

 FLORIDA ATLANTIC UNIVERSITY	NEW/CHANGE PROGRAM REQUEST Graduate Programs		UGPC Approval _____ UFS Approval _____ Banner _____ Catalog _____
	Department Civil, Environmental and Geomatics Engineering (CEGE) College Engineering and Computer Science		
Program Name Ph.D. in Transportation & Environmental Engineering	<input type="checkbox"/> New Program* <input checked="" type="checkbox"/> Change Program*	Effective Date (TERM & YEAR) Fall 2023	
Please explain the requested change(s) and offer rationale below or on an attachment. <ul style="list-style-type: none"> - All BS to PhD students are eligible for Master's en Passant, regardless of their area of concentration. - PhD students need a minimum passing grade of B in each course, further strengthening degree requirements. - The dissertation advisor is now primarily responsible for approving Plan of Study, including regular and remedial coursework. Students do not have a dissertation supervisory committee early in their studies to help with such matters. - Coursework and dissertation requirements are now consolidated in a single table, making them easier to follow. The table also clarifies the courses that may be counted as "technical elective" and "other elective". - Clarifying the structure of dissertation supervisory committee to provide expert feedback to doctoral students. - Clarifying the structure of qualifying exam (QE) to facilitate planning. For example, students can now take QE after passing 15 credits of core and technical elective courses, and get involved in dissertation research earlier. - Students are now required to provide frequent updates to the dissertation supervisory committee. - Students are now required to defend their doctoral proposal within two semesters of passing QE. <p>*All new programs and changes to existing programs must be accompanied by a catalog entry showing the new or proposed changes.</p>			
Faculty Contact/Email/Phone Dr. Masoud Jahandar Lashaki, Asst. Prof. & Grad. Director mjahandarlashaki@fau.edu; 954-669-0935		Consult and list departments that may be affected by the change(s) and attach documentation N/A	
Approved by Department Chair _____ <i>ekaisar</i> College Curriculum Chair _____ <i>Francisco Presuel-Moreno</i> College Dean _____ <i>Mihaela Cardel</i> UGPC Chair _____ UGC Chair _____ Graduate College Dean _____ UFS President _____ Provost _____			Date 3/13/23 3/14/23 3/14/23 _____ _____ _____ _____ _____

Email this form and attachments to UGPC@fau.edu 10 days before the UGPC meeting.

Doctoral Program

Doctor of Philosophy in Transportation and Environmental Engineering

(For this degree program, the GRE admission requirement is waived through and including fall 2023.)

The Department of Civil, Environmental and Geomatics Engineering offers a Doctor of Philosophy (Ph.D.) degree focused on urban mobility and environmental/water resources sustainability. This degree provides students with a fundamental and applied research-based education suitable for seeking employment in industry, government or academia.

Admission Requirements

Applicants should have a master's degree in Engineering, Science, Urban Planning, Transportation Logistics or Mathematics from an accredited college or university. A student with outstanding scholastic achievement who holds only a baccalaureate degree in Engineering, Science, Urban Planning, Transportation Logistics or Mathematics from an accredited college or university may be admitted directly to this Ph.D. program and be eligible to earn the ~~Master's en Passant-with a Master of Science in Civil Engineering degree with a concentration in Transportation/Geomatics Engineering or Water Resources/Environmental Engineering~~. Specific requirements for the B.S. to Ph.D. are found [here](#).

Requirements for students with previous degrees in non-engineering disciplines are found [here](#). Additional eligibility requirements are:

1. A cumulative GPA of 3.00;
2. Completion of at least two semesters of college calculus with grades of "B" or better;
3. Satisfaction of departmental minimum GRE score requirements; and
4. A letter of recommendation from their potential graduate advisor.

The Department of Civil, Environmental and Geomatics Engineering requires the following deficiency coursework for students without an engineering bachelor's degree from an accredited program: two fundamental engineering courses in the relevant area, as determined by the ~~graduate supervisory committee~~dissertation advisor or department graduate committee.

- Applicants must have a 3.0 GPA (on a 4.0 scale) or better in the last 60 credits of work attempted coursework and must have an official transcript forwarded directly to the FAU Graduate College from each college-level institution attended;
- Applicants must submit the Graduate Record Examination (GRE) score. The GRE requirement is waived with proof of passing the Fundamentals of Engineering (FE) or Principles and Practice of Engineering (PE) exam. The GRE requirement is waived for applicants who have a previous degree from FAU's College of Engineering and Computer Science;
- A student from a non-English-speaking country is required to take the Test of English as a Foreign Language (TOEFL) and achieve a score of at least 550 (paper-based) or 213 (computer-

based) or 79 (iBT). This requirement may be waived for students who have obtained a prior degree from a U.S. institution;

- Applicants must submit to the Graduate College at least two letters of recommendation attesting to the student's ability to pursue with distinction a curriculum of advanced study and research in a chosen area;
- Applicants must abide by the policies and regulations and the graduate admission requirements of the University as outlined in this University Catalog;
- Conditional admission may be permitted if the above conditions are not met.

Graduation Requirements

The degree will be conferred on candidates who have fulfilled the following requirements:

1. Completed the curriculum for the Ph.D. in Transportation and Environmental Engineering, which entails:

- Successful completion of 72 credits of course and dissertation work beyond the baccalaureate degree with a minimum grade of "B" in each course. Up to 30 credits of coursework from an approved master's degree program may be applied;
- Maintenance of a minimum 3.0 GPA in all coursework attempted for the degree. Failure to maintain a minimum GPA of 3.0 may result in creating an Academic Progression Plan (APP) for the student.

<u>Core Courses – 2 courses (i.e., 6 credits)</u>	
<u>Sustainability and Pollution Prevention</u>	<u>ENV 6932</u>
<u>Transportation System Analysis</u>	<u>TTE 6501</u>
<u>Technical Electives – 3 courses (i.e., 9 credits)</u>	
<u>Select 3 courses at the 5000 or 6000 level from the Department of Civil, Environmental and Geomatics Engineering.</u>	
<u>The courses must be approved by the dissertation advisor.</u>	
<u>Other Electives – 2 courses (i.e., 6 credits)</u>	
<u>Select 2 courses at the 5000 or 6000 level from the College of Engineering and Computer Science or other FAU colleges.</u>	
<u>No more than 3 credits of directed independent study (DIS).</u>	
<u>The courses must be approved by the dissertation advisor.</u>	
<u>Dissertation (CGN 7980) – 21 credits (minimum) for students entering with a master's degree.</u>	

Up to 3 credits of graduate internship (EGN 5940) can be used to satisfy the 21-credit dissertation minimum requirement, with approval of the dissertation advisor.

Graduate Seminar (CGN 5937) – 2 semesters

(Core Course) Sustainability and Pollution Prevention	ENV 6932	3
(Core Course) Transportation System Analysis	TTE 6501	3
2 semesters of Graduate Seminar	CGN 5937	0
Academic Specialization Electives*	-	9
Free Electives**	-	6
Dissertation (minimum)***	-	21

* Of the minimum 9 credits of Academic Specialization Electives, select from the approved Mobility, Sustainability and Interdisciplinary Electives lists.

** These can be from the approved list of Academic Specialization Electives or other courses approved by the Dissertation/Supervisory Committee. No more than 3 credits of directed independent study may be used to satisfy this requirement.

*** Up to 3 credits of graduate internship (EGN 5940) can be used to satisfy the 21-credit dissertation minimum. These credits may not be taken until successfully passing the qualifying exam to enter candidacy.

2. Successful completion of a qualifying exam is required upon completion of 21 credits of coursework beyond the master's degree 15 credits of core and technical elective courses;

3. Successful completion of a dissertation proposal defense is typically required before registering for dissertation credits within two semesters after passing the qualifying exam;

4. Prior to the dissertation defense, the student is required to have published or have accepted for publication a refereed research paper in a field of study deemed acceptable by the dissertation committee. A journal article is preferred, but a peer-reviewed conference paper is also acceptable;

5. Successful completion of an oral defense of the written doctoral dissertation based on original research in the student's area of specialization. The Dissertation/Supervisory Committee, the Department Chair and the Graduate College must have approved the dissertation and oral defense;

6. Complied with the University's Graduate Policies and Regulations and satisfied the University's Graduate Degree Requirements.

Dissertation/Supervisory Committee

Upon acceptance into the Ph.D. Program, a student will select ~~or be assigned~~ an advisor from the department faculty members to serve as chair of the Dissertation/Supervisory Committee. The student's Ph.D. Dissertation/Supervisory Committee will have a minimum of four members with at least two of them having expertise in the research area. At least two~~Three~~ committee members must be from the Department of Civil, Environmental and Geomatics Engineering ~~FAU graduate faculty or associate graduate faculty according to the FAU Graduate College guidelines, at least one of which is from the Department of Civil, Environmental and Geomatics Engineering~~. One member and/or co-chair of the committee can be from outside the department. Also, the committee may include a member from another institution or industry ~~The final member may be a qualified expert from industry or academia with affiliate graduate faculty status~~. In unusual circumstances, with the approval of the Department Graduate Committee, two members may co-chair; however, off-campus experts or adjunct faculty may not serve as sole committee chair. The Dissertation/Supervisory Committee shall ~~approve the plan of study, monitor academic progress~~, approve the dissertation proposal, monitor academic progress every semester, prepare, give and evaluate the Qualifying Exam, evaluate the dissertation defense, and approve the final doctoral dissertation document.

Qualifying Exam

Upon successful completion of ~~21 credits of coursework beyond the Master's Degree~~ core and technical elective courses and ~~within 12 months of completion of graduate coursework~~, the student will be required to complete a qualifying examination. The examination is scheduled after the last day of the final examination period and before the end of the fall semester and the spring semester each year. The examination will be in two parts: One covering the core courses and one covering the technical elective subjects. An overall grade of 70 percent on each part of the written examination is passing. Students who score below 70 percent on certain parts of the written examination are given the option of re-taking exams on areas in which they scored less than 70 percent. The student must score at least 70 percent in each subject that is retaken. Normally, two failures will result in the student's dismissal from the Ph.D. program ~~on any part of the qualifying exam in the judgment of the Dissertation/Supervisory Committee~~. After passing the Qualifying Exam, ~~with the approval of the Dissertation/Supervisory Committee, at the~~ student advances to candidacy.

Proposal Defense: Within two semesters ~~After successful completion of the Qualifying Exam and prior to applying for graduation~~, the candidate ~~will~~ must orally defend the dissertation proposal to the Dissertation/Supervisory Committee for approval. The student should submit a written proposal report to the Dissertation/Supervisory Committee for review prior to the oral presentation.

Dissertation Defense: The doctoral dissertation shall be written in the format specified by the Graduate College. The dissertation must be defended orally and represent an original piece of research that advances the body of knowledge in the field. A written dissertation is submitted to the members of the committee who may approve, suggest additional work or reject the dissertation work after the defense.

Transportation Engineering Certificate

Transportation engineering is an interdisciplinary field that integrates many aspects of engineering and computer science fundamentals, quantitative methods, and technology innovations associated with

traffic operations, safety, intelligent transportation, supply chain and management. This is a practice-oriented program designed to assist engineers, planners, researchers and technical professionals in the launch or development of their careers in the transportation field.

Admission

The graduate certificate in Transportation Engineering is open to all prospective students and industry professionals who hold a bachelor's degree in Engineering or a related field. Prospective students must have a 3.0 GPA to ensure equivalency to graduate standing. Students enrolled in this certificate program are classified as non-degree-seeking students. Credits earned by non-degree students in this program may be applied later to a master of science degree program, if students choose to pursue such a degree. Only up to one third of the non-degree credits with a grade of "B" or higher can be counted toward a graduate degree.

Curriculum

Students must complete four courses from the following list or the equivalent with a minimum of a 3.0 GPA.

Intelligent Transportation Systems	TTE 6272	3
Transportation System Analysis	TTE 6501	3
Transportation and Supply Chain Systems	TTE 6507	3
Maritime Freight Operations	TTE 6508	3
Highway Engineering	TTE 6815	3

Transportation, Logistics and Supply Chain Management Certificate

To provide students with the knowledge necessary in this age of connected supply chains, the Department of Information Technology and Operations Management (ITOM) in the College of Business and the Department of Civil, Environmental and Geomatics Engineering (CEGE) in the College of Engineering and Computer Science offer a jointly designed certificate in Transportation, Logistics and Supply Chain Management. This 12-credit certificate permits graduate students to expand their knowledge on the technical skills of transportation engineering and the analytical business decision-making skills of supply chain management. Details for this certificate program can be found in the [Interdisciplinary Programs](#) section of the catalog.

Admission

This certificate program is open to students who have a bachelor's degree in business or engineering or in a related field and a GPA of at least 3.0. Students must satisfy the prerequisites for each course in the program.

Curriculum

All four required courses must be completed with a GPA of 3.0 or better. All course materials are in English; all international students must demonstrate proficiency in English to enter the program.

Required Courses by Department		
<i>ITOM Department (select two from the list, one of which must be MAN 6596)</i>		
Operations Management	MAN 6501	3
Project Management	MAN 6581	3
Supply Chain Management	MAN 6596	3
<i>CEGE Department (select two from the list)</i>		
Transportation System Analysis	TTE 6501	3
Transportation and Supply Chain Systems	TTE 6507	3
Maritime Freight Operations	TTE 6508	3