**University of Florida**

**M.E. RINKER, Sr. SCHOOL OF CONSTRUCTION MANAGEMENT**

**BCN 3413  STRUCTURES**

Fall 2025 | Syllabus

**Honor Code:** Students are expected to comply with the spirit and intent of the University of

Florida Honor Code, which states, “*We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.*”

**Instructor:** Idris Jeelani, PhD

**Office:** Rinker 317

**Email:** Mail tool in e-Learning in Canvas (preferred method)

**Website:** UF e-Learning in Canvas

**Office Hours:**  TBD

**TA:** Mohamad Hasnain (m.hasnain@ufl.edu)

**TA office hours:** TBD

**COURSE DESCRIPTION:** To study the material properties, design procedures, and code requirements for steel and concrete structures.

**INSTRUCTIONAL METHODS**: Class lectures, In-Class Exercises, videos, tests, and a final project..

**COURSE LEARNING OUTCOMES (CLOs):**

Upon completion of the course, students will demonstrate the ability to:

1. Review ASTM standards for structural elements and recognize use of various structural steel shapes, metal decks, open-web bar joists, high strength steel bolts, welds and reinforcing steel. (PL 1, ACCE SLO 7, 8)
2. Use sections of codes related to structural design and calculate code-required design loads; be aware of the existence of other local and national building codes. Understand different design methodologies such as allowable stress design and load and resistance factor design. (PL 1, ACCE SLO 8, 19).
3. Recognize different structural systems and their assembling methods, including pre-stressed concrete, precast concrete, cast-in place concrete, T-beams, doubly reinforced beams. (PL 1, ACCE SLO 7).
4. Analyze and design simple structural elements (beams, columns, slabs) made of steel and concrete for bending, shear, deflection, compression and tension as applicable, as well as connections between such elements using AISC manual and ACI codes. (PL 1, ACCE SLO 19).
5. Read, understand, and use structural drawings, shop drawings, and erection and placing drawings as well as specifications for structural members. (PL 1, ACCE SLO 7, 8, 15)
6. Understand fundamentals of structural design and be creative in proposing solutions to daily problems encountered in a construction project. (PL 1, ACCE SLO 8, 19).

**REQUIRED TEXTBOOKS**

1. Reinforced Concrete Design, George, F. Limbrunner and Abi O. Aghayere, Ninth Edition, 2018

**SUPPLEMENTAL READINGS**

1. Structural Steel Design: A Practice Oriented Approach by [Abi O. AghayereLinks to an external site.](http://www.amazon.com/Abi-O.-Aghayere/e/B001IODQ6C/ref=ntt_athr_dp_pel_1) and [Jason VigilLinks to an external site.](http://www.amazon.com/s/ref=ntt_athr_dp_sr_2?_encoding=UTF8&sort=relevancerank&search-alias=books&field-author=Jason%20Vigil), Third Edition, 2020, Mercury Learning and Information
2. Structural Steel Design, William T. Segui, Prentice Hall
3. ‘Applied Statics and Strength of Materials’ by Spiegel and Limbrunner.
4. Concrete Structures, Setareh and Darvis, 2007, Prentice Hall
5. ‘Manual of Steel Construction’, AISC, Thirteenth Edition (PDF on Canvas)

**STUDENT REQUIREMENTS**: Student grades will be based on tests, assignments, in-class exercises, and final project. There are no make-ups for missed tests, quizzes, assignments, or final project. **Class Attendance is mandatory.**

**HOMEWORK POLICY:** Assignments will be accepted up to the established time. Any Assignment turned in after the deadline will be graded at 50% of the original credit. Any assignment turned in more than 48 hours late will not be accepted, and the student will receive a 0 (zero) on the assignment. All work turned in for this course is expected to be of professional quality in content and presentation.

**COURSE GRADING:**

* Tests: 4 tests 40%
* Assignments: 8 assignments 25%
* Final Project: 15%
* In-class exercises (8-10)/Discussions 20%

# Total 100%

**Grade Scale:** Grades will be given according to the following scale.

|  |  |
| --- | --- |
| **Letter Grade** | **Numeric Grade** |
| A | ≥ 93 |
| A- | ≥ 90 AND < 93 |
| B+ | ≥ 87 AND < 90 |
| B | ≥ 83 AND < 87 |
| B- | ≥ 80 AND < 83 |
| C+ | ≥ 77 AND < 80 |
| C | ≥ 73 AND < 77 |
| C- | ≥ 70 AND < 73 |
| D+ | ≥ 67 AND < 70 |
| D | ≥ 63 AND < 67 |
| D- | ≥ 60 AND < 63 |
| F | <60 |

# Fall 2025 Schedule

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| --- | --- | --- |
| **Class** | **Topic** | **Assignments** |
| 1,2 | Module 1: Introduction to Structures   1. Review of Statics 2. Basics of Structural design & analysis – modes of failure 3. Introduction to beam, column, wall, and slabs |  |
| 3,4,5,6 | Module 2: Concrete Beams   1. Reinforced Beams Design and Details 2. Beam Analysis | Assignment 2 – Due on |
| 7,8 | Module 3: Concrete Slabs   1. Slab introduction 2. One-way Slab Analysis 3. c)      One-way Slab Design & Details | Assignment 3 – Due on |
| ***Test 1:*** | | |
| 10,11,12,13 | Module 4: Concrete Wall, Columns, and Footings   1. Square and Circular Columns Design and Details 2. Reinforced Walls Design and Details 3. Footings: Design and Details 4. Rebar Shop Drawings | Assignment 4 – Due on |
| 14,15 | Module 5: Pre-stressed Concrete and Concrete Masonry   1. Design Approach & Basic Concepts 2. Stress Patterns in Pre-stressed Concrete 3. Pre-stressed Concrete Materials 4. Concrete masonry | Assignment 5 – Due on |
| ***Test 2:*** | | |
| 17 | Module 6 Introduction to Steel Structures   1. Loads, Codes: FBC, IBC 2. Basic Concepts in Steel Design 3. Steel structures Design criteria – beams & Columns |  |
| 18,19,20 | Module 7: Steel Beams   1. Design for Bending, Deflection, Camber 2. Open Web Steel Joists | Assignment 6 – Due |
| ***Test 3: Nov 6*** | | |
| 22,23 | Module 8: Steel Columns   1. Column Analysis and Design 2. Built-up Column | Assignment 7 – Due on |
| 24,25 | Module 9: Connections in Steel Structures   1. Bolted Connections and Details 2. Welded Connections 3. Steel Shop Drawings | Assignment 8 – Due on |
| ***Final Project due by end of the day TBD*** | | |
|  | ***Test 4: During Exams Week TBD*** | |

**UNIVERSITY POLICY ON ACCOMMODATING STUDENTS WITH DISABILITIES:** Students

requesting accommodation for disabilities must first register with the Dean of Students Office (<http://www.dso.ufl.edu/drc/>). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments (discussion, term paper, extra credit) or taking the quizzes or exams. Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

**UNIVERSITY POLICY ON ACADEMIC MISCONDUCT:** Academic honesty and integrity are fundamental values of the University community. Students should be sure that they understand the UF Student Honor Code at [http://www.dso.ufl.edu/students.php.](http://www.dso.ufl.edu/students.php) The Honor Code will be applied in the class. We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity. On all work submitted for credit by students at the university, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment."

**NETIQUETTE, COMMUNICATION COURTESY POLICY:** All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions and chats. Detailed guide is available at <http://teach.ufl.edu/wp-content/uploads/2012/08/NetiquetteGuideforOnlineCourses.pdf>

**GETTING HELP WITH E-LEARNING WEBSITE:** In the case you have technical difficulties with e- Learning in Canvas, please contact the UF Help Desk at: [Learning-support@ufl.edu;](mailto:Learning-support@ufl.edu) (352) 392-HELP - select option 2; <https://lss.at.ufl.edu/help.shtml>. If your technical difficulties will cause you to miss a due date/time, you MUST report the problem to the UF Help Desk **before** the due date/time.

**CELLPHONES**. Cellphone use is not allowed in classrooms. Use of cellphones during class will discount attendance. Use of cellphones during an exam will result in failing the exam.

**LAPTOPS & TABLETS**. These devices should only be used to take notes related to lectures. Use of these devices for social media or any other unrelated purposes during class hours will result in a penalty of 10 points for every incident. **COMMUNICATION**

* Use the e-Learning in Canvas environment to send an email to the instructor and teaching assistant. Do not e-mail the course instructor and teaching assistant outside of the e-Learning in Canvas system because emails received outside of e-Learning will not receive a response. Please allow 36 hours for a response to your email. The instructor and teaching assistant reserve the right not to respond to course inquiries on the weekend.
* You are responsible for addressing grades/omissions within one week of the grade being posted on e-Learning in Canvas. After one week, the grade/input stands for the class regardless of cause or circumstance.

**Note from the instructor:** *The syllabus represents my current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. Such changes, communicated clearly, are not unusual and should be expected.*