FAU

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**	***Current* Course Title**
CES 6119	Finite Element Methods in Civil 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 prefix

From: **To:**

Change course number

From: **To:**

Change credits*

From: **To:**

Change grading

From: **To:**

*Review Provost Memorandum

Change description to:

Change prerequisites/minimum grades to:

None

Change corequisites to:

None

Change registration controls to:

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

Effective Term/Year for Changes: Fall 2019

Terminate course? Effective Term/Year for Termination:

Faculty Contact/Email/Phone Ramesh Teegavarapu, 7-3444

Approved by	***Date***
Department Chair	3/1/2019
College Curriculum Chair	3/11/19
College Dean	3/11/2019
UGPC Chair	
UGC Chair	
Graduate College Dean	
UFS President	
Provost	

Email this form and syllabus to UGPC@fau.edu one week before the UGPC meeting.

GRADUATE COLLEGE

MAR 12 2019

Received

FAUchangecourseGR, revised Summer 2018

FLORIDA ATLANTIC UNIVERSITY

COLLEGE OF ENGINEERING & COMPUTER SCIENCE
Department of Civil, Environmental and Geomatics Engineering
777 Glades Road, Bldg. #96, 403E
Boca Raton, FL 33431
tel: 561.297.3444

Memorandum

DATE: March 22, 2019

TO: UGPC, Graduate College

FROM: Dr. Ramesh Teegavarapu, Professor and Graduate Program Director, Civil Environmental and Geomatics Engineering (CEGE)

SUBJECT: Requesting for changes in pre-requisites for multiple courses.

CEGE department is request the following changes in the catalog.

Advanced Foundation Engineering (CEG 6105) 3 credits
Existing: Prerequisites: CEG 4012.
Requested Change: Prerequisites: None

Pavement Analysis and Design (CEG 6129) 3 credits
Existing Prerequisites: CEG 3011C, CGN 3501C
Requested Change: Prerequisites: None

Finite Element Methods in Civil Engineering (CES 6119) 3 credits
Existing: Prerequisites: CEG 4012
Requested Change: Prerequisites: None

Airport Planning and Design (TTE 6526) 3 credits
Existing Prerequisites: Permission of instructor
Requested Change: Prerequisites: None

Soli-Stabilization and Geosynthetics (CEG 6124) 3 credits
Existing Prerequisites: CEG 3011C, CGN 3501C
Requested Change: Prerequisites: None

Water Supply Treatment (ENV 6418) 3 credits
Prerequisite: ENV 3001C
Requested Change: Prerequisites: None

WasteWater Engineering (ENV6507) 3 credits
Prerequisites: ENV 3001C
Requested Change: Prerequisites: None

Highway Engineering (TTE6815) 3 credits
Prerequisites: CEG 3011C, CWR 4202 and EGN 3331 or equivalent
Requested Change: Prerequisites: None

Department of Civil Environmental and Geomatics Engineering
Florida Atlantic University
Course Syllabus

1. Course title/number, number of credit hours	
CES 6119 Finite Element Methods in Civil Engineering	3 credit hours

2. Course prerequisites, corequisites, and where the course fits in the program of study

Prerequisites: None

3. Course logistics

Term: Summer 2018
This is a classroom lecture course
Class location and time: MW 2:00 - 5:00 pm, FL427.

4. Instructor contact information

Instructor's name	Dr. Yan Yong, Professor
Office address	Utility Building (Bldg 5), Room 135
Office Hours	MW 1:00-3:00 pm
Contact telephone number	561-297-3445
Email address	yongy@fau.edu

5. TA contact information

TA's name	
Office address	
Office Hours	N/A
Contact telephone number	
Email address	

6. Course description

Variational principles, weighted residual methods, convergence criteria, shape functions for one-, two-, and three-dimensional elements, isoparametric elements, and applications to structural and geotechnical engineering systems.

7. Course objectives/student learning outcomes/program outcomes

Course objectives	
Student Learning Outcomes	

8. Course evaluation method

Homework	10%	
Common project	10%	
Special project	10%	
Midterm	35%	
Final Exam	35%	

9. Course grading scale

The grading is based on the overall performance as related to course objectives and outcomes. Results from course evaluations of the students will be normalized and letter grades are given. The instructor will explain the complete grading scheme and scale in the first class of the course.

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

1. *Late work* is not acceptable.

2. *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.

11. Special course requirements

None

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. **Students walking out the classroom during lecture are not allowed to return except for medical conditions.**

13. Attendance Policy Statement

Students are expected to attend all of their scheduled University classes and to satisfy all academic objectives as outlined by the instructor. The effect of absences upon grades is determined by the instructor, and the University reserves the right to deal at any time with individual cases of non-attendance.

Students are responsible for arranging to make up work missed because of legitimate class absence, such as illness, family emergencies, military obligation, court-imposed legal obligations or participation in University-approved activities. Examples of University-approved reasons for absences include participating on an athletic or scholastic team, musical and theatrical performances and debate activities. It is the student's responsibility to give the instructor notice prior to any anticipated absences and within a reasonable amount of time after an unanticipated absence, ordinarily by the next scheduled class meeting. Instructors must allow each student who is absent for a University-approved reason the opportunity to make up work missed without any reduction in the student's final course grade as a direct result of such absence.

14. Disability policy statement

In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS) and follow all SAS procedures. SAS has offices across three of FAU's campuses – Boca Raton, Davie and Jupiter – however disability services are available for students on all campuses. For more information, please visit the SAS website at www.fau.edu/sas/.

15. Counseling and Psychological Service (CAPS) Center

Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to http://www.fau.edu/counseling/

16. Code of Academic Integrity Policy Statement

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 an unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a

system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see University Regulation 4.001. If your college has particular policies relating to cheating and plagiarism, state so here or provide a link to the full policy—but be sure the college policy does not conflict with the University Regulation.

17. Supplementary/recommended readings

None

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

05-14-18 **05-16-18**	1.4-1.7 2.1-2.6
05-21-18 **05-23-18**	3.1-3.2 3.3-3.7
06-04-18 **06-07-18**	3-8 – 3.11 3.12-3.13
06-11-18	4.1-4.4
06-28-18 **06-30-18**	4.5-4.8 5.1-5.4
07/02/2018	**Midterm**
07-09-18 **07-11-18**	5.5-5.6 6.1-6.3
07-16-18 **07-18-18**	6.4-6.6 7.1-7.5
07-23-18 **07-25-18**	8.1-8.3 9.1-9.3
07-30-18 **08-01-18**	10.1-10.3 10.4-10.5
08/03/2018 (9:00-12:00 pm)	**Final Exam**

19. Assignment Presentation (Required Format)

All assignments (i.e., homework, projects, etc) to be completed by students attending courses offered by the Civil Engineering Department must be presented in a standardized format.

Any assignments that do not comply with the following guidelines will not be accepted.

1. The assignment must be written in an 8.5 x 11 inches **engineering paper**. The problem narrative must not be repeated in the assignment sheet. However, the problem number from the textbook must be given as well as the **GIVEN** conditions and the **FIND** (whatever the problem is asking for) must be listed briefly. If homework is a handout, attach the handout at the front of the homework.
2. Each page must have:
   (a) Course Number and Name (e.g., ENV-4001 Environmental Engineering and Science) at the top center,
   (b) Assignment Number (e.g. HW#5) at the top left,
   (c) Student's Name (e.g., J.M. Dover) at the top right, and
   (d) Page Number and Total Number of Pages (e.g. 2/3) at the bottom center.
3. The text and computations in the assignment must be written in a professional manner, i.e.:
   (a) Any derivations of formulas/equations, symbols, etc must be properly explained,
   (b) Any assumptions/simplifications made must be mentioned and justified,
   (c) The solution must be written in reasonable sequence,

(d) The final result(s) must be given at the end of the problem written within a box,
(e) Half way "solutions" are not acceptable,
(f) Just mentioning the solution algorithm/process of the problem is not acceptable; all of the computations must be carried to the very end, and
(g) Any unsuccessful initial attempts of solving the problem must be kept out of the assignment submitted.

4. The assignments must be presented also in a legible and well-written manner. The handwriting must be neat otherwise the assignment must be typed.
5. The assignment sheets must not be creased or folded but be stapled together at the upper left corner.

20. Sample Assignment format

HW#5 **ENV-3001 Environmental Engineering and Science** **J.M. Dover**

Problem #3.24 (Doe, J.R. "Fundamentals of Environmental Engineering", 1999)

GIVEN: Min value of Oxygen Sag = 3.0 mg/L

Naturally Occurring DO in the stream = 10 mg/L

Min allowable DO = 5.0 mg/L

Reaeration coefficient = 0.80/day

Deoxygenation Coefficient = 0.20/day

Stream velocity = 60 miles/day

FIND: (a) Percentage of BOD that must be treated to ensure healthy environmental conditions

(b) How far downstream in miles the lowest DO would occur?

SOLUTION:

a) The minimum DO of 3.0 mg/L means that the maximum deficit (before fixing it) is

$DO_{max} = 10 - 3 = 7$ mg/L

For healthy conditions, the DO_{min} should be 5 mg/L so that the new DO_{max} should be

$DO_{max(new)} = 10 - 5 = 5$ mg/L

Then $DO_{max} / DO_{max(new)} = 5.0/7.0 = 0.71$

ANSWER:

Thus, 29% of the BOD needs to be removed. Since a primary treatment plant removes about 35% of the BOD (Chapter 3, pp 76) then **it would be enough**.

b) Using Eq. (5.34) the critical time and distance downstream are given as:

Critical time: $t_c = \ln(k_r/k_d)/(k_r - k_d) = \ln(0.8/0.2)/(0.8 - 0.2) = 2.31$ days

Distance: L = 60 mi/day x 2.31 days = 138.6 miles

ANSWER: Critical time is **2.31 days**; Distance is **138.6 miles**