

Course Syllabus – CNST 4345 Reinforced Concrete Structure

Course Description:

This course introduces students to manage the construction of reinforced concrete in industrial facilities. Including foundations, elevated slabs, columns, and beams.

Course Prerequisites:

CNST3355 Strength of Construction Materials

Textbook:

The Contractor's Guide to Quality Concrete Construction, American Concrete Institute (ACI), 3rd Edition, 2005, ISBN: 978-0-87031-167-3

Course Learning Outcomes:

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

1. Understand reinforced concrete terminology and the construction and design process.
2. Be aware of selection criteria and use of cementitious materials (including grout), reinforcing materials, and embeds.
3. Discern concrete formwork systems and understand their application.
4. Understand reinforced concrete installation planning and execution practices.
5. Recognize quality requirements and processes for concrete materials and operations.

In addition to the learning objectives above, this course is emphasizing Ethics, Safety, and Oral/Written Communication.

Student Learning Outcomes:

19. Understand the basic principles of structural behavior

Course and Student Learning Outcome Mapping:

Student Learning Outcome	Course Learning Outcomes
19	1,2,3,4

Student Learning Assessment and Assessment Target:

Assessment	SLO#19	Assessment Target
Support (S)	X	At least 70% of students receive a grade of 70 or better

Class Grading:

Class Quizzes/Homework	20%
Midterm Exam	20%
Final Exam	30%
Class Project	20%
Class Participation/Safety Moment	10%

Grading Scale:

Letter Grade	Score
A	93-100%

A-	90-92%
B+	86-89%
B	83-85%
B-	80-82%
C+	76-79%
C	73-75%
C-	70-72%
D+	65-69%
D	60-64%
F	<60

Class Schedule:*

Week #	Topic
1 (08/26/2020)	Course overview and introduction to reinforced concrete and its application in industrial facilities. Reading: <i>Guidelines for Authorities and Responsibilities in Concrete Design and Construction</i>
2 (09/02/2020)	Cementitious materials and chemical admixtures for concrete. Reading: <i>ACI Education Bulletin E3-01 and E4-03, Quiz 1</i>
3 (09/09/2020)	Concrete mixture composition, batching, and delivery operations. Reading: <i>ACI, The Contractor's Guide to Quality Concrete Construction – Chapters 2 and 3. Quiz 2</i>
4 (09/16/2020)	Design Concepts I** – Design team, design process, foundation types, components, loads, and design analysis. Reading: <i>ACI, The Contractor's Guide to Quality Concrete Construction – Chapters 4 and 6. Quiz 3</i>
5 (09/23/2020)	Design Concepts II**– Design Analysis, Component sizing and arrangement, failure mechanisms, anchors, and rebar. Quiz 4
6 (09/30/2020)	Construction techniques for reinforced concrete including joints, embedments, and constructability issues. Reading: <i>ACI, The Contractor's Guide to Quality Concrete Construction – Chapter 7 and 8. Quiz 5</i>
7 (10/07/2020)	Formwork systems**. Reading: <i>ACI, The Contractor's Guide to Quality Concrete Construction – Chapter 5. Quiz 6</i>
8 (10/14/2020)	Mid-term
9 (10/23/2020)	Concrete placement, finishing, and curing. Reading: <i>ACI, The Contractor's Guide to Quality Concrete Construction – Chapters 9& 10.</i>
10 (10/28/2020)	Project execution planning elements of reinforced concrete. Reading: <i>ACI, The Contractor's Guide to Quality Concrete Construction – Chapter 9. Quiz 7</i>
11 (11/04/2020)	Field Trip and Class Project Reinforced concrete quality requirements and processes. Reading: <i>ACI, The Contractor's Guide to Quality Concrete Construction – Chapter 11.</i>
12 (11/11/2020)	Miscellaneous Concepts Precision Cutting, Demolition, and Grout <i>Quiz 8</i>

13 (11/18/2020)	Estimating**, cost/schedule control, and productivity issues for reinforced concrete in industrial facilities.
(11/25/2020)	Thanksgiving
14 (12/02/2020)	Final
(12/08/2020)	Project Due

*Subject to change

**Guest Speakers:Chris Parnell,,P.E,Kevin Alley,P.E.,Thad Scott,P.E.,Doug Coenen, P.E

Academic Honesty:

The instructor reserves the right to adjust letter grades, upward only, based on individual attendance and class participation if numerical grade warrants such consideration. Each unexcused absence in excess of two during the semester will result in adjustment of the final grad downward by one letter grade. Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and dismissal from The University. Since dishonesty harms the individual, all students, and the integrity of The University, policies on scholastic dishonesty will be strictly enforced.

Students with Disabilities:

University of Houston provides, upon request, appropriate academic adjustments for qualified students with disabilities. Any student with a documented disability (physical or cognitive) who requires academic accommodations should contact the Center for Students with Disabilities (713/743-5400) for more assistance.

Exam Policy:

Exams will include material covered in class discussions and homework assignments. Make-up exams will be given only in the event of a verified emergency or doctor-verified sickness. The student is responsible for all reading assignments and class handouts whether or not covered in class or listed on the syllabus.

Course/Instructor Evaluation:

A course/instructor evaluation will be conducted in class during the last scheduled lecture. Any suggestions you have on improving the course, however, are welcome throughout the term.

For detailed information about Disabilities, Religious Holy Days, the Academic Calendar, and Academic Honesty, and other information, please visit the UH website:

http://www.uh.edu/provost/stu/stu_syllabsuppl.html

Important Dates:

The following list of important course dates is for your information.

08/24/20 Monday	First day of classes
09/03/20 Monday	Labor Day holiday
08/31/20 Tuesday	Last day to add a class
09/09/20 Wednesday	Last day to drop a course or withdraw without receiving a grade; Last day to drop a course without hours counting towards enrollment cap for Texas Residents

10/02/20 Friday	End of regular filing period to apply online for graduation with \$25 fee.
11/03/20 Friday	Last day to drop a course or withdraw with a "W"
11/25/20-11/28/2020	Thanksgiving
12/05/20 Saturday	Last day of classes
12/16/20 Thursday	Official closing of the semester

