ENVE 406 – UNIT OPERATIONS IN ENVIRONMENTAL ENGINEERING

Spring 2014

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Lab#   Topic
1   Flow Characteristics of PFR (5 weeks)
2   Coagulation and Flocculation (3 weeks)
3   High-rate Clarification (3 weeks)
4   Filtration (3 weeks)
5   Process Integration (2 week, if time permits)

References

Standard Methods for the Examination of Water and Wastewater
18th ed., WEF, AWWA, APHA (1992)

Grading

Proposals (4)  20%  Instructor
Final Reports (4)  40%  Instructor
Presentations including Q&A (4)  30%  Everyone*
Effort and Support  10%  Team Leaders**
Treatment Efficiency  Instructor

* The audience will evaluate the performance of the presenting team (one score for the whole team).
** The team leader of each lab will evaluate the effort and support of each team member.

Rules

• Each team is required to select a name.
• Each proposal is due on the Friday (before 5:00pm) of the week when the lab is assigned. The Proposal will be reviewed/commented by the instructor and returned to the team leader on the following Monday. If the proposal is approved, then the team can proceed with construction and data collection. If the proposal is rejected, the team will have to modify the proposal and re-submit it for approval. Work cannot be started till the proposal is approved.
- The final report of each lab is due one week after the lab is completed (on Friday before 5:00pm).
- Proposals and final reports should be prepared in a professional manner.
- **No late work will be accepted.**
- Students will take turns to be the team leaders of the projects. A team leader is the primary contact person of the project with the instructor and has the following responsibilities:
  - Submitting the proposal and the final report
  - Arranging weekly meetings with the instructor to discuss progress and issues
  - Assigning tasks to team members and supervising their work
  - Scheduling and keeping the tasks on schedule
  - Proof-reading the proposal and the final report for technical information as well as **continuity**
  - Giving the presentation
- Presentations will be given one week after the lab is completed (on Mondays in class). A hardcopy and an electronic copy of the presentation will need to be submitted to the instructor before 12:00pm on Monday. If the presentation materials are not submitted in time, the team will forfeit the right to do the presentation. The allotted presentation time for each team is 20 minutes. There will be a Q&A session following the presentation (less than 30 minutes).

### General Requirements of Proposal

A proposal is to outline how you intend to complete the project. It should be concise but contain sufficient information for the reviewers to judge the feasibility of the plan.

- Problem statement
- Objectives
- Tasks
- Analytical methods (specifying chemicals, test kits and equipment required)
- Timeline and milestones
- Member responsibilities
- Proposed budget