FLORIDA ATLANTIC UNIVERSITY

NEW COURSE PROPOSAL
Undergraduate Programs

Department Department of Civil, Environmental and Geomatic

College College of Engineering and Computer Science

*(To obtain a course number, contact **erudolph@fau.edu**)*

UUPC Approval _____
UFS Approval _____
SCNS Submittal _____
Confirmed _____
Banner Posted _____
Catalog _____

Prefix CES

Number 4213

(L = Lab Course; C = Combined Lecture/Lab; add if appropriate)

Lab Code

Type of Course: Lecture

Course Title: Structural Stability

Credits *(See Definition of a Credit Hour)*: 3

Effective Date *(TERM & YEAR)*: Fall 2026

Grading *(Select One Option)*

Regular (●)

Sat/UnSat ( )

Course Description *(Syllabus must be attached; see Template and Guidelines)*

This course provides the principles and applications of structural stability for their practical use in civil engineering structures. Mathematical treatment of various types of stability problems and stability criteria is introduced. Fundamental stability problems of structural members, including columns, beam-columns, rigid frames, trusses, and beams, thin-walled sections.

Prerequisites, with minimum grade*

EGN 3331 with minimum grade of "C"

Corequisites

Registration Controls *(Major, College, Level)*

Department Permission

Default minimum passing grade is D-.** **Prereqs., Coreqs. & Reg. Controls are enforced for all sections of course

WAC/Gordon Rule Course

☐ **Yes** ☑ **No**

WAC/Gordon Rule criteria must be indicated in syllabus and approval attached to proposal. See WAC Guidelines.

Intellectual Foundations Program (General Education) Requirement *(Select One Option)*

None

General Education criteria must be indicated in the syllabus and approval attached to the proposal. See Intellectual Foundations Guidelines.

Minimum qualifications to teach course

PhD in Civil Engineering or relevant disciplines

Faculty Contact/Email/Phone

mabdellatef@fau.edu / 561-297-5720

List/Attach comments from departments affected by new course

Approved by		***Date***
Department Chair	Evangelos Kaisar	1/14/26
College Curriculum Chair	Galan Liu	1/19/26
College Dean		
UUPC Chair		
Undergraduate Studies Dean		
UFS President		
Provost		

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

CES 4213 Structural Stability

M 7:10 – 9:00
3 credits

Spring, 2026
Prof. Mohammed Abdellatef
Office: (EG 36), Room 214
Office hours: MW 4-5
Classroom: General Classroom South Boca 101
Telephone: 561-297-5720
Email: mabdellatef@fau.edu

TA name	TBD
Office	TBD
Office hours	TBD
Telephone	TBD
Email	TBD

Course Description

This course provides the principles of structural stability for their practical use in civil engineering structures. Mathematical treatment of various types of stability problems and stability criteria is introduced. Fundamental stability problems of structural members, including columns, beam-columns, rigid frames, trusses, and beams, thin-walled sections.

Instructional Method

Primarily Classroom.

Prerequisites/Corequisites

EGN 3331 with a minimum grade of "C".

Course Objectives/Student Learning Outcomes

The objective of this course is to develop the knowledge of structural analysis applied to structures exhibiting geometric and/or material nonlinearity. This will be achieved through advancing students' knowledge of linear structural analysis. Upon successful completion of the course, students will have the necessary understanding of fundamental structural mechanics principles that are utilized for solving structural analysis problems involving nonlinear behavior. Students will perform the analysis of structures that exhibit geometric and/or material nonlinearity.

Course Evaluation Method

Homework assignments including class participation: 30%
Midterm: 35%
Final: 35%
The minimum grade required to pass the course is "C".

Course Grading Scale

Letter Grade	Percentage
A	100 - 94%
A-	< 94 - 90%
B+	< 90 - 87%
B	< 87 - 83%
B-	< 83 - 80%
C+	< 80 - 77%
C	< 77 - 73%
C-	< 73 - 70%
D+	< 70 - 67%
D	< 67 - 63%
D-	< 63 - 60%
F	< 60 - 0%

Policy on Makeup Tests, Late Work, and Incompletes (if applicable)

If you do not accept late work or apply penalties to late work, state so. Please note that students may not be penalized for absences due to participation in University-approved activities, including athletic or scholastics teams, musical and theatrical performances, and debate activities. Instructors must allow these students to make up missed work without any reduction in the student's final course grade. Reasonable accommodation must also be made for students participating in a religious observance. Also, note that grades of Incomplete ("I") are reserved for students who are passing a course but have not completed all the required work because of exceptional circumstances. If your college has elaborated on this policy, state so here.

Classroom Etiquette Policy (if applicable)

If you have a particular policy relating to student behavior in the class, such as relating to tardiness or on the use of electronic devices in the classroom, state so here. Recognizing the unique relationship between faculty and student and adhering to the principles of academic responsibility, any such policies must be reasonable, non-discriminatory and not impede the educational mission.

Policy on the Recording of Lectures (optional)

Because of a new Florida Statute in 2021, the following model language is suggested for inclusion in course syllabi, at the discretion of individual faculty:
Students enrolled in this course may record video or audio of class lectures for their own personal educational use. A class lecture is defined as a formal or methodical oral presentation as

part of a university course intended to present information or teach students about a particular subject. Recording class activities other than class lectures, including but not limited to student presentations (whether individually or as part of a group), class discussion (except when incidental to and incorporated within a class lecture), labs, clinical presentations such as patient history, academic exercises involving student participation, test or examination administrations, field trips, and private conversations between students in the class or between a student and the lecturer, is prohibited. Recordings may not be used as a substitute for class participation or class attendance and may not be published or shared without the written consent of the faculty member. Failure to adhere to these requirements may constitute a violation of the University's Student Code of Conduct and/or the Code of Academic Integrity.

Artificial Intelligence Preamble

Artificial Intelligence Preamble FAU recognizes the value of generative AI in facilitating learning. However, output generated by artificial intelligence (AI), such as written words, computations, code, artwork, images, music, etc., for example, is drawn from previously published materials and is not your own original work. FAU students are not permitted to use AI for any course work unless explicitly allowed to do so by the instructor of the class for a specific assignment. [Policy 12.16 Artificial Intelligence] Class policies related to AI use are decided by the individual faculty. Some faculty members may permit the use of AI in certain assignments but not others, while others may prohibit its use entirely in their courses. In the case that an instructor permits the use of AI for some assignments, the assignment instructions will indicate when and how the use of AI is permitted in that specific assignment. It is the student's responsibility to comply with the instructor's expectations for each assignment in each course. When AI is authorized, the student is also responsible and accountable for the content of the work. AI may generate inaccurate, false, or exaggerated information. Users should approach any generated content with skepticism and review any information generated by AI before using generated content as-is. If you are unclear about whether or not the use of AI is permitted, ask your instructor before starting the assignment. Failure to comply with the requirements related to the use of AI may constitute a violation of the Florida Atlantic Code of Academic Integrity, Regulation 4.001. Proper Citation: If the use of AI is permitted for a specific assignment, then use of the AI tool must be properly documented and cited. For more information on how to properly cite the use of AI tools, visit https://fau.edu/ai/citation AI Flexible Policy: The use of AI to assist in work assigned in this specific course is permitted only for specific assignments as indicated by the instructor. Use must be properly documented and cited per instructor guidelines.

Attendance Policy

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.

Counseling and Psychological Services (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/

Disability Policy

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/.

Code of Academic Integrity

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.

Required Texts/Readings

No course materials are required.

Supplementary/Recommended Readings (if applicable)

Structural Stability of Steel: Concepts and Applications for Structural Engineers
Authors: Theodore V. Galambos, Andrea E. Surovek

Matrix Structural Analysis
Authors: W. McGuire, R.H. Gallagher, R.D. Ziemian

Course Topical Outline

Week	Topic
Week 1 – 01/12/2026	Nonlinear structural analysis – I
Week 2 – 01/19/2026	M.L. King Jr. Day (University closed)
Week 3 – 01/26/2026	Nonlinear structural analysis – II
Week 4 – 02/02/2026	Fundamentals of stability – I
Week 5 – 02/09/2026	Fundamentals of stability – II
Week 6 – 02/16/2026	Elastic and inelastic buckling of columns – I
Week 7 – 02/23/2026	Midterm Exam
Week 8 – 03/02/2026	Elastic and inelastic buckling of columns – II
Week 9 – 03/09/2026	Spring Break
Week 10 – 03/16/2026	Elastic and inelastic buckling of columns – III
Week 11 – 03/23/2026	Frame stability – I
Week 12 – 03/30/2026	Frame stability – II
Week 13 – 04/06/2026	Frame stability – III
Week 14 – 04/13/2026	Lateral-torsional buckling – I
Week 15 – 04/20/2026	Lateral-torsional buckling – II
Week 16 – 04/27/2026	Presentations Day (***CES 6218 presentations***)
Week 17 – 05/04/2026	Final Exam