

Abilene Approval Chart for Curriculum Changes

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

Course Number: CIVE 432 **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 432
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1. Systems and Catalog Information Complete each item.

A	Course Developer	Tim Kennedy
B	Course Instructor	Tim Kennedy
C	Course Title	Water and Wastewater 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	
K		<u>Lecture (LEC)</u> See Schedule Type definitions in the Reference section.
L		3
M		<u>Standard</u>
N	Maximum Enrollment	20
O	Catalog Description (50 words or less)	Development of engineering skills in the delivery of safe and reliable water supplies and the effective

		treatment of wastewater for discharge. Topics include hydraulic design within a treatment plant, potable water treatment technologies, wastewater collection, wastewater treatment and sludge processing.
P	List any prerequisites (course/s, test scores, class standing, major, etc.)	ENGR 333 and CHEM 133
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>Yes, even years</u>
T2	Will the course be offered in spring terms?	No
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>	Fall 2026
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>	N/A

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 already required for the new Civil Engineering degree plan.

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

ABET requires Civil Engineering programs to have a certain number of design courses. This will fill one of those gaps.

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 fluid mechanics and basic knowledge of chemistry.

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

Students should develop a broad understanding of water and wastewater treatment methods. Additionally, students should be able to design a water or wastewater treatment plant to satisfy given constraints and optimize given criteria.

B. Student Learning Outcomes and Measurements

	Student Learning Outcome	Measurement
1	Estimate performance of water and wastewater treatment plants.	Exams
2	Identify and describe water quality parameters used in water and wastewater treatment.	Exams
3	Design the systems, components, and processes necessary to meet requirements for water and wastewater treatment.	Final Project

C. Text and Resources

Required textbook: Mackenzie L. Davis, Water and Wastewater Engineering: Design Principles and Practice, 2nd Edition, McGraw-Hill, New York, 2020. ISBN 978-1-260-13227-4

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.

Water and Wastewater Design (CIVE 432)

Fall 2023 - TR 1:30-2:50 - BEN 219 - 3 Credit Hours

Instructor: Professor [Tim Kennedy](#)

Email: t.kennedy@acu.edu

Office: OSC 137D

Office Hours: TBA

Text: Mackenzie L. Davis, *Water and Wastewater Engineering: Design Principles and Practice*, 2nd Edition, McGraw-Hill, New York, 2020. ISBN 978-1-260-13227-4

Course Catalog Description: Development of engineering skills in the delivery of safe and reliable water supplies and the effective treatment of wastewater for discharge. Topics include hydraulic design within a treatment plant, potable water treatment technologies, wastewater collection, wastewater treatment and sludge processing.

Prerequisites: ENGR 333 and CHEM 133

Competencies: By the end of this course students will be able to:

1. Estimate performance of water and wastewater treatment plants. (Exams and quizzes)
2. Identify and describe water quality parameters used in water and wastewater treatment. (Exams and quizzes)
3. Design the systems, components, and processes necessary to meet requirements for water and wastewater treatment. (Quizzes, Final Project)

Grading:

Homework (Completion)	5%
Weekly Quizzes	15%
Exams (two, 20% each)	40%
Final Project	40%

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 and Quizzes: Homework will be graded purely on a completion basis. If you have put forth a good faith effort (actual work is shown, even if the answer is wrong or the approach is slightly off), you will get full credit.

Each week without an exam there will be a quiz. The quiz will be pulled directly from either the homework or the examples in the chapter.

Exams: There will be two exams for the course. Instead of a final exam, there will be a final design project.

Exam 1 - Water treatment

- Coagulation
- Flocculation
- Sedimentation
- Filtration
- Disinfection

Exam 2 - Wastewater treatment

- Primary treatment
- Secondary treatment
- Tertiary treatment

Final Project Due Date: Coincides with Final Exam time (check my.acu)

Final Project: For the final project, you will work with a small group to design a conventional water treatment plant or wastewater treatment plant.

Attendance: A large component of this class is performed during class time. If you miss class, you will need to work with your professor and/or team to reschedule a time to cover the material you missed in class or project work. Also, you may be withdrawn from the course if you miss more than 6 classes.

Schedule (tentative, check Canvas for most up-to-date schedule)

Week	Subject Matter
1	Overview of Environmental Engineering/Chemistry Review
2	General Considerations of Water Treatment
3	Preliminary Treatment
4	Sedimentation
5	Filtration
6	Disinfection
7	Test Review, Exam 1
8	General Considerations of Wastewater Treatment
9	Primary Treatment
10	Secondary Treatment - Microbiology
11	Secondary Treatment - Attached Growth Systems
12	Wastewater Disinfection
13	Tertiary Treatment
14	Test Review, Exam 2
15	Final Project Workweek
Finals	Final Project Due

Classroom Policies:

Students are expected to be in class on time and participate by taking notes, asking questions, and working through problems during class time. A subset of those problems will be worked out in small groups on whiteboards in the class. No specific grade is tied to attendance; however, quizzes and exams which are missed due to unexcused absences will require tokens to retake. Homework is due in class, and late work is not accepted.

Learning Objectives Addressed in this Course:

Students should develop an ability to apply formulas and techniques to problems in particle dynamics, vibrations, and rigid body motion accurately and consistently. This is assessed through weekly quizzes and/or exams. (See ABET SO 1)

Academic Integrity

Students or groups of students are expected to submit work that is their own.

Academic integrity is defined as academic work completed as assigned for each class by the individual or group responsible for the work. Violations of academic integrity and other forms of cheating involve the intention to deceive, mislead, or misrepresent and therefore, are a form of lying. Such actions are contrary to behavioral norms that flow from the nature of God.

Academic misconduct includes, but is not limited to, the following: 1) Failing to give credit to sources used in a work in an attempt to present the work as one's own, 2) Submitting papers or projects obtained from another source (e.g., research service or club paper file) as one's own, 3) Falsifying information orally or in writing, and 4) Receiving, giving, or using unauthorized aid on an examination or quiz. Academic misconduct may result in, but is not limited to, a zero on the assignment and/or an F in the course. Additionally, the department chair, Dean of the College of Arts and Sciences, and the Dean of Student Life will be notified. See the full university policy, including how to appeal a decision, by following this link:

<http://www.acu.edu/academics/provost/policies/index.html>.

Using Chegg or Other Online Homework Help Services

While there are many websites claiming to offer study aids to students, those websites could cause students to find themselves in violation of academic conduct guidelines. These websites include (but are not limited to) Chegg, Coursicle, Quizlet, and Course Hero.

ACU Engineering and Physics does not endorse the use of these products **in an unethical manner**, which could lead to a violation of the [ACU Academic Integrity Policy](#). Sites such as these encourage students to upload course materials, such as test questions, individual assignments, and examples of graded material. These materials are the intellectual property of instructors, the university, or publishers and may not be distributed without prior authorization. Students who engage in such activity could be found in violation of academic conduct standards and could face course and/or University penalties, **as well as copyright infringement prosecution**.

If you have any questions about whether you are using a service ethically, bring your questions to me, and I will be happy to talk.

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.

University Title IX Policy

<https://acu.edu/human-resources/title-ix-and-sexual-misconduct-information/acu-titleix-policy-and-process/>

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.

The mission of the Engineering and Physics Department:

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 the innovative design processes unique to engineering professionals, as demonstrated by using critical thinking skills in contribution 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 commitments to professionalism, ethics, and service and leadership within the engineering profession, church and society.

Christian Perspective

As a Christian engineer, I believe you can best glorify God by excelling in your chosen profession, and doing so morally and ethically. The foundation of this excellence is technical proficiency, without which moral and ethical concerns cannot be addressed. This course is intended to provide you with technical skills required for a moral and ethical engineer.

February 2, 2024

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

Re: Review of Engineering Hydrology (CIVE 432)

Dear Dr. Hewitt,

Thank you for submitting Engineering Hydrology (CIVE 432) to us for 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 432 – Water and Wastewater 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.