offer rationale below or on an attachment.</p> <p>The proposed program changes combine the laboratory and lecture components into a single, integrated course format for the following courses: SUR3130C, SUR3141C, SUR3205C, SUR4331C, and SUR4530C. As a result of this restructuring, the credit hours for these courses will increase from 2 to 3 credits.</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>			
Faculty Contact/Email/Phone F.Bloetscher fbloetsc@fau.edu		Consult and list departments that may be affected by the change(s) and attach documentation	
Approved by		Date	
Department Chair <u>ckaiser</u>		<u>8/25/25</u>	
College Curriculum Chair <u>Galan Liu</u>		<u>8/25/25</u>	
College Dean <u>[Signature]</u>		<u>9-4-25</u>	
UUPC Chair <u>Korey Sorge</u>		<u>9/8/25</u>	
Undergraduate Studies Dean <u>Dan Mooreff</u>		<u>9/8/25</u>	
UFS President _____		_____	
Provost _____		_____	

Email this form and attachments to mjenning@fau.edu seven business days before the UUPC meeting.

College of Engineering
and Computer Science

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 (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.

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.

1. University General Education Program – Students who have earned a bachelor's degree from a four-year accredited institution of higher education or an A.A. degree from a Florida state college or state university in Florida are deemed to have completed the General Education Requirements. (1)
2. Pre-Engineering Requirements – Students must complete the pre-engineering requirements to declare major.
3. Math requirements

Calculus with Analytic Geometry 1 (4)	MAC 2311	4
Calculus with Analytic Geometry 2 (4)	MAC 2312	4 or
Introduction to Calculus with Applications	MAC 2210	4
Probability and Statistics 1	STA 4442	3 or
Probability and Statistics for Engineers	STA 4032	3 or
Stochastic Models for Computer Science	STA 4442	3 or
Probability and Statistics 1	STA 4442	3 or
Introductory Statistics	STA 2023	3 or
<u>Or equivalent statistic class</u>		3

4. Basic Science requirements

General Chemistry 1	CHM 2045	3 and
General Chemistry Lab 1	CHM 2045L	1

General Physics for Engineers 1	PHY 2048	3 and
General Physics 1 Lab	PHY 2048L	1
Physical Geology/Evolution of the Earth	GLY 2010C	4
Physical and Natural Science Restricted Elective 1		3 or 4 cr
Physical and Natural Science Restricted Elective 2		3 or 4 cr

Physical and Natural Science Restricted Elective 1: includes but is not limited to Biological Science with Lab, Earth Science, or equivalent.

Physical and Natural Science Restricted Elective 2: includes but is not limited to Physics for Engineers 2 (PHY 2044) with lab (PHY 2049L), General Chemistry 2 (CHM 2046) with lab (CHM 2046L), or other physical or natural science course approved by the department.

Note a total of 30 cr of math and science is required.

Business Electives - 3 credits (select one course)

Principles of Accounting 1	ACG 2021	3
Entrepreneurship	ENT 4024	3
Entrepreneurial Assistance Project	ENT 4934	3
Introduction to Business	GEB 2011	3
Information Systems Fundamentals	ISM 2000	3
Introduction to Management and Organizational Behavior	MAN 3025	3
Principles of Real Estate	REE 3043	3
Engineering Graphics	EGN 1111C	3

Engineering Fundamentals – 12 to 15 credits

Fundamentals of Engineering (9)	EGN 1002	3
Introduction to Mapping and GIS (5)	GIS 3015C or	3

GIS for Civil Engineering Applications	CGN 4321	3
Geomatics	SUR 3103C-and	32
Geomatics Lab	SUR 3103L	4
Computer-Aided Design	CGN 2327 or	3
Computer Programming Elective		
Programming 1	COP 2220 or	3
Computer Applications in Engineering 1	EGN 2213 or	3
C for Engineers	EEL 2161	3
Introduction to Programming in Python (4)	COP 3035C	3

Construction Engineering Core - 6 credits

Engineering and Construction Surveying	SUR 3205C	23
Engineering and Construction Surveying Lab	SUR 3205L	← -4
RI: Construction Project Management	CCE 4031 or	3
Civil Engineering Project Management	CCE 5036	3
Introduction to Infrastructure Management	CGN4612	3
Construction Management Assessment	CCE4033	3
Introduction to Transportation Engineering (5)	TTE 3004C	3

Surveying Engineering Core - 12 credits (labs must be taken concurrently with the course and will received the same grade)

Automated Surveying and Mapping	SUR 3141-andC	23
Automated Surveying and Mapping Lab	SUR 3141L	← -4
Measurement Theory and Data Analysis	SUR 3520	3
Cadastral Principles and Legal Aspects	SUR 4403	3

Geodesy and Geodetic Positioning	SUR 4530C	23
Geodesy and Geodetic Positioning Lab	SUR 4530L	

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Reality Capture Core - 6 credits
Select any combination to total 6 credits.

Introduction to Laser Mapping Technology	CCE 4514C or	3
Terrestrial Laser Scanning	CEG 6304C	3
Digital Photogrammetry Principles and Applications	SUR 4331C or	3
Digital Photogrammetry and Image Interpretation	SUR 6335C	3
Thermal Infrared Remote Sensing and Applications	SUR 4384 or	3
Thermal Infrared Remote Sensing	SUR 6387C	3

Capstone Design - 6 credits

RI: Subdivision Design	SUR 4463 and	3
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Capstone Elective - Select one (2)

RI: Civil, Environmental and Geomatics Engineering Design 1	CGN 4803C or	3
RI: Engineering Technology Capstone	ETG 4951	3

Technical Electives - Select 48 23-27 credits from the list below or from the Construction, Reality Capture or Surveying core above

Commented [FB1]: Math error in catalog

Any approved College of Engineering and Computer Science course 3000-level and above

Remote Sensing of the Environment (5) (6)	GIS 4035C	3
Principles of Geographic Information Systems (5) (6)	GIS 4043C	3
Digital Image Analysis (5) (6)	GIS 4037C	3
Engineering Professional Internship	EGN 3971	0-4

Directed Independent Research in Engineering and Computer Science (7)	EGN 4911	0-3
Directed Independent Research in Engineering and Computer Science	EGN 4915	1-3
New Venture Launch	ENT 4015	3
Advanced Business Planning	ENT 4114	3
Entrepreneurship Internship	ENT 4940	1-4
Environmental Issues in Atmospheric and Earth Science	ESC 3704	3
Principles of Financial Management	FIN 3403	3
Sea-Level Rise: Impacts and Responses	GEO 3342	3
Quantitative Methods	GEO 4022	3
Spatial Data Analysis	GEO 4167C	3
Water Resources	GEO 4280C	3
Biogeography	GEO 4300	3
Urban Geography	GEO 4602	3
Transportation and Spatial Organization	GEO 4760	3
Introduction to Mapping and GIS	GIS 3015C	3
Digital Image Analysis (5)	GIS 4037C	3
Applications of GIS (5)	GIS 4048C	3
Programming in GIS (5)	GIS 4102C	3
Geovisualization and GIS (5)	GIS 4138C	3
Coastal and Marine Science	GLY 3730	3
Field Methods	GLY 4750C	3
Hydrogeology	GLY 4822	3
Engineering Geology	GLY 4830	3

Introduction to Hydrogeology Modeling and Aquifer Test (5)	GLY 4832C	3
Leadership, Supervisory Skills and Team Development	MAN 4046	3
Marketing Management	MAR 3023	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

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. 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.

9. For those students entering with a B.S. degree or over 60 Cr. who have not taken EGN 1002, they may substitute an upper level technical elective to meet this requirement.

Sample Four-Year Program of Study

For the sample four-year program of study for the Bachelor of Science in Geomatics Engineering, refer to the [Curriculum Sheets and Flight Plans](#) by major.

Minors and Certificate Programs Appropriate for Geomatics Engineering

Various departments offer minors and certificate programs that augment a student's Geomatics and Construction Engineering education. Students are encouraged to pursue a minor or certificate, such as:

[Computer Science Minor](#) (Department Electrical Engineering and Computer Science)

[Entrepreneurial Management Minor](#) (College of Business)

[Surveying and Mapping Certificate Program](#), highly recommended (Department of Civil, Environmental and Geomatics Engineering)

[Geographic Information Systems Certificate Program](#), highly recommended (Department of Geosciences)

Obtaining a minor or certificate will require completing credits beyond the 120 required for the B.S.G.E. in Geomatics Engineering. Contact the department offering the minor or certificate for more details.

Internships

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.

Geomatics Engineering

Undergraduate Minor

(Minimum of 18 credits required)

Students minoring in Geomatics Engineering will complete a minimum of 18 credits with a grade of "C" or better in each course. Of the 18 credits, a minimum of 15 must be earned at FAU. Selected courses must be checked for the proper requirements. The minor is available to all full-time FAU students pursuing a declared major.

Required Courses (3 credits)

Geomatics	SUR 3103C	23
Geomatics Lab	SUR 3103L	1

Select additional courses from below for a minimum of 15 credits.

Digital Photogrammetry Principles and Applications (2)	SUR 4331C	3
Measurement Theory and Data Adjustments (2)	SUR 3520	3
Automated Surveying and Mapping (2)	SUR 3141C	23
Automated Surveying and Mapping Lab (2)	SUR 3141L	1
Subdivision Design	SUR 4463	2
Land Subdivision and Platting Lab (2)	SUR 3463L	1
Engineering and Construction Surveying (3)	SUR 3205C	23
Engineering and Construction Surveying Lab (3)	SUR 3205L	1
Geodesy and Geodetic Positioning (3)	SUR 4530C	23
Geodesy and Geodetic Positioning Lab (3)	SUR 4530L	1
Cadastral Principles and Legal Aspects (2)	SUR 4403	3
Principles of Geographic Information System	GIS 4043C	3
Introduction to Laser Mapping Technology	CCE 4514C	3

Any other Surveying or Mapping Technical Elective as determined by the department 3

Notes:

(1) Requires knowledge of geometry and trigonometry.

(2) Requires SUR 3103C/~~SUR 3103L~~, Geomatics and Lab, as prerequisites.

(3) Requires SUR 3103C/~~SUR 3103L~~, Geomatics and Lab and introductory statistics, as prerequisites.

(4) Requires SUR 3141~~C/SUR 3141L~~; Automated Surveying and Mapping with Lab, as prerequisites.

Surveying and Mapping Undergraduate Certificate

(Minimum of 12 credits required)

The Department of Civil, Environmental and Geomatics Engineering offers undergraduates a certificate in Surveying and Mapping. Students are entitled to the certificate by completing a minimum of 12 credits 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.

Required Courses (3 credits)

Geomatics (1)	SUR 3103 C	2 3
Geomatics Lab (1)	SUR 3103L	1

Select additional courses from below for a minimum of 9 credits.

Digital Photogrammetry Principles and Applications (2)	SUR 4331C	3
Automated Surveying and Mapping (2)	SUR 3141 C	2 3
Automated Surveying and Mapping Lab (2)	SUR 3141L	1
Geodesy and Geodetic Positioning (4)	SUR 4530 C	2 3
Geodesy and Geodetic Positioning Lab (4)	SUR 4530L	1
Measurement Theory and Data Adjustments (3)	SUR 3520	3
Engineering and Construction Surveying (4)	SUR 3205 C	2 3
Engineering and Construction Surveying Lab (4)	SUR 3205L	1
Cadastral Principles and Legal Aspects	SUR 4403	3
Thermal Infrared Remote Sensing and Applications	SUR 4384	3
Principles of Geographic Information System	GIS 4043C	3

Notes:

- (1) Requires knowledge of geometry and trigonometry.
- (2) Requires SUR 3103~~C/SUR-3103L~~, Geomatics and Lab, as prerequisite~~s~~.
- (3) Requires SUR 3103~~C/SUR-3103L~~, Geomatics and Lab and introductory statistics, as prerequisites.
- (4) Requires SUR 3141~~C/SUR-3141L~~, Automated Surveying and Mapping with Lab, as prerequisite~~s~~.

Combined Programs**Geomatics Engineering to Civil Engineering**

bachelor of science in Geomatics Engineering (B.S.G.E.) to master of science (m.s.)

This program allows Bachelor of Science in Geomatics Engineering (B.S.G.E.) 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.G.E. 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.G.E. 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.

To be eligible for the joint B.S.G.E./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.