

Cover Sheet: Request 10515

ECH 4XXX Management of Fluid Dynamics, Mass Separations and Heat Transfer Laboratories

Info

Process	Course New Ugrad/Pro
Status	Pending
Submitter	Sandoval, Deborah D dsand@che.ufl.edu
Created	10/27/2015 3:10:18 PM
Updated	1/21/2016 10:44:47 AM
Description	Catalog Description: 3 credit hours. Supervised teaching and management of the Unit Operations lab. The students taking this course will guide experiments of small groups of students, troubleshoot equipment problems, and perform a detailed analysis of the lab experiments.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	ENG - Chemical Engineering 011903000	Dickinson, Richard Bernhart		10/27/2015
No document changes					
College	Approved	ENG - College of Engineering	Caple, Elizabeth		1/21/2016
No document changes					
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			1/21/2016
No document changes					
Statewide Course Numbering System					
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					
College Notified					
No document changes					

Course|New for request 10515

Info

Request: ECH 4XXX Management of Fluid Dynamics, Mass Separations and Heat Transfer Laboratories

Submitter: Sandoval, Deborah D dsand@che.ufl.edu

Created: 10/28/2015 9:05:24 AM

Form version: 2

Responses

Recommended Prefix: ECH

Course Level : 4

Number : XXX

Lab Code : L

Course Title: Management of Fluid Dynamics, Mass Separations and Heat Transfer Laboratories

Transcript Title: Mgmt Unit Ops

Effective Term : Spring

Effective Year: 2016

Rotating Topic?: No

Amount of Credit: 3

Repeatable Credit?: No

S/U Only?: No

Contact Type : Supervision of Teaching/Research

Degree Type: Baccalaureate

Weekly Contact Hours : 4 hrs/wk

Category of Instruction : Advanced

Delivery Method(s): On-Campus

Course Description : Supervised teaching and management of the Unit Operations lab. The students taking this course will guide experiments of small groups of students, troubleshoot equipment problems, and perform a detailed analysis of the lab experiments.

Prerequisites : Successful completion (B+ or better) of at least one of the Unit Operations classes (ECH 4224L and 4404L).

Co-requisites : None

Rationale and Placement in Curriculum : Contribution of this Course to Meeting the Professional Component

The students taking this course will

- Gain in-depth understanding of Chemical Engineering equipment.
- Reinforce knowledge of safe operating procedures.
- Learn to apply theory to real-world systems.
- Enhance communication skills.
- Gain experience leading a team.

This course contributes to the following program outcomes:

- An ability to apply knowledge of mathematics, science, and engineering.
- An ability to design and conduct experiments, as well as to analyze and interpret data.
- An ability to identify, formulate, and solve engineering problems.
- An understanding of professional and ethical responsibility.
- An ability to communicate effectively.
- A recognition of the need for, and an ability to engage in life-long learning.
- A knowledge of contemporary issues.
- An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
- A recognition of industrial health and safety issues, and an ability to engage in

fostering and exercising health and safety rules and regulations.

Course Objectives : The overall goal is to teach students to think and communicate as engineers, learn how to guide others to conduct experiments in the Unit Operation Lab, work with the department's laboratory technician to improve experiments and troubleshoot technical problems that occur during lab operations.

Students taking this course will

- Supervise one lab session (4 hours) per week in the lab.
- Give presentations on lab safety, theory, and operating procedures to groups of students taking the Unit Operation courses.
- Manage a group of students and guide them to solve problems encountered during the lab.
- Proctor quizzes at the beginning of each lab.
- Review (but not grade) pre-lab homework with the students in the lab.
- Participate in weekly meetings with the lab director, instructors, and other students teaching the lab.
- Propose and, if possible, implement an improvement to at least one of the experiments in the lab

Course Textbook(s) and/or Other Assigned Reading: Recommended Reading:

1. Geankoplis, C. J., Transport Processes and Unit Operations (any edition).
2. Incropera, F. P. and D. P. DeWit, Fundamentals of Heat and Mass Transfer (any edition).
3. McCabe, W.L., J.C. Smith, and P. Harriet, Unit Operations of Chemical Engineering (any edition).
4. Perry, R.H., D.W. Green, and J.O. Maloney, Perry's Chemical Engineers' Handbook (any edition).

Weekly Schedule of Topics : Week 1:

Orientation, review of lab safety guidelines, selection of an experiment to be taught. At the end of the first week, the students will present theory, operating instructions, and safety rules for this experiment to the instructor.

Weeks 2-13:

Teaching the experiment in the lab and working on the term project. The students are expected to teach at least two different experiments during a semester (e.g., one experiment during weeks 2-7 and another experiment during weeks 8-13). Before switching experiments, the students will present theory, operating instructions, and safety rules for the new experiment to the instructor.

Grading Scheme : Grading criteria:

- 30%: Knowledge of the experiments in the lab. This knowledge will be evaluated through oral presentations on both theory and operating procedures of the experiment.
- 50 %: Performance during the lab (based on feedback of the course instructors, the students taking the lab course, the lab director, and the lab technician)
- 20%: Project involving a detailed analysis of one of the systems in the lab. The report on this project should contain:
 - Details on current system operations, such as input and output parameters, time to reach a steady-state, common problems encountered in the experiment and their solution.
 - Suggestions on improvements of the experiments
 - Results of implementations of the suggestions (if available) or detailed calculations supporting the proposed improvements.

The report will be graded both on technical content and communication effectiveness.

Instructor(s) : Instructor: Prof. Dmitry Kopelevich

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- d. Class Web site: <http://www.che.ufl.edu/unit-ops-lab/>
- e. Office hours: TBD