



BCN 5406. PRINCIPLES OF BUILDING STRUCTURES FOR CONSTRUCTION MANAGEMENT

COURSE SYLLABUS

Summer C, 2024

Class Schedule: Wednesday 6:45 to 10:05 PM, at EC Room 244009, Engineering Campus
Section U01C-C, Class No. 55127
Graduate Course; BCN 5406
Summer C Term, May 9 – July 29, 202244

Instructor: Alfredo J. Ravinet, Ph. D., G.C.

Office: EC 2954 at Florida
International University
Fax: (305) 220-3198

Phone: (305) 206-2581
E-mail: ravineta@fiu.edu

COURSE OBJECTIVES

Engineering and technology does not inflate as a balloon, expanding human power over Nature evenly in all directions and at all scales. It grows like a sea urchin; their long spines of ability radiate out toward specific needs and desires.

This Course will address, describe and quantify building structures and we will study the technologies and explain their physical reality and analyses the design of the infrastructure with the most appropriate and cost effective solutions.

Construction Management, Civil Engineering and Architecture Graduates will learn the best and most advance structures for residential, commercial, government and industrial buildings.

Also, the Course will discuss the relevant federal, state and county organizations and regulation applicable to regulate and apply the correct and most appropriate structural technologies with the most effective support from Construction Managers, Engineers and Architects.

COURSE OBJECTIVES:

- At the completion of the course, students will know how to:
 1. Identify forces that are considered in design and construction of buildings and structural principals
 2. Develop an understanding of Structural Domes, Tension and Compression Structures and Membranes
 3. Develop an understanding of Building Loads and Codes
 4. Evaluate the stress and strain forces applied to structural members and structural requirements
 5. Describe the design of beams, joists, rafters and columns
 6. Define the properties of structural materials including timber and wood products
 7. Develop an understanding of Structural Aesthetics and Failures

PREREQUISITES: Construction Management, Civil Engineering, Architecture or others with BS degrees.

REQUIRED TEXTBOOKS AND REFERENCES:

"Principles and Practices of Commercial Constructions", by Andress, Smith and Woods,
Pearsons ED
ISBN: 9780-1347-0466-1

- Classroom handouts (many!) mostly through Canvas

ATTENDANCE POLICY

You are advised to attend all classes, exams and presentation sessions.

STUDENT CONDUCT

We believe that a good level of communication is basic for your learning process and your participation in class is welcome and also active communication through canvas and e-mail. For a face to face conversation you are required to call for appointments to set a time of mutual convenience and provide the opportunity to talk about your questions, doubts and discussion of relevant topics and grades. All, these activities will be rewarded with an additional grade.

Acts of academic misconduct, impolite class interruptions, cheating, plagiarism, misrepresentation, will not be tolerated. If a student is found to be engaging in such a behavior will be referred to the University's Student Academic Board. Misconduct procedures contained in the FIU Handbook will be applied and the consequences are spelled in their handbook.

The use of your cell-phone, i-pad, etc. during class sessions is not allowed except when student expect a justified emergency call.

EXAMINATIONS

There will be several Quizzes/home works, one Mid-term examination, one Final Examination, Oral Group Presentation and one Term Project Paper. All of these work assignments are required for successful completion of the Course. If you need to be absent of one class due to an event of a verifiable illness or emergency, please, get my approval ahead of time.

Your examinations, presentations and Term Papers will be scheduled on the Course outline and will include all the material covered as of the last examination. Quizzes/Home works will be due as announced through our communication media.

HOLIDAYS AND DISABLED STUDENTS ACCOMODATIONS

The College of Engineering abides to the University's policy concerning religious holidays as stated in the University catalogue. Students may request to be excused from a class to observe a religious holiday for their particular faith.

Students with any kind of disabilities who may need special accommodations should register with the FIU Office of Disabilities Services (ODS), telephone (305) 348-3532 and I will accommodate them accordingly for their needs in a fair and equitable way.

GRADING POLICY.

The final grade for the course to evaluate that the students have achieved the 7 Course Objectives and as evidenced of your performance on the examinations, class participation, topic's discussion, term project paper and presentation in consonance with the following:

The percentages show the relative weight placed in the activity during the course:

Class participation and Quizzes/HW		30%
Mid-term Examination (open book)	June 2219	15%
Student Presentations (in team groups)	July 207	20%

Term Project Paper (by team groups) due
Final Examination (open book)

July 207
July 274

15%
20%

Course Syllabus and Dates

Date	Activity
May 8	Introduction and background. Course objectives and overview of course topics. Open discussion.
May 15	Chapters 1 and , 2
May 22	Chapters 3 and 4
May 29	Chapters 4, 5, 6
June 5	Chapters 6, and 7
June 12	Chapters 7 and 8
June 19	Chapters 8 and 9 Group Term Paper subjects' proposals due (2 to 3 students per group) Mid-term Exam
June 26	Chapters 10 and 11
July 3	Chapters 11, 12 and 13
July 10	Chapters 14, 15 and 16
July 17	Student's presentations, groups 1 to 4 Final exam review Term project papers due today
July 24	Final Exam