Syllabus

Water and Wastewater Unit Operation Lab
WEEM 3510
Tuesday & Wednesday 14:00-17:00

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Course text: None required. This manual is work in progress and will be handed out a week ahead of conducting each experiment. In addition some experiment will undergo modification and updating. Please be patient as the manual and our laboratory evolve. You are encouraged to check your GJU mail a head of each lab. Notes and changes will be sent via e-mail.

Reference texts: Same text as the WEEM 351

Course objective: This course is designed to introduce third-year water and environment engineering students to experiments that demonstrate principles that are learned in WEEM351 course. Student will learn technical skills, how to use and calibrate measurement devices, how to conduct experiment that test samples for physical and chemical characteristics, and how to write a report.

Grading:

***Attendance/participation**	**17**
Written lab reports	**23**
Lab quizzes & Pre Lab	**20**
Final	**40**
TOTAL	**100**

Reports:
Reports on experiments will be due **ONE WEEK** after the experiment is completed, at the beginning of each class. Reports submitted after 14:00 on will be counted as one day late. Late reports are accepted for only 2 days and will be penalized 35 % per day. No report after that day will be accepted at all.

Schedule:

Week Order	Date	List of Experiment**	
1st Week	3rd & 4th March	Exp 1	Orientation and Safety Sampling
2nd Week	10th & 11th March	Exp 2	Total solids Volatile solids
3rd Week	17th & 18th March	Exp 3	Sludge Volume Index
4th Week	24th & 25th March	Exp 4	Settling Zones / Kinetics
5th Week	31st March & 1st April	Exp 5	Jar Test
6th Week	7th & 8th April	Exp 6	Reverse Osmoses
7th Week	14th & 15th April	Exp 7	Aerobic digestion
8th Week	21st & 22nd April	Exp 8	Anaerobic digestion
9th Week	28th & 29th April	Exp 9	Adsorption
10th Week	6th & 7th May	Exp 10	Ion Exchange
11th Week	13th & 14th May	Exp 11	Absorbance / Flame photometer
12th Week	20th & 21st May	Exp 12	Filtration
13th Week	27th & 28th May		Free Lab
14th Week	3rd & 4th June		FINALS

***** Note that experiment order or even can be change according to the instructor.***

Course Policies: The following course policies must be followed. At the discretion of the instructor or teaching assistances, non-complacence with course policy may negatively impact your final course grade.

- Preparation: Before coming to the laboratory, read the description of the experiment and relevant background material must be read. For each experiment, be prepared to complete a short quiz covering the objective of work, theory and procedure, the quiz may also cover the previous experiment.

- Attendance and work: Attendance is compulsory for all labs during the semester. If an emergency arises, you must inform the instructor and the TA before class and arrangements will be made since there will be no remake of any lab. Unexcused absence count as zero on the quiz, experimental work and lab reports. **No** written report will be accepted **without attending** the experiment.
  Exceeding one lab absence will mean expelling from the lab.
  The experimental work is an individual effort, unless told otherwise. When laboratory work is completed, you are to write your own reports with NO SHARING OF WRITTEN WORK.

- Integrity: Each student work and behavior is assumed to hold the highest standards of honesty. Cheating, fabrication, plagiarism, and helping the others to commit these actions are all forms of dishonesty and they are wrong. You are prohibited from using old reports and files from previous years. You are prohibited from copying sections from any resources including other students' work, text books, and websites. All resources, including figures downloaded

from the internet must be cited. First instances of plagiarism will negatively impact your final course grad; in other words, no warning will be given for plagiarism cases and a NEGATIVE grade will be given to such cases.

- Midterm and Final: There will be no midterm exam. The final test will be a written one.

- Safety: Safety in laboratory is tantamount to good laboratory practice. No rule, unless augmented with safety awareness and good sense, will protect you from accidents.

Bottom line

Maintain high standards for your own work. Start work early so the temptation to cut corners does not arise. If you have questions or concerns, do not hesitate to ask the instructor or TAs.

The following practices will be exercised in the laboratory:

1. On laboratory days, long pants must be worn, and shoes must be closed-toe (no sandals). If students dressed inappropriately, they will be asked to change before the beginning of the experiment. If not, they will be prohibited from the conducting the experiment and will lose marks based on that.
2. In the laboratory, safety glasses, white apron are required as well as gloves.
3. You are to bring only your manual, calculator and pen into the lab. Your back bags, hand bags will all be gathered away and not allowed to be put on the lab benches
4. Smoking, eating or drinking are not allowed in the laboratory. GUM chewing is included!
5. Cell phones are to be shut down during the lab, or they will be confiscated during other labs for students who break the rule.
6. Report all injuries and accidents to the instructor or TAs immediately, no matter how minor.
7. Each student is responsible of cleaning his/her station all the time. Marks will be deducted from your work if the station and glassware were left dirty.

PLEASE REFER TO THE SHEETS CONCERNING THE SAFETY RULES THAT MUST BE CONDUCTED IN THE LAB.

STUDENTS MUST AFFIRM THAT THEY HAVE READ AND UNDERSTOOD THE LABORATORY SAFETY MANUAL AND SIGN THE AGREEMENT GIVEN BY THE LAB SUPERVISOR.