PRAIRIE VIEW A&M UNIVERSITY

SYLLABUS

CVEG 4303: Water Resources Engineering
Spring 2024

Instructor: Dr. I. Ahmed
Section # and CRN: P01, CRN:23982
Office Location:WILS110F
Office Phone:936-261-1659
Email Address:
ifahmed@pvamu.edu
Office Hours: MW 10-12, 2-3:30, R 11-12, 1-2
(or by appointment)

Mode of Instruction: Face to Face

Class Days & Times: MWF 9:00 – 9:50pm; SR Collins 205 **(Lecture will begin on time)**

Attendance will be taken (3 missed lectures will lead to an "F")

Catalog Description: 4303. Water Resources Engineering. (3-0) Credit 3 semester hours. Control and utilization of water, flood control, water distribution systems, water rights, open channel flow, hydraulic structures, and model studies.

Prerequisites: CVEG 3303
Co-requisites: None

Required Texts: **Alan L. Prasuhn (1992). *Fundamentals of Hydraulic Engineering,* Oxford University Press, New York, NY.**

Recommended Reading:

1. Chin (2000). *Water Resources Engineering*, Prentice Hall, NY.
2. Linsley & Franzini (1992). *Water Resources Engineering*, 4th Ed., McGraw-Hill, NY.

Student Learning Outcomes:

	Upon successful completion of this course, students will be able to:	Program Learning Outcome # Alignment*	Core Curriculum Outcome Alignment
1	develop the ability to identify, formulate, and solve **complex** engineering problems by applying principles of engineering, science, and mathematics	ABET 1	
2	develop the ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	ABET 2	

ABET Criterion 3. Student Outcomes

1) an ability to identify, formulate, and solve **complex** engineering problems by applying principles of engineering, science, and mathematics
2) an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3) an ability to communicate effectively with a range of audiences
4) an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5) an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6) an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7) an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Civil Engineering Program Educational Objectives (PEOs):

Civil Engineering program graduates will:
1. have careers in civil engineering or related fields that lead to increasing levels of responsibility and leadership
2. obtain professional licensure/certifications
3. complete graduate studies in civil engineering or related fields
4. engage in professional development and service

Table: Outcome Measures

Course	CVEG objectives						ABET Criterion 3										
	1	2	3	4	-	-	1	2	3	4	5	6	7				
CVEG 4063	x	x			-	-	x	x									

Major Course Requirements

Method of Determining Final Course Grade

Grading Matrix

Instrument	Value (points or percentages)	Total(%)
Assignments (homework)	Up to 10-12 assignments possible	25%
Tests (includes Mid Term)	3 tests @ 15% each	45%
Term Project	Comprehensive project (individual)	15%
Final Exam	Not Comprehensive (On Selective Topics)	15%
Total:		**100%**

Grade Determination:
A = 90 – 100%;
B = 80 – 90%;
C = 70 – 79%;
D = 60 – 69%;
F = 0 – 59%

Course Requirements & Evaluation Methods

This course will utilize the following instruments to determine student grades and proficiency of the learning

outcomes for the course.

Class Participation – daily attendance and participation in class discussions **(Missing 3 lectures without justification or prior notification will result in a Letter Grade "F" in the course)**
Exams – written tests designed to measure ability to learn and apply *concepts* to solve WRE problems
Homeworks – written homework assignments designed to supplement and reinforce course material
(Excel spreadsheets with Coded-in Formulae and MS Word must be used as and when instructed)
Term Project

Topics

1. Hydrology
2. Statistical Analysis of Hydrologic Data
3. Open Channel Flow
4. Sediment Transport
5. Pipelines (special topics)
6. Pumps (special topics)
7. Groundwater Hydraulics
8. Flood Mitigation/Control and Design Issues (via Comprehensive Term Project)

Course Procedures

ATTENDANCE:
Leave without permission or undocumented excuse will count towards "absent." Student will have 1 week to show the proper excuse to be considered present during the missed lecture. Only 1 *unofficial* leave of absence will be granted during the Semester for make-ups. No average scores will be offered for missed assignments and exams

Submission of Assignments:
All homework should be submitted with a cover page provided by the instructor.
Excel spreadsheets with Formulae must be used as instructed.
Formatting Documents:
Microsoft Word is the standard word processing tool used at PVAMU. Please use "Times New Roman" style and Font size no less than 12. Line spacing should be no more than 1.5. Equation Editor found in MS Word must be used for formal technical reports. **More details will be given in class.**
Exam Policy (Closed Book, Closed Notes)
Exams should be taken as scheduled. No makeup examinations will be allowed except under documented emergencies (See Student Handbook). **Exams are Closed Book, Closed Notes.**

There should not be any solved problems in the text books during the tests. Any violation will result in immediate failure in the course for Cheating.
Additional Notes:

1. **Cell phones must be turned off in the class. Please notify the instructor of any emergency calls you might expect during the class period. Cell phones will be monitored during exams.**
2. **Laptop computers, tablets, i/smart phones are not to be used during lectures and labs.**
3. **All calculators will be reset before exam starts so no problem solutions show up. Instructor will check before handing out the exams.**
4. Grade will be computed on absolute scale, i.e., no curve. Final grade will be determined by total points earned.
5. No make-up test/exam will be given in the course. If you miss a test/exam, you will receive zero credit for that test/exam. If you have an excused absence, notify the instructor ahead of time.
6. **Homework and project report (+ deliverables) are due on assigned date at the beginning of the class a week from the date they are assigned. Late homework and report will not be accepted or may be accepted with up to 50% points deducted**
   (Excel spreadsheets with Formulae and MS Word must be used as instructed)
   Attempt ALL homework problems because random problems will be graded.
7. Attendance in the scheduled classes is a requirement for the course. Remaining absent for three or more

classes may constitute sufficient reasons to receive a failing grade in the course. **SEE ATTACHED "UNIVERSITY CLASS ATTENDANCE POLICY."**

8. Any form of cheating, plagiary, and/or academic dishonesty will result in an "F" grade in the course for the individual(s) involved
9. If you fail to take the final exam, you will receive an automatic "F" grade in the course
10. **Missing 3 lectures without justification or prior notification will result in a Letter Grade F in the course; the student may continue to attend class but will receive an F at the end of the semester.**
11. **Misbehavior with the instructor in and outside the class room setting, vandalizing in the classroom will lead to *straight "F"* in the course. No pre-cautionary notes will be offered. The student will have the right to appeal per university policies.**

SPECIAL NOTES ON HOMEWORK:

All assignments must be submitted to complete the course.
The following areas will be graded:

1. Completeness: Did you work all parts of the assignment?
2. Solution Approach: Did you follow the appropriate procedure, and indicate the units?
3. Format and Neatness: Is your presentation of the solution easy to follow, systematic and legible?

SPECIAL NOTES ON EXAM/TESTS:

Final Exam is *not* comprehensive. Term Project *is* comprehensive i.e., you will need to know most of the semester materials (Hydrology and Hydraulics) to be able to complete the term project.

Important Dates

MLK Day	January 15
Last day to withdraw without academic record	February 1
Last day to withdraw from classes with an automatic "W"	April 26
Spring Break	March 15

- **Disability Statement:**
  Students with disabilities who believe that they may need an academic adjustment in this class, are encouraged to contact the Office for Students with Disabilities Services at (936) 261-3581/3582 as soon as possible to better ensure receipt of timely adjustments. Once you receive a letter from the Office for Disability Services, kindly make an appointment with me to discuss appropriate academic adjustments for this class.

16 WEEK CALENDAR

Week One: INTRODUCTION; Hydrology: Precipitation, Evaporation, Infiltration
Chapter (s): 3
Reading Assignment: p. 23-37
Week Two: Hydrology: Runoff, Hydrograph; Streamflow, Unit Hydrograph
Chapter (s): 3
Reading Assignment: p. 37-55
Homework 1 **(Due a week from the assignment date)**
Week Three: Hydrology: Total Hydrograph from Unit Hydrograph; Flow Routing
Chapter (s): 3
Reading Assignment: p. 37-55; p. 55-62
Homework 2
Week Four: Statistics in Hydrology: Return Period, PDFs; Statistical Analysis
Chapter (s): 5
Reading Assignment: p. 109-121; p. 121-130
Homework 3
Week Five: Open Channel Flow: Uniform Flow, Manning's Eqn.; Specific Energy & Critical Depth
Chapter (s): 7
Reading Assignment: p. 192-200; p. 200-212
Homework 4

TEST 1: Hydrology and Statistics, Buckingham Pi Theorem (Chapters 3, 5, Hydraulics Book)

Week Six: Open Channel Flow: Hydraulic Jump & Surges
Chapter (s): 7
Reading Assignment: p. 212-221
Homework 5
Week Seven: Open Channel Flow: Gradually Varied Flow
Chapter (s): 7
Reading Assignment: p. 221-234
Homework 6
Week Eight: Sediment Transport: Properties, Fall Velocity
Chapter (s): 8
Reading Assignment: p. 266-274
Homework 7

TEST 2: Open Channel Flow (Chapter 7)
Laboratory Demonstration of Open Channel Flow

Week Nine: Sediment Transport: Definitions & Incipient Motion; Bed Load Transport
Chapter (s): 8
Reading Assignment: p. 275-283; p. 283-288
Week Ten: Sediment Transport: Suspended & Total Load
Chapter (s): 8
Reading Assignment: p. 288-308
Homework 8
Week Eleven: Sediment Transport: Unlined Channel Design
Chapter (s): 8
Reading Assignment: p. 308-315
Homework 9

TERM PROJECT ASSIGNED (Due on Review Day before Final Exam Day)

Week Twelve: Pipelines: Series, Parallel, Branch Pipes, Pump Curves
Chapter (s): 6
Reading Assignment: p. 136-148; p. 148-152
Homework 10

TEST 3 (<u>TAKE HOME</u>): Sediment Transport (Chapter 8)

Week Thirteen: Pipelines: Pipe Network Analysis (Hardy Cross)
Chapter (s): 6, 11

Reading Assignment: p. 152-157; p. 404-423
Homework 11
Week Fourteen: Groundwater: Aquifers, Darcy's Law, Permeability; Steady flow to wells
Chapter (s): 4
Reading Assignment: p. 82-87; p. 87-92
Homework 12
Week Fifteen Reviews (Pipelines, Pumps, and Groundwater)
Chapter (s): 4, 6, 10

Week Sixteen

Final Exam (Selected Chapters To Be Decided)

Student Support and Success

John B. Coleman Library
The library and its partners have as their mission to provide resources and instructional material in support of the evolving curriculum, as a partner in Prairie View A&M University's mission of teaching, research, and service and to support the University's core values of access and quality, diversity, leadership, relevance, and social responsibility through emphasis on ten key areas of service. It maintains library collections and access both on campus, online, and through local agreements to further the educational goals of students and faculty. https://www.pvamu.edu/library/ Phone: 936-261-1500

The Learning Curve (Center for Academic Support)
The Learning Curve offers Tutoring via peer tutoring. The services include workshops (i.e., Save My Semester, Recalculate Your Route), seminars (i.e., Tools You Can Use: TI-84), group review sessions (i.e., College Algebra Topic Reviews, GRE Preparation), group study opportunities (i.e., TSIA, HESI, Study Break, Exam Cram), and test-taking strategies (How to take Notes, Study Buddy, 5 Day Study Guide). The Learning Curve is a nationally certified tutoring program through the National Tutoring Association. The peer tutors are trained and certified by the coordinator each semester. Location: J.B. Coleman Library Rm. 207F. Phone: 936-261-1561

The Center for the Oversight and Management of Personalized Academic Student Success (COMPASS)
The Center for the Oversight and Management of Personalized Academic Student Success (COMPASS) is designed to help Prairie View students in their second year and beyond navigate towards graduation by providing the following services: Academic Advisement, Targeted Tutorials for Personalized Learning, Campus-Wide Referrals, and Academic & Social Workshops. Location: J.B. Coleman Library Rm. 306. Phone: 936-261-1040

Writing Center
The Writing Center provides student consultants on all aspects of the writing process and a variety of writing assignments. Writing Center consultations assist students in such areas as prewriting, brainstorming, audience awareness, organization, research, and citation. Students taking on-line courses or courses at the Northwest Houston Center or College of Nursing may consult remotely or by email. Location: Hilliard Hall Rm. 121. Phone: 936-261-3724.

Student Counseling Services
The Student Counseling Services unit offers a range of services and programs to assist students in maximizing their potential for success: short-term individual, couples, and group counseling, as well as crisis intervention, outreach, consultation, and referral services. The staff is licensed by the State of Texas and provides assistance to students who are dealing with academic skills concerns, situational crises, adjustment problems, and emotional difficulties. Information shared with the staff is treated confidentially and in accordance with Texas State Law. Location: Owens-Franklin Health Center Rm. 226. Phone: 936-261-3564

Testing
The Department of Testing administers College Board CLEP examinations, the HESI A2 for pre-nursing majors, LSAT for law school applicants and MPRE for second-year law students, the Experiential Learning Portfolio option, the Texas Success Initiative (TSI) Assessment, which determines college readiness in the state, and exam

proctoring, among other service such as SAT and ACT for high school students. Location: Delco Rm. 141. Phone: 936-261-4286

Office of Diagnostic Testing and Disability Services
As a federally-mandated educational support unit, the Office of Disability Services serves as the repository for confidential disability files for faculty, staff, and students. For persons with a disability, the Office develops individualized ADA letters of request for accommodations. Other services include: learning style inventories, awareness workshops, accessibility pathways, webinars, computer laboratory with adapted hard and software, adapted furniture, proctoring of non-standardized test administrations, ASL interpreters, ALDs, digital recorders, livescribe, Kurtzweil, and a comprehensive referral network across campus and the broader community. Location: Evans Hall Rm. 317. Phone: 936-261-3585

Veteran Affairs
Veterans Services works with student veterans, current military and military dependents to support their transition to the college environment and continued persistence to graduation. The Office coordinates and certifies benefits for both the G.I. Bill and the Texas Hazlewood Act. Location: Evans Hall Rm. 323. Phone: 936-261-3563

Office for Student Engagement
The Office for Student Engagement delivers comprehensive programs and services designed to meet the co-curricular needs of students. The Office implements inclusive and accessible programs and services that enhance student development through exposure to and participation in diverse and relevant social, cultural, intellectual, recreational, community service, leadership development and campus governance. Location: Memorial Student Center Rm. 221. Phone: 936-261-1340

Career Services
Career Services supports students through professional development, career readiness, and placement and employment assistance. The Office provides one-on-one career coaching, interview preparation, resume and letter writing, and career exploration workshops and seminars. Services are provided for students at the Northwest Houston Center and College of Nursing in the Medical Center twice a month or on a requested basis. Distance Learning students are encouraged to visit the Career Services website for information regarding services provided. Location: Evans Hall Rm. 217. Phone: 936-261-3570

University Rules and Procedures

Disability Statement (Also See Student Handbook):
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Evans Hall, Room 317, or call 936-261-3585/3.

Academic Misconduct (See Student Handbook):
You are expected to practice academic honesty in every aspect of this course and all other courses. Make sure you are familiar with your Student Handbook, especially the section on academic misconduct. Students who engage in academic misconduct are subject to university disciplinary procedures.

Forms of Academic Dishonesty:

1. **Cheating:** deception in which a student misrepresents that he/she has mastered information on an academic exercise that he/she has not mastered; giving or receiving aid unauthorized by the instructor on assignments or examinations.
2. **Academic misconduct**: tampering with grades or taking part in obtaining or distributing any part of a scheduled test.
3. **Fabrication:** use of invented information or falsified research.
4. **Plagiarism:** unacknowledged quotation and/or paraphrase of someone else's words, ideas, or data as one's own in work submitted for credit. Failure to identify information or essays from the Internet and submitting them as one's own work also constitutes plagiarism.

Nonacademic Misconduct (See Student Handbook)

The university respects the rights of instructors to teach and students to learn. Maintenance of these rights requires campus conditions that do not impede their exercise. Campus behavior that interferes with either (1) the instructor's ability to conduct the class, (2) the inability of other students to profit from the instructional program, or (3) campus behavior that interferes with the rights of others will not be tolerated. An individual engaging in such disruptive behavior may be subject to disciplinary action. Such incidents will be adjudicated by the Dean of Students under nonacademic procedures.

Sexual Misconduct (See Student Handbook):
Sexual harassment of students and employers at Prairie View A&M University is unacceptable and will not be tolerated. Any member of the university community violating this policy will be subject to disciplinary action.

Title IX Statement
Prairie View A&M University (PVAMU) is committed to supporting students and complying with the Texas A&M University System non-discrimination policy. It seeks to establish an environment that is free of bias, discrimination, and harassment. If you experience an incident of sex- or gender-based discrimination, including sexual harassment, sexual assault or attempted sexual assault, we encourage you to report it. While you may talk to a faculty member about an incident of misconduct, the faculty member must report the basic facts of your experience to Ms. Alexia Taylor, PVAMU's Title IX Coordinator. If you would like to speak with someone who may be able to afford you privacy or confidentiality, there are individuals who can meet with you. The Title IX Coordinator is designated to handle inquiries regarding non-discrimination policies and can assist you with understanding your options and connect you with on- and off-campus resources. The Title IX Coordinator can be reached by phone at 936-261-2123 or in Suite 013 in the A.I. Thomas Administration Building.

Class Attendance Policy (See Catalog for Full Attendance Policy)
Prairie View A&M University requires regular class attendance. Attending all classes supports full academic development of each learner whether classes are taught with the instructor physically present or via distance learning technologies such as interactive video and/or internet.

Excessive absenteeism, whether excused or unexcused, may result in a student's course grade being reduced or in assignment of a grade of "F". Absences are accumulated beginning with the first day of class during regular semesters and summer terms. Each faculty member will include the University's attendance policy in each course syllabus.

Student Academic Appeals Process
Authority and responsibility for assigning grades to students rests with the faculty. However, in those instances where students believe that miscommunication, errors, or unfairness of any kind may have adversely affected the instructor's assessment of their academic performance, the student has a right to appeal by the procedure listed in the Undergraduate Catalog and by doing so within thirty days of receiving the grade or experiencing any other problematic academic event that prompted the complaint.

TECHNICAL CONSIDERATIONS

***Minimum* Recommended Hardware and Software:**
- Intel PC or Laptop with Windows 7; Mac with OS X; Smartphone or iPad/Tablet with Wi-Fi
- High speed Internet access
- 8 GB Memory
- Hard drive with 320 GB storage space
- 15" monitor, 800x600, color or 16 bit
- Sound card w/speakers
- Microphone and recording software
- Keyboard & mouse
- Most current version of Google Chrome, Safari, Internet Explorer or Firefox

Note: Be sure to enable Java & pop-ups in the Web browser preferences

Participants should have a basic proficiency of the following computer skills:
- Sending and receiving email
- A working knowledge of the Internet

- Proficiency in Microsoft Word (or a program convertible to Word)
- Proficiency in the Acrobat PDF Reader
- Basic knowledge of Windows or Mac O.S.

***Netiquette* (online etiquette):**

Students are expected to participate in all discussions and virtual classroom chats as directed. Students are to be respectful and courteous to others on discussions boards. Foul or abusive language will not be tolerated.

***Technical Support*:**

Students should go to https://mypassword.pvamu.edu/ if they have password issues. The page will provide instructions for resetting passwords and contact information if login issues persist. For other technical questions regarding eCourses, call the Office of Distance Learning at 936-261-3283

***Communication Expectations and Standards*:**

Emails or discussion postings will receive a response from the instructor, usually in less than 48 hours. Urgent emails should be marked as such. Check regularly for responses.

Discussion Requirement:

Online courses often require minimal to no face-to-face meetings. However, conversations about the readings, lectures, materials, and other aspects of the course can take place in a seminar fashion. This will be accomplished by the use of the discussion board. The exact use of discussion will be determined by the instructor.

It is strongly suggested that students type their discussion postings in a word processing application and save it to their PC or a removable drive before posting to the discussion board. This is important for two reasons: 1) If for some reason your discussion responses are lost in your online course, you will have another copy; 2) Grammatical errors can be greatly minimized by the use of the spell-and-grammar check functions in word processing applications. Once the post(s) have been typed and corrected in the word processing application, it/they should be copied and pasted to the discussion board.

College of Engineering Textbook Policy – Students MUST acquire the required textbook that is listed on the course syllabus for this course. The textbook must be acquired by the 10th class day. Students are not allowed to share textbooks with students who are currently registered in the same class. Failure to acquire (or show proof of purchase) the required textbook by the 10th class day will result in the student being administratively dropped from the course. The University will assess financial obligations for the course to the student as with any other dropped class according to the fee schedule as well as your financial aid may be affected.

If you are not financially able to purchase a required textbook for an engineering course prior to the 10th class day, you may apply to the College of Engineering Textbook Fund for a textbook voucher. The voucher can only be used at the Campus Bookstore. This voucher is a loan and must be paid back to the College of Engineering prior to the start of pre-registration for the coming semester. If the loan is not repaid, a hold will be placed on your account. Additional information and application materials can be obtained from the Assistant Dean's Office (SR Collins, Room 349) and obtained online at the College of Engineering website under student resources.

This policy is only for students who have declared a major (Engineering, Computer Science, and/or Technology) in the Roy G. Perry College of Engineering.

Civil Engineering Program Criteria (2016-2017)

The curriculum must prepare graduates to apply knowledge of mathematics through differential equations, calculus-based physics, chemistry, and at least one additional area of basic science; ***apply probability and statistics to address uncertainty****; analyze and solve problems in at least four technical areas appropriate to civil engineering; conduct experiments in at least two technical areas of civil engineering and analyze and interpret the resulting data; design a system, component, or process in at least two civil engineering contexts;* ***include principles of sustainability in design****; explain basic concepts in project management, business, public policy, and leadership;* ***analyze issues in professional ethics****; and explain the importance of professional licensure.*

Mapping of Program Educational Objectives onto Student Outcomes

PEO	Program Educational Objectives	CE Student Outcomes						
	Graduates from the Civil Engineering program will:	[1]	[2]	[3]	[4]	[5]	[6]	[7]
PEO 1	Have careers in civil engineering or related fields that lead to increasing levels of responsibility and leadership	X	X	X	X	X	X	X
PEO 2	Obtain professional licensure/certifications	X	X					
PEO 3	Complete graduate studies in civil engineering or related fields	X	X	X	X		X	X
PEO 4	Engage in professional development and service	X	X	X	X		X	X

Mapping of CE Courses and Student Outcomes [Beginning Fall 2019] Updated Fall 2021

Previous Course No.	New Course No.	Course Title	CE Student Outcomes/SOs						
			[1]	[2]	[3]	[4]	[5]	[6]	[7]
CVEG 1011	CVEG 1101	Introduction to Engineering							
CVEG 1021	CVEG 1102	Introduction to Civil Engineering Lab							I
CVEG 2043	CVEG 2301	Engineering Mechanics I							I
CVEG 2061	CVEG 2101	Materials & Dynamics Lab						I	
CVEG 2063	CVEG 2332	Mechanics of Materials I		I					
CVEG 2073	CVEG 2304	**Global Development Issues** {CORE}			I	√	I		R
CVEG 2081	CVEG 2102	Surveying & Geospatial Concepts			R			I	
CVEG 3023	CVEG 3300	Geotechnical Engineering		I					
CVEG 3031	CVEG 3100	Concrete & Steel Lab						√	
CVEG 3043	CVEG 3301	Environmental Engineering			R			√	
CVEG 3051	CVEG 3102	Professional Engineering I				√			
CVEG 3053	CVEG 3302	Transportation Engineering			R		√		
CVEG 3063	CVEG 3303	Hydraulics			√		R	√	
CVEG 3073	CVEG 3304	Structural Analysis I	I						√
CVEG 3083	CVEG 3305	Steel Design	√	√	R				
CVEG 4013	CVEG 4300	Reinforced Concrete	R	√					
CVEG 4021	CVEG 4100	Geotech Engineering Design Lab		R					√
CVEG 4043	CVEG 4301	Environmental Engineering Design	√	√	R				
CVEG 4053	CVEG 4302	Transportation Engineering Design	√				√		
CVEG 4063	CVEG 4303	Water Resources Engineering	√	√					I
CVEG 4093	CVEG 4304	Systems Engineering		√					√
CVEG 4472	CVEG 4200	Sr. Design & Professionalism I		√	√	√	√		√
CVEG 4482	CVEG 4201	Sr. Design & Professionalism II	√	√	√	√			

I – means the described outcome is introduced (not measured) but could be monitored.
√ - means that the skills described in the program outcome are covered and **measured** in the course.
R – means the described outcome is reinforce in the course (not measured) but could be monitored.
Additionally, evidence are to collected to satisfy **CE Program Criteria** covering basic concepts in **Management** (CVEG 3302, 4302, 4200, 4201, 4304), **Business** (CVEG 4304, 4200, 4201), **Public Policy** (CVEG 2304, 4200, 4201), **Professional Ethics** (CVEG 1102, 2304, 3102), Leadership (CVEG 4200, 4201), **Consideration of Sustainability** (CVEG 4301, 4302, 4303), **Importance of Professional Licensure** (CVEG 3102, 4200, 4201).

COLLEGE OF ENGINEERING
PRAIRIE VIEW A&M UNIVERSITY
PRAIRIE VIEW, TEXAS 77446

Civil Engineering

CVEG 4063 (P01): WATER RESOURCES ENGINEERING

Dr. I. Ahmed

SPRING 2024

HOMEWORK COVER SHEET

NAME_____

HOMEWORK ASSIGNMENT # _____

PROBLEM #s _____

DUE DATE: _____ **DATE SUBMITTED**_____