



**FLORIDA  
ATLANTIC  
UNIVERSITY**

**COURSE CHANGE REQUEST  
Graduate Programs**

**Department** Civil, Environmental & Geomatics Engineering  
**College** College of Engineering & Computer Science

UGPC Approval \_\_\_\_\_  
UFS Approval \_\_\_\_\_  
SCNS Submittal \_\_\_\_\_  
Confirmed \_\_\_\_\_  
Banner Posted \_\_\_\_\_  
Catalog \_\_\_\_\_

**Current Course Prefix and Number** TTE6815

**Current Course Title**  
Highway Engineering

*Syllabus must be attached for ANY changes to current course details. See [Guidelines](#). Please consult and list departments that may be affected by the changes; attach documentation.*

**Change title to:**

**Change description to:**

**Change prefix**

**From:** \_\_\_\_\_ **To:** \_\_\_\_\_

**Change prerequisites/minimum grades to:**

None

**Change course number**

**From:** \_\_\_\_\_ **To:** \_\_\_\_\_

**Change corequisites to:**

None

**Change credits\***

**From:** \_\_\_\_\_ **To:** \_\_\_\_\_

**Change registration controls to:**

**Change grading**

**From:** \_\_\_\_\_ **To:** \_\_\_\_\_

Please list existing and new pre/corequisites, specify AND or OR and include minimum passing grade.

\*Review Provost Memorandum

**Effective Term/Year for Changes:** Fall 2019

**Terminate course? Effective Term/Year for Termination:**

**Faculty Contact/Email/Phone** Ramesh Teegavarapu, 297-3444

**Approved by**

Department Chair \_\_\_\_\_

College Curriculum Chair \_\_\_\_\_

College Dean \_\_\_\_\_

UGPC Chair \_\_\_\_\_

UGC Chair \_\_\_\_\_

Graduate College Dean \_\_\_\_\_

UFS President \_\_\_\_\_

Provost \_\_\_\_\_

**Date**

02/26/2019

3/11/19

3/11/2019

Email this form and syllabus to [UGPC@fau.edu](mailto:UGPC@fau.edu) one week before the UGPC meeting.

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<b>1. Course title/number, number of credit hours</b>	
Highway Engineering – TTE 6815	3 credit hours
<b>2. Course prerequisites, co-requisites, and where the course fits in the program of study</b>	
Prerequisites: None	
<b>3. Course logistics</b>	
Term: Spring 2017 This is a classroom lecture course with occasional lectures covered through remote learning. Class location and time: Tuesdays from 7:10 PM to 10:20 PM in CM-125  Credit hour assignments: Lectures – 14 weeks, 170 minutes each week; Homework assignments – 12 weeks, about 180 minutes each week; Class project – 12 weeks, 120 minutes each week; Total in-class instruction per credit hour: <b>56 minutes per week, for 14 weeks</b> Total out-of-class assignments per credit hour: <b>4 hours and 17 minutes per week, for 14 weeks</b>	
<b>4. Instructor contact information</b>	
Instructor's name	Dr. Aleksandar Stevanovic, Associate Professor
Office address	Engineering West (EG-36) Bldg., Room 225
Office Hours	T 9:00 -11:00 AM
Contact telephone number	561-297-3743
Email address	astevano@fau.edu
<b>5. TA contact information</b>	
TA's name	Dr. Nikola Mitrovic, Post-doctoral Research Associate
Office address	IS 4, Room 101
Office Hours	
Contact telephone number	
Email address	nmitrovi@fau.edu
<b>6. Course description</b>	
Fundamental concepts of transportation engineering; multi-modal transportation; traffic and highway engineering; fundamental principles of traffic flow; traffic control; capacity and level of service of signalized intersections; network operations; statistical analysis; route selection including environmental impacts, intersection design.	

<b>7. Course objectives/student learning outcomes/program outcomes</b>	
Course objectives	<ol style="list-style-type: none"> <li>I. Introduce students to the fundamental concepts of traffic flows, driver behavior, road design and traffic safety.</li> <li>II. Establish student's understanding of fundamental concepts applied in the analysis, design, modeling and operation of transportation systems.</li> </ol>



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	<p>III. Develop students' ability to solve transportation problems involving first order differential equations, probability and statistics, and trigonometry and geometry.</p> <p>IV. Develop student's ability to relate theory in transportation engineering to real-life applications.</p> <p>V. Prepare students for engineering work in design and management of transportation systems.</p>
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**8. Course evaluation method**

Class Project:	30%
Final Exam:	20%
Homework Assignments:	48%
Quizzes/Class participation:	2%

*Note:* The minimum grade required to pass the course is C.

**9. Course grading scale**

There is not any fix criteria for the grading scale. The overall performance, as related to course objectives and outcomes, is evaluated and considered during grading.

**10. Policy on makeup tests, late work, and incompletes**

*Makeup tests* are given only if there is solid evidence of a medical or otherwise serious emergency that prevented the student of participating in the exam. Makeup exam should be administered and proctored by department personnel unless there are other pre-approved arrangements.

*Late homework submissions* will get (if 100% correct) only 75% of the original points. *Late class project submissions* are unacceptable.

*Incomplete grades* are against the policy of the department. Unless there is solid evidence of medical or otherwise serious emergency situation incomplete grades will not be given.

*Assignments* are submitted through **Canvas ONLY** and they are always due by 7:00 PM on Tuesdays (just before the class starts). Assignments can be written manually and scanned as a pdf file; or they can be developed in word processing programs (or spreadsheets) and converted to pdf files. **Each assignment should be submitted as a SINGLE pdf file through Canvas.** Late assignments will be accepted but with a penalty – they will be given only 75% of the earned score. **No assignments will be accepted through any other means (email, in-hand, etc.) except through Canvas.**

**11. Special course requirements**

Students are supposed to be familiar with basic statistical and programming concepts. They should also be able to use Excel spreadsheets and Matlab to perform basic mathematical and statistical computations and report results through charts and tables.

**12. Classroom etiquette policy**

University policy requires that in order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular phones and laptops, are to be disabled in class sessions.

**13. Disability policy statement**

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In compliance with the Americans with Disabilities Act (ADA), students who require special accommodations due to a disability to properly execute coursework must register with the Office for Students with Disabilities (OSD) located in Boca Raton campus, SU 133 (561) 297-3880 and follow all OSD procedures.

**14. Honor code policy**

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high quality education in which no student enjoys unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and place high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. See University Regulation 4.001 at [www.fau.edu/regulations/chapter4/4.001\\_Honor\\_Code.pdf](http://www.fau.edu/regulations/chapter4/4.001_Honor_Code.pdf).

**15. Required texts/reading**

1. No required textbooks

**16. Supplementary/recommended readings**

- 1) "Traffic Engineering" by Roess, Prassas & McShane, 4<sup>th</sup> edition, Pearson.
- 2) "Traffic Flow Fundamentals" by A. May, Prentice Hall Inc, 1990.
- 3) "Optimal Traffic Control: Urban Intersections" by S. Guberinic, G. Senborn, and B. Lazic. CRC Press.
- 4) "Fundamentals of Transportation and Traffic Operations" by C. Daganzo, Emerald.
- 5) "Statistical and Econometric Methods for Transportation Data Analysis" by S. Washington, M.G. Karlaftis, and F.L. Mannering, Chapman & Hall, CRC Press.
- 6) "Traffic Flow Theory – A State-of-the-art Report" by multiple authors, Special TRB report. <https://www.fhwa.dot.gov/publications/research/operations/tft/>
- 7) "Signal Timing Manual" NCHRP Report 812, KAI, KHA, Texas A&M TI, Purdue University [http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp\\_rpt\\_812.pdf](http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_812.pdf)
- 8) "Scientific Approaches to Transportation Research", NCHRP Report 20-45, by S. Washington, J. Leonard, D. Manning, C. Roberts, B. Williams, A. Bacchus, A. Devanhalli, J. Ogle, D. Melcher <http://onlinepubs.trb.org/onlinepubs/nchrp/cd-22/start.htm>

**17. Course topical outline, including dates for exams/quizzes, papers, completion of reading**

Lectures	
Date	Topic
Week 1	Course introduction, syllabus, independent readings and summary of conference activities.
<b>MODULE I: Research Methodology in Transportation</b>	
Week 2	Overview of Scientific Approaches to Transportation Research
Week 3	Expectations and Practices in Transportation Research Environment
<b>MODULE II: Concepts Used in Traffic Flow Theory</b>	
Week 4	Vehicular Trajectories/Time-Space Diagrams; Queuing Theory/Cumulative Plots
Week 5	Queuing Theory/Cumulative Plots; Optimization
<b>MODULE III: Traffic Flow Theory</b>	



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Week 6	Fundamental Traffic Flow Relationships
Week 7	Microscopic and Macroscopic Characteristics of Traffic Flows
Week 8	Shockwave and Bottleneck Analyses
Week 9	Spring Break.
	<b>MODULE IV: Traffic Control Theory</b>
Week 10	Traffic Control Problem and Graph Theory
Week 11	Traffic Signal Systems
	<b>MODULE V: Traffic Data Measurements and Analysis</b>
Week 12	Statistical Inference: Interval Estimation, Hypothesis Testing, and Population Comparisons
Week 13	Continuous Dependent Variable Models
Week 14	Count and Discrete Dependent Variable Models
Week 15	Preparation for the final exam.
Tue May 2	Final Exam 7:00 PM – 9:30 PM

**18. Course topical outline, including dates for exams/quizzes, papers, completion of reading (continued)**

Assignments	
<i>Date</i>	<i>Topic</i>
Week 1	No assignment
Week 2	Assignment 1 given*
Week 3	Assignment 2 given; Assignment 1 due**
Week 4	Assignment 3 given; Assignment 2 due
Week 5	Assignment 4 given; Assignment 3 due
Week 6	Assignment 5 given; Assignment 4 due
Week 7	Assignment 6 given; Assignment 5 due
Week 8	Assignment 7 given; Assignment 6 due
Week 9	Spring Break
Week 10	Assignment 8 given; Assignment 7 due
Week 11	Assignment 9 given; Assignment 8 due
Week 12	Assignment 10 given; Assignment 9 due
Week 13	Assignment 11 given; Assignment 10 due
Week 14	Assignment 12 given; Assignment 11 due
Week 15	Assignment 12 due

\* Assignments are officially given after each class on Tuesday (Canvas link opens at 10:00 PM)

\*\* Assignments are due by beginning of class on following Tuesday (7:00 PM)