



CE 3703.01 – Environmental Engineering Design

<u>Instructor Details</u>		<u>Course Details</u>	
Instructor:	Dr. Amy Borello Gruss	Term:	Fall 2019
Office:	L-158	Classroom:	L-120
Office Hrs:	MWF 10 – 11 am (in L-158) MW 12:15 – 1:15 pm (in Q-311) Or by appointment	Class Time:	MWF 9:05 – 9:55 am
Email:	agruss@kennesaw.edu	Credit Hours:	3-0-3 (Lecture-Lab-Total)
		Prerequisites:	CE 3702; CE 3704

COURSE DESCRIPTION: This course introduces students to environmental engineering design of unit processes and pollution abatement systems such as: water treatment plant design, wastewater treatment plant design, and sludge management system design.

REQUIRED or ELECTIVE: Required for CE and EnvE

REQUIRED TEXT: (1) **Introduction to Environmental Engineering** by Mackenzie L. Davis and David A. Cornwell, McGraw-Hill Book Company, Current Edition (Fifth Edition, 2013; ISBN: 978-0-7-340114-0).

(2) **NCEES: FE Reference Handbook**. This text can also be downloaded for FREE in the provided link below (<http://ncees.org/exams/study-materials/download-fe-supplied-reference-handbook/>).

OTHER MATERIALS: Handouts may be provided as needed. **Kennesaw email** and **D2L** systems will be used for messages and part of the content delivery. Students should access these sites on a daily basis. *Disclaimer: Please do NOT email me through D2L as I will not be checking these regularly. To contact me, please email me at my KSU email: agruss@kennesaw.edu.*

COURSE LEARNING OUTCOMES: Upon successful completion of this course, students shall be able to:

1. Analyze and design water treatment process units.
2. Analyze and design wastewater treatment process units.
3. Analyze and design sludge treatment units.

COURSE REQUIREMENTS:

1. **Homework:** All problem assignments must be submitted in the next class/week following the class in which the topic is discussed or finished, or any other date assigned by the instructor.
 - A physical copy of the homework is due at the **START** of class on the due date.
 - Homework turned in one class period late will lose 25% of the possible score.

- Assignments **WILL NOT be accepted more than one class late** without prior instructor consent. Exceptions may be considered in case of illness, serious emergencies, or other university sponsored activities. However, appropriate evidence must be presented in order to qualify for exceptions.
 - All homework must be submitted on 8½"x11" white paper or engineering graph paper.
 - Fold the assignment in half (the long way), and write your (1) name, (2) course number, (3) assignment number (i.e, HW1, HW2...), and (4) date submitted on the outside of the folded sheet.
 - Show the detail works for full credit, i.e., free body diagrams, graphs, calculations.
 - **Box or Underline your answers.** Illegible handwriting will not be graded.
 - Graded homework will be returned to students; however, students need to preserve them until the grades are finalized and show them to the instructor if there is any dispute in final grades.
2. **Exams/Quizzes:** All exams/quizzes are closed books and notes unless advised otherwise. However, **NCEES FE Handbook can be used** during the Exams and/or Quizzes. **NO make-up exams/quizzes** will be given. Exceptions may be considered in case of illness, serious emergencies, or other university sponsored activities. However, appropriate evidence must be presented in order to qualify for exceptions. Graded exams/quizzes will be returned to students; however, students need to preserve them until the grades are finalized and show them to the instructor if there are any disputes in final grades. Typically, quizzes will be in class the date assigned by the instructor; however, pop quiz may also be given from time to time. Exam dates will be confirmed in class and posted on D2L Brightspace on the D2L calendar.
3. **Attendance Policy:** Students are required to attend classes. Advance notice of an absence should be provided whenever possible. No points are assigned for attendance. Makeup exams, quizzes, and acceptance of late assignments will be considered only for documented medical reasons, emergency circumstances, or other university sponsored activities. The students are solely responsible for managing their enrollment status in this course. Nonattendance does not constitute a withdrawal from the course. Attendance is mandatory when we have guest speakers!
4. **Plagiarism Policy:** KSU considers committing plagiarism as an act of academic dishonesty, and takes all occurrences very seriously. Any instances where academic dishonesty is suspected will result in an automatic grade of a zero for all students involved. The instructor reserves the right to remove any student from the class if the student's behavior is of a disruptive nature or if there is an evidence of academic dishonesty. Further disciplinary action may be taken such as suspension or expulsion from the University.
5. **FERPA:** The Family Education Rights and Privacy Act (FERPA) is a federal law designed to protect the privacy of educational records by limiting access to these records, and precludes Southern Polytechnic State University from providing information regarding the student to anyone without written authorization. Examples of records not released are grades; grade point average; the specific number of hours/credits enrolled, passed, or failed; Social Security Number; student ID number; name of parents or next of kin; and/or residency status.
6. **Ethics and Sexual Harassment Policy:** Sexual harassment in any situation is reprehensible. It subverts the mission of the University, and threatens the careers of students, faculty, and staff. It is viewed as a violation of Title VII of the 1964 Civil Rights Act as amended by the 1991 Civil Rights Act. Sexual harassment will not be tolerated at KSU. KSU is committed to the policy that all persons shall

have equal access to its programs, facilities, and employment without regard to race, religion, color, sex, national origin, disability, age, sexual orientation, or veteran status. In adhering to this policy, the University abides by the requirements of Title IX of the Education Amendments of 1972; by Title VII of the Civil Rights Act of 1964, as amended by the Civil Rights Acts of 1991; by Sections 504 and 504 of Rehabilitation Act of 1973; by Executive Order 11246, as amended by 38 U.S.C. 2012; the Vietnam Era Veterans Readjustment Assistance Act of 1972, as amended; and by other applicable statutes and regulations relating to equality of opportunity. This policy on sexual harassment applies to the entire University and to the conduct of students, faculty, and staff alike.

7. **Student Rights and Responsibilities:** Students of KSU are entitled to an environment that is conducive to learning and individual growth. To this end, students enrolling at KSU assume a responsibility to abide by the policies and regulations expressed in this section. By doing so, students may fulfill their responsibilities and enjoy the exercise of their own rights while also respecting the rights of others. Information about the student rights and responsibilities can be found at <http://catalog.kennesaw.edu/content.php?catoid=27&navoid=2263>
8. **Project & Presentation:** Group projects will be assigned or any design works. The group design works need to be prepared with a professional report along with CAD drawings and presented in class using PowerPoint presentations for grades.
9. **Academic Honesty/Integrity:** KSU has an academic honesty/integrity and a procedure for handling cases when academic misconduct is alleged. All students should be aware of them. Information about the academic honesty/integrity and the misconduct procedure can be found at <https://web.kennesaw.edu/scai/content/ksu-student-code-conduct>.
10. **ADA Provisions:** “Students with disabilities, as defined by the Americans with Disabilities Act (ADA) of 1990, should contact the instructor during the first week of the semester regarding the accommodations necessary to complete the requirements of this course. The instructor, with the help of KSU, will make reasonable adjustments to take into consideration the specific handicap of each student covered under the ADA.” The students can also contact KSU Marietta Campus ADA coordinator at 678-915-7244 for additional help.”
http://www.kennesaw.edu/stu_dev/dsss/policies.shtml.
11. **Communications, Grading, and Response Timeframe:** The best way to communicate with me is by **KSU email**. Please do not send emails through D2L as it will not be checked regularly. Grading of homeworks/assignments may take up to a week. I will try to respond to any discussions/comments/questions **by the close of the following business day**. Expect to receive a response to emails sent on the weekend on the following Monday.
Do not expect to solve all problems via email! Taking advantage of office hours is the easiest and most effective way to solve complex issues, such as a roadblock in your design. If you are unable to attend office hours, allow ample time to arrange a meeting, as the instructor is usually not immediately available outside of office hours.
12. **Grade Dispute/Appeal:** Final grade dispute/appeal must be submitted within a week of the final exam. The procedure has been outlined in the KSU website that can be accessed via the link at http://www.kennesaw.edu/registrar/policies/grade_appeals.php.

13. **Useful Resource:** "The KSU Writing Center helps students in all majors improve their writing. Experienced, friendly writing assistants help with topic development, revision, research, documentation, grammar, and more. For more information or to make an appointment, visit writingcenter.kennesaw.edu or stop by English Building, Room 242 (Kennesaw campus) or Johnson Library, Room 121 (Marietta campus)."

14. Contacts to get Help:

- D2L Technical Support, go to <https://d2lhelp.view.usg.edu/> or call 678-915-HELP
- D2L Brightspace website at <https://kennesaw.view.usg.edu/d2l/login>
- KSU Help Desk Phone Number: (678) 915-HELP (4357).
- KSU Distance Learning at <http://distancelearning.kennesaw.edu/support/content-tools.php>
- KSU UITS at <http://uits.kennesaw.edu/>
- Accessibility policy of all technologies:
<https://softchalkcloud.com/lesson/serve/jV10GKPfztZwQn/html>

15. Additional Resources

- Remote access to Library Resources at <http://www.kennesaw.edu/library/DI/dl.html>
- You can find The USG Copyright Policy at <http://www.usg.edu/copyright/>
- Other help for student success at <http://sss.kennesaw.edu/>
- Academic support services and student services at <http://kennesaw.edu/currentstudents.php>
- KSU CETL Thank a Teacher at <http://cetl.kennesaw.edu/thank-a-teacher>

GRADING POLICY: All exams, quizzes, and assignments must be completed satisfactorily in order to pass the course. The evaluation process described below is subject to change by the instructor. Changes will be announced in class. Please visit <http://catalog.kennesaw.edu/content.php?catoid=24&navoid=2170> for KSU's detailed grading policy.

<u>Class Grade Components:</u>		<u>Class Grading scale and letter grade</u>	
Homework/Quizzes	20%	>90.0	A
Design Projects	30%	89.9 – 80.0	B
Project Presentation	3%	79.9 – 70.0	C
Midterm Exam	25%	69.9 – 60.0	D
Final Exam	22%	<59.9	F
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Total	100%	Withdrawal after deadline	WF

TENTATIVE LECTURE TOPIC/OUTLINE: The following lecture topic/outline is subject to change by the instructor. Changes will be announced in class.

Class/Week	Tentative Lecture Topic/Outline	Chapter
Week 1	Introduction to Water Treatment	1-1; 6-1
Week 2	Coagulation & Softening	6-2; 6.3
Week 3	Mixing and Flocculation	6-4
Labor Day	Monday Sept. 2nd	No Classes
Week 4	Sedimentation	6-5
Week 5	Filtration & Disinfection	6-6; 6-7
Week 6	Adsorption & Residuals Management	6-8; 6-10
Week 7	Midterm Exam	---
Week 8	Wastewater Treatment Standards and Municipal WWTS	8-3; 8-4
Week 9	Pretreatment & Primary Treatment	8-5; 8-6
Week 10	Secondary Treatment	8-7
Week 11	Disinfection and Tertiary Treatment	8-8; 8-9
Week 12	Sludge Treatment	8-11
Week 13	Sludge Treatment & Disposal	8-11; 8-12
Week 14	Indirect/Direct Potable Reuses	Handouts
Week 15	THANKSGIVING BREAK - No Class	
Week 16	Project Presentations	--
December 9th Last Day of Classes	Final Exam – Taken during normal class hours	---