

**ENGINEERING PROJECT - ADDENDUM**  
**CWR 4204 – Hydraulic Engineering - Spring 2024 - POINTS = 20 POINTS**  
**Instructor: Professor Fuentes**

**Objective**

To complete an engineering project that focuses on either design or analysis (or both) *of a hydraulic system or component of a hydraulic system*. Options include: a) Completing a clearly defined project with a practical scope in design or analysis or both (i.e., design of a pump station for a water supply conveyance pipeline); b) Learning the application of an(a) available computer model(s) (i.e., software) and then demonstrating its application in design or analysis or both; c) Based on relevant theory developing a computer model (spreadsheet(s) in MS Excel) and then demonstrating its(their) application to design or analysis or both; and d) Other options after discussion and approval by the Instructor (an experimental plan with concept demonstration, testing and model development).

**Guidelines**

Students will, *individually*, or *in teams* (if approved by the instructor based on project scope) complete and present written and oral reports of professional quality. Paper should be 10-20 pages long, excluding appendices. Written report contents should include, at least, the following items or equivalent as applicable:

- Cover Page (i.e., Title and Team Members)
- Table of Contents
- List of Figures
- List of Tables
- 1. Introduction (background and justification)
- 2. Objective(s)
- 3. Theory
- 4. Description (details of project, location, site, scale, etc.)
- 5. Methodology
- 6. Results and Discussion
- 7. Conclusions
- 8. Recommendations
- References
- Appendices (as necessary)

**Deadlines**

- a) Project Proposal: March 4, 2024 (revised), *or earlier* in instructor's mailbox.  
One page: tentative title, objective, approach, and initial list of references; team members must sign at the bottom of the page.
- b) *Written Report*: April 19, 2024, by 4:00 PM *or earlier* in instructor's mailbox.  
Maximum of 15 points equally based on technical content and quality of written report. Literature review must include, at least, three peer-reviewed journal publications or official technical reports of relevant content to the objective of the project. *The student must run the short paper through Turnitin (or equivalent software, such as iThenticate software) and attach the report to the written report on submittal. Students must also attest, in writing, that the paper has not been used for grading as part of academic credit to meet requirements for a degree program anywhere in the world.*

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- c) *Oral Presentation and Defense: April 20, 2024 (2:15-4:55PM)*  
Maximum of 5 points equally based on the effectiveness of delivery and quality of presentation. Duration: 10-15 minutes followed by questions (final number of minutes will be decided by the instructor in advance to the presentation). An electronic copy of the oral presentation must be presented to the instructor at the end of the oral presentation.
- d) Reports and electronic material may not be returned by the instructor. Students are thus recommended to make full copies of all turned in materials.

### **Software Options**

Bentley: CulvertMaster, StormCAD, PondPack, WaterGEMS, SewerGEMS, HAMMER, and CivilStorm

USACOE: HEC-RAS, HEC-HMS

USEPA: EPANET, SWIMM

USGS: MODFLOW, PHAST