NEW/CHANGE PROGRAM REQUEST
Undergraduate Programs

FLORIDA ATLANTIC UNIVERSITY

UUPC Approval _____

UFS Approval _____

Banner _____

Catalog _____

Department	
College	

Program Name	**New Program***	**Effective Date** *(TERM & YEAR)*
	Change Program*	

Please explain the requested change(s) and offer rationale below or on an attachment.

*All new programs and changes to existing programs must be accompanied by a catalog entry showing the new or proposed changes.

Faculty Contact/Email/Phone	**Consult and list departments that may be affected by the change(s) and attach documentation**

Approved by	*Date*
Department Chair ___X8428___	9/23/24
College Curriculum Chair _Yalan Liu_	9/23/24
College Dean _____	9/23/24
UUPC Chair _____	_____
Undergraduate Studies Dean _____	_____
UFS President _____	_____
Provost _____	_____

Email this form and attachments to 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 IGeneral 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. 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 a technical elective.

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.

General Education Program - 39 credits

Foundations of Written Communication Courses - 6 credits

College Writing 1 (1), (2)	ENC 1101	3
College Writing 2 (1), (2)	ENC 1102	3

Foundations of Mathematics and Quantitative Reasoning Courses - 6 credits

Calculus with Analytic Geometry 1 (1), (4)	MAC 2311	4
Introductory Statistics	STA 2023	3

Foundations of Science and the Natural World Courses - 6 credits

General Physics for Engineers 1 (1), (8)	PHY 2048 **and**	3
General Physics 1 Lab	PHY 2048L	1

Students must take one additional course from the list below:

General Chemistry 1	CHM 2045 **and**	3
General Chemistry 1 Lab	CHM 2045L	1
Physical Geology/Evolution of the Earth	GLY 2010C	4

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		**39**

Additional Basic Mathematics and Sciences Electives - 15 credits

Introduction to Calculus with Applications	MAC 2210 or	4
Calculus with Analytic Geometry 2	MAC 2312	4
Or any mathematics course for which one of the math courses is a direct prerequisite		
Introduction to Physical Geography	GEO 2200C	3
Select 8 credits from the [Foundations of Science and the Natural World](#) Group A or B not already taken for credit		8

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 - 15 credits

Fundamentals of Engineering	EGN 1002	3
Introduction to Mapping and GIS (5)	GIS 3015C **or**	3
GIS for Civil Engineering Applications	CGN 4321	3
Geomatics	SUR 3103 **and**	2
Geomatics Lab	SUR 3103L	1

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

Construction Engineering Core - 6 credits		
Engineering and Construction Surveying	SUR 3205	2
Engineering and Construction Surveying Lab	SUR 3205L	1
RI: Construction Project Management	CCE 4031 **or**	3
Civil Engineering Project Management	CCE 5036	3
Introduction to Transportation Engineering (5)	TTE 3004C	3

Surveying Engineering Core - 12 credits		
Automated Surveying and Mapping	SUR 3141 **and**	2
Automated Surveying and Mapping Lab	SUR 3141L	1
Measurement Theory and Data Analysis	SUR 3520	3
Cadastral Principles and Legal Aspects	SUR 4403	3
Geodesy and Geodetic Positioning	SUR 4530 **and**	2
Geodesy and Geodetic Positioning Lab	SUR 4530L	1

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

Subdivision Design	SUR 4463 **and**	2
Land Subdivision and Platting Lab	SUR 3463L	1

Capstone Elective - Select one

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

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	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
Professional Internship	IDS 3949	0-4
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.

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 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 the18 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 3103	2
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 3141	2
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 3205	2
Engineering and Construction Surveying Lab (3)	SUR 3205L	1
Geodesy and Geodetic Positioning (3)	SUR 4530	2
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 3103/SUR 3103L, Geomatics and Lab, as prerequisites.

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

(4) Requires SUR 3141/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	2
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	2
Automated Surveying and Mapping Lab (2)	SUR 3141L	1
Geodesy and Geodetic Positioning (4)	SUR 4530	2
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	2
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
Introduction to Laser Mapping Technology	CCE 4514C	3

Notes:

(1) Requires knowledge of geometry and trigonometry.

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

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

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

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.

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.