

Abilene Approval Chart for Curriculum Changes

A = Approve I = Information Item R = Respond In Writing

Course Number: CIVE 472 **or Degree Plan(s):**

		De pt./ Sch ool	Coll ege	Dea n	TEC	AU AC/ Gra d	Pro vos t
	Campus-Level Academic Review¹						
	Change to a Course Include signatures from all chairs/program directors for cross-listed courses. ¹						
1.	Title (description unchanged)	A	A	A	I	I	I
2.	Description (not affecting content)	A	A	A	I	I	I
3.	Course term(s)	A	I	A	I	I	I
4.	Content (change of course outcomes)	A	A	A	I	I	A
5.	Number of credit hours	A	A	A	A	A	A
6.	Course number within the hundred	A	A	I	I	I	I
7.	Course number beyond the hundred	A	A	A	A	A	A
8.	Prerequisites	A	A	A	I	I	I
9.	Course restriction (e.g., majors only, junior standing)	A	A	A	A	A	A
10.	Level change (U to G or G to U)	A	A	A	A	A	A
11.	Cross list course	A	A	A	A	A	A
12.	Department of record	A	A	A	A	A	A
13.	Open or close a course	A	A	A	A	A	A
	Change to a Degree Plan						
14.	Educational Program — Revise	A	A	A	A	A	A
15.	Educational Program — Adopt/revise admission requirements	A	A	A	A	A	A
16.	GPA — Revise program-required GPA	A	A	A	A	A	A
17.	Minor — Revise	A	A	A	A	A	A

		De pt. /Sc hol	Col leg e	De an	TE C	AU AC/ Grad	Pro vos t	Ca mp us Fac ult y	Se nior VP AA	Pre sid ent
	Full Review									
	Change to Catalog Information (for Campus)									
18.	General requirements for Bachelor's and Associate Degrees	-	-	-	-	A	A	A	A	I
19.	Policies governing academic probation and suspension	-	-	-	-	A	A	A	A	I
20.	Requirements for graduating with honors	-	-	-	-	A	A	A	A	I
	Change to a Degree Plan									
21.	Educational Program — Add or Discontinue ²³	A	A	A	A	A	A	A	A	I
22.	Educational Program — Discontinue (Provost-proposed)	R	-	R	A	A	A	A	A	I
23.	Minor — Add or Discontinue	A	A	A	A	A	A	-	A	I
24.	Minor — Discontinue (Provost-proposed)	R	-	R	A	A	A	-	A	I
25.	Degree — Add or Discontinue	A	A	A	A	A	A	A	A	I
26.	Degree — Discontinue (Provost-proposed)	R	-	R	A	A	A	A	A	I

		De pt. /Sch ool	Col leg e	Dea n	TEC	AU AC/ Grad	Pro vos t	Ca mp us Fac ult y	Sen ior VP AA	Pre sid ent
	Change to General Education Requirements for Undergraduates (System)									
27.	Change course outcomes of an included course	A	A	A	A	A	A	-	A	I
28.	Add or drop a required course from the General Education Requirements	A	-	A	-	A	A	A	A	I
29.	Add or drop a course from a menu within the General Education Requirements	A	-	A	-	A	A	-	A	I
30.	Comprehensive revision of General Education Requirements	-	-	-	-	A	A	A	A	I

Notes

² Any change to a cross-listed course requires the signature of both department chairs or program directors overseeing the course to ensure that the courses stay in sync. This includes courses taught at other campuses (e.g. BIBL 101 and BIBO 101).

³ For undergraduate majors, a minimum of 30 hours is required. These programs must have a minimum of 6 elective hours, unless the requirements of external accrediting bodies make it impossible. Master's programs must include a minimum of 30 hours, and doctoral programs must include a minimum of 30 hours beyond the master's.

⁴ When a department/school or dean proposes closing a program, approval routing follows the typical process beginning with the department/school. An administrative proposal by the provost or senior vice president for academic affairs would follow the “provost-proposed” routing on the chart.

Updated 8/1/2023

Department/School(s)



12/1/23

Chair Signature

Date

Chair/Program Director Signature

Date

College Academic Council(s)



2/5/2024

Chair Signature

Date

Chair Signature

Date

Dean(s)



2/5/2024

Signature

Date

Signature

Date

Teacher Education Council

Signature

Date

**Campus Academic Council:
Abilene Undergraduate or Abilene Graduate**

Signature

Date

Provost

Signature

Date

University General Education Council

Signature

Date

University Faculty

Abilene Faculty Senate Chair signature

Date

Dallas Faculty Council Chair signature

Date

Senior Vice President for Academic Affairs

Signature

Date

President

Signature

Date

Abilene New Course Application

You may delete the preceding instructional pages before submitting application.

Course ID (<i>Subject Code and Number</i>)	CIVE 472
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1. Systems and Catalog Information Complete each item.

A	Course Developer	Dr. Scott Marshall
B	Course Instructor	Dr. Tim Kennedy
C	Course Title	Reinforced Concrete Design
D	Course Abbreviation for Banner if title is more than 30 characters	(N/A)
E		OSE - Onstead Science and Engineering
F		PHYS - Engineering & Physics
G		3
G1		3
G2		0
H	Is the course for a fixed or variable number of credit hours?	Fixed If variable, explain rationale:
I	Is the course repeatable for additional credit?	No
J	Maximum total number of credit hours a student can earn for this course	3
K		<u>Lecture (LEC)</u> See Schedule Type definitions in the Reference section.
L		3
M		<u>Standard</u>
N	Maximum Enrollment	18
O	Catalog Description (50 words or less)	An analysis, design and synthesis course for concrete structures, emphasizing

		strength design method. Topics include strength and serviceability requirements, design of one-way slabs, rectangular beams, flanged sections and columns, for strength, shear, bond, bearing, and serviceability. Building codes, American Concrete Institute (ACI) specifications, material specifications, test methods, and recommended practice documents are involved.
P	List any prerequisites (course/s, test scores, class standing, major, etc.)	ENGR 370
Q	List any corequisites (these <i>must</i> be taken at the same time; note that a single requirement cannot be both a prerequisite <i>and</i> a corequisite)	
R	If the course is cross-listed, specify the subject code and course number of the other course	
S	Does this course require any additional student course fees?	<u>No</u> If yes, attach a completed course fee form.
T1	Will the course be offered in fall terms?	<u>No</u>
T2	Will the course be offered in spring terms?	<u>Yes, odd years</u>
T3	Will the course be offered in summer terms?	<u>No</u>
U	First semester this course will be offered under new Course ID. <i>May not be earlier than the coming fall semester.</i>	Spring 2025
V	Is this course required for a program(s)?	<u>Yes</u> If yes, attach a completed curriculum proposal to change the program(s).

W	Should the addition of this course be retroactively applied to the degree plan it supports? <i>This is rare, and rationale should explain compelling extenuating circumstances.</i>	<u>No</u> If yes, provide rationale:
X	Has this course been offered as a Special Topics course? <i>New courses are not required to be taught as Special Topics courses prior to approval.</i>	<u>No</u> If yes, provide course ID, term, and enrollment:
Y	List any courses in which the content overlaps the proposed course. (Course ID and Name). <i>Attach a statement from the instructor/dept chair of the existing course justifying the new offering.</i>	

2. Curriculum

- A. Explain any effects of this course on any degree plans. If the addition of the course alters program requirements, submit a separate [Approval Chart for Curriculum Change](#) to update the program.

This course is an upper level Engineering elective in support of the new Civil Engineering degree program

- B. Justify the addition of this course to the current curriculum, explaining the gap it meets.

This course gives students looking to pursue a career in structural engineering a level of depth that is not present in any existing course. Additionally, it provides an additional design course in keeping with ABET Civil Engineering program requirements.

3. Course Design

- A. Audience and Course Goal

1. Describe the intended audience, including prerequisite skills.

This is intended for students in their Junior or Senior year of the Civil Engineering program. They should have a background in structural analysis.

2. State the overarching course goal(s) in performance terms.

Students should develop a broad understanding of concrete structure analysis and design. Additionally, students should have an understanding of building codes, industry standards, material specifications, testing methods, and recommended practice documents.

B. Student Learning Outcomes and Measurements

	Student Learning Outcome	Measurement
1	Recognize the design philosophy of reinforced concrete structures.	Exams
2	Understand the difference between the structural behavior of different reinforced concrete structural elements through demonstration experiments and data analysis.	Exams
3	Analyze reinforced concrete structural systems under gravity and lateral loads.	Exams
4	Design different elements of reinforced concrete structural systems subjected to gravity and lateral loads.	Final Project

C. Text and Resources

Give the full publication information of the textbook/s and other required resources and outside readings.

Reinforced Concrete: Mechanics and Design, 8th Edition, Wight J. K. (2022). Prentice Hall.

Building Code Requirements for Structural Concrete (ACI 318-19). American Concrete

Institute

4. Supporting Documentation

Required of all applications	
1	Approval Chart for Curriculum Changes
2	Syllabus — Attach the syllabus for the course based upon the anticipated first-semester offering.
4	Library — Submit new course application and syllabus to the Library dean's office. Attach the Library's memo.

Attach if applicable	
5	Content Overlap — Include one document for each course you listed in Section 1Y. Attach statement from instructor/dept chair of existing course justifying the new offering.
6	Departmental Resources — List the resources that support the course and are available only through the department, if applicable. Attach the list of the holdings and the location(s).
7	Resources — List resources (other than library or departmental resources) that are needed to support this course (computers, lab equipment, other technology, etc.). Attach a complete list of all items and indicate possible sources or estimated cost of each. List the sources of any needed funds.
8	Expenses — List additional expenses needed to implement this course (full-time or part-time faculty, graduate or lab assistants, student employees, travel, special student costs, room renovation, storage facility, etc.). Attach a complete list of all items, the estimated cost of each and the source of the funds.
9	Justification — Attach any documents to which you refer in Section 2B.

Syllabus for **Reinforced Concrete Design** (CIVE 472); 3 credit hours

Spring 20XX, MWF 1-1:50 PM

BEN212

Course website: Canvas site on my.acu.edu

Instructor: Dr. Tim Kennedy, Associate Professor of Engineering and Physics

Email: timothy.kennedy@acu.edu

Office: OSC 121B

Office hours: Monday 10-12, 2-4; Tuesday 8-11

Phone: (325) 674-6732 (Office), (217) 417-5859 (Cell)

Please limit cell phone calls/texts to emergencies if after 8 PM.

Text: *Reinforced Concrete: Mechanics and Design*, 8th Edition, Wight J. K. (2022). Prentice Hall.

Building Code Requirements for Structural Concrete (ACI 318-19)

ACU Catalog Course Description: An analysis, design and synthesis course for concrete structures, emphasizing strength design method. Topics include strength and serviceability requirements, design of one-way slabs, rectangular beams, flanged sections and columns, for strength, shear, bond, bearing, and serviceability. Building codes, American Concrete Institute (ACI) specifications, material specifications, test methods, and recommended practice documents are involved.

Prerequisite: ENGR 370

Faith and Learning in the context of engineering courses: In any professional context, our faith should influence our work ethic. The author of Ecclesiastes encourages his readers to do whatever they do with all their might (paraphrase of Eccl. 9:10). You should be mindful of the faith tradition you represent with your actions when you go to work, and the classroom is a great place to start practicing that mindfulness.

Learning objectives (assessed through weekly quizzes, two mid-semester exams, and a final exam):

At the end of this course, students should be able to

- Recognize the design philosophy of reinforced concrete structures.

- Understand the difference between the structural behavior of different reinforced concrete structural elements through demonstration experiments and data analysis.
- Analyze reinforced concrete structural systems under gravity and lateral loads.
- Design different elements of reinforced concrete structural systems subjected to gravity and lateral loads.

Course Outline:

Week 1 – Introduction, Flexural Analysis of Beams

Week 2 – Strength Analysis of Beam, ACI Code

Week 3 – Rectangular Beams, One-Way Slabs, T-Beams

Week 4 – Doubly Reinforced Beams

Week 5 – Serviceability

Week 6 – Bond, Development Lengths, and Splices - Test 1

Week 7 – Shear and Diagonal Tension

Week 8 – Columns, Short Columns, Axial Load and Bending

Week 9 – Slender Columns

Week 10 – Footings

Week 11 – Retaining Walls

Week 12 – Continuously Reinforced Concrete, Torsion - Test 2

Week 13 – Two-Way Slabs

Week 14 – Walls

Week 15 – Prestressed Concrete

Format of Class:

Each week, a new module will be opened in Canvas, and that module will have a quiz which will be unlocked in class on Friday and a homework assignment which will be due on the following Monday.

There will be two in-class tests mid-semester (see the course outline above), a final design project, and a final exam.

Final Grade Composition:

Your final grade in this course will be calculated by performing a weighted average of your assignments according to the following table

Homework	10%
Quizzes	22%
Lower-grade Test	8%
Higher-grade Test	15%
Final Project	25%
Final Exam	20%

Grade scale:

89.5% and above: A

79.5% to 89.4%: B

69.5% to 79.4%: C

59.5% to 69.4%: D

Below 59.5%: F

Homework: We'll have homework almost every week. I encourage you to work together on homework, but ***do not copy your classmates' work***. No late homework will be accepted. If you cannot finish by the deadline, turn in what you have done on time.

I will include reading as part of almost all homework assignments, and I will ask you to write two things you found interesting or ask two questions based on that reading.

Quizzes: I plan to have these every Friday, and they will cover the material we discussed on Monday and Wednesday of that week. Starting your homework on the day it is assigned is a good way to study for these. I will drop your two lowest quiz scores.

Mid-semester tests: Two tests will be given during the semester. You will have at least two weeks notice before tests. I will weigh your individual test grades according to how well you did on each of them. Your higher test score will account for a higher percentage of your final grade, and your lower test score will account for a lower percentage of your final grade (according to the table above).

Final Project: The final project for this course will be a comprehensive assessment of your ability to perform reinforced concrete design. More details will be provided when the final project is assigned.

Final Exam: The final exam will be given at the time scheduled by the university. It will be a cumulative survey of the material presented throughout the entire semester.

Attendance: Those who are in class every lecture are statistically more likely to get a good grade in the class.

Academic Integrity

I think that cheating is the worst thing someone could do in college, and that is saying a lot. Cheating is an act so counter to academic principles (not to mention Christian morality) that I will report any infraction without exception. See <https://acu.edu/dean-of-students/student-handbook/academic-policies/> for the full university policy.

University ADA Compliance Statement

Abilene Christian University is dedicated to removing barriers and opening access for students with disabilities in compliance with ADA and Section 504 of the Rehabilitation Act. The Alpha Scholars Program facilitates disability accommodations in cooperation with instructors. In order to receive accommodations, you must be registered with Alpha Scholars Program, and you must complete a specific request for each class in which you need accommodations. If you have a documented disability and wish to discuss academic accommodations, please call our office directly at 325-674-2667.

Title IX Information and Policy

At ACU, we strive to comply with all applicable legal requirements prohibiting, preventing, and responding to sexual misconduct against any member of the ACU community. Moreover, as a Christian community, ACU has committed itself, unequivocally, to ensuring a working and learning environment in which the dignity of every individual is respected.

*Our Title IX – Sexual Misconduct Policy outlines specific definitions and procedures related to **sexual harassment, sexual exploitation, sexual assault, stalking, and relationship violence**. If you experience sexual misconduct in any of these forms, we encourage you to [report it](#) so that we can help maintain a work and academic environment free of unlawful behavior.*

The mission of ACU: to educate students for Christian service and leadership throughout the world.

The mission of the Onstead College of Science and Engineering is to explore and understand God's creation in the natural world and apply the acquired knowledge and principles to address its issues and challenges.

Department Mission:

The ACU engineering program strongly supports the university's mission of educating students for Christian service and leadership throughout the world. In support of this mission, ACU engineering graduates will attain:

- A deep and broad understanding of engineering principles and practices as evidenced by professional employment, continued professional development, and graduate study in engineering or other professional fields.
- An extensive knowledge of innovative design processes unique to engineering professionals as demonstrated by using critical thinking skills to contribute to scientific and technical literature, patents and intellectual property, professional societies, and creative designs.
- A thorough understanding of Christian service and leadership as shown in their commitments to professionalism, ethics, and service and leadership within the engineering profession, the church, and society.

February 2, 2024

Dr. Darby Hewitt
Associate Professor
Department of Engineering and Physics
Onstead Science Center (OSC) 121B
(325) 674-6732

Re: Review of Reinforced Concrete Design (CIVE 472)

Dear Dr. Hewitt,

Thank you for submitting Reinforced Concrete Design (CIVE 472) to us for a review. I have reviewed it based on the ACU Syllabus Guidelines. I found the syllabus to meet all aspects of the checklist.

Please note that this letter is intended as a reference, which will be read by the department chair and members of the council, who may also have questions or comments of their own. If you have any questions, please feel free to let me know.

Please also let me know if we can be of any help in the design and facilitation of this course.

Sincerely,



Dr. Scott E. Hamm,
Assistant Director, Adams Center

ABILENE CHRISTIAN UNIVERSITY

LIBRARY

M E M O R A N D U M

DATE: November 28, 2023

TO: Dr. Darby Hewitt

FROM: Mark McCallon, Associate Dean for Library Information Services **RE:**
Course Application for CIVE 472 – Reinforced Concrete Design

After reviewing the course application and syllabus, the library does have adequate resources to support the proposed course. Please contact Mark McCallon, Librarian Liaison, if additional resources are needed for the course. Thank you for letting us review the course proposal and syllabus.