



**SOUTH DAKOTA BOARD OF REGENTS
ACADEMIC AFFAIRS FORMS**

New Course Request

SDSU	Jerome J. Lohr College of Engineering/Civil & Environmental Engineering
Institution	Division/Department
Dennis D. Hedge	3/26/2018
Institutional Approval Signature	Date

Section 1. Course Title and Description

Prefix & No.	Course Title	Credits
CEE 438	Environmental Fluid Mechanics	3
CEE 538	Environmental Fluid Mechanics	3

Course Description
Develop a basic understanding of the physical processes in turbulent flows that are important to the transport and dispersion of contaminants and materials in surface waters. This course will introduce the analytical, computational, and experimental tools commonly used to solve environmental fluid mechanics problems. Topics covered include dynamics of turbulence, turbulent diffusion, shear flow dispersion, stratified flows and mixing in rivers and lakes.

CEE 438 & CEE 538 Pre-requisites or Co-requisites

Prefix & No.	Course Title	Pre-Req/Co-Req?
EM 331	Fluid Mechanics	Pre-Req

Registration Restrictions

None

Section 2. Review of Course

2.1. Was the course first offered as an experimental course?

- Yes (if yes, provide the course information below) No

2.2. Will this be a unique or common course?

Unique Course

Prefix & No.	Course Title	Credits
EM 331	Fluid Mechanics	3
EM 731	Advanced Fluid Mechanics	3

Provide explanation of differences between proposed course and existing system catalog courses below:

The proposed course is unique because it is focused on turbulent free surface flows, which apply to most flows occurring in the nature and environmental engineering applications. EM 331 is a first course in fluid mechanics with only a brief introduction to turbulent pipe flows. EM 731 is a graduate level course but its focus is on classical fluid mechanics and potential flows, which does not include all the characteristics of turbulent flows encountered in the real world. The proposed course is designed to fill this gap.
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- Common Course** *Indicate universities that are proposing this common course:*
- BHSU DSU NSU SDSMT SDSU USD

Section 3. Other Course Information

3.1. Are there instructional staffing impacts?

- No.** Schedule Management, explain below: Faculty workload is available. This course has been offered during even numbered year spring semesters and will be continuing to be offered in this manner.

3.2. Existing program(s) in which course will be offered: Civil Engineering (B.S., M.S., Ph.D.)

3.3. Proposed instructional method by university: R - Lecture

3.4. Proposed delivery method by university: 001 - Face-to-Face Term Based Instruction

3.5. Term change will be effective: Spring 2020

3.6. Can students repeat the course for additional credit?

- Yes, total credit limit: _____ No

3.7. Will grade for this course be limited to S/U (pass/fail)?

- Yes No

3.8. Will section enrollment be capped?

- Yes, max per section: _____ No

3.9. Will this course equate (i.e., be considered the same course for degree completion) with any other unique or common courses in the common course system database in Colleague and the [Course Inventory Report](#)?

- Yes No

3.10. Is this prefix approved for your university?

- Yes No

Section 4. Department and Course Codes (Completed by University Academic Affairs)

4.1. University Department Code: SCEE

4.2. Proposed [CIP Code](#): 14.0801

Is this a new CIP code for the university? Yes No

NEW COURSE REQUEST Supporting Justification for On-Campus Review

<u>Francis C Ting</u> Request Originator	<u>Francis Ting</u> Signature	<u>1/18/2018</u> Date
<u>Nadim Wehbe</u> Department Chair	<u>Nadim Wehbe</u> Signature	<u>1/18/2018</u> Date
<u>Lewis Brown</u> School/College Dean	<u>Lewis Brown</u> Signature	<u>1/25/2018</u> Date

1. Provide specific reasons for the proposal of this course and explain how the changes enhance the curriculum.
This course is focused on turbulent free surface flows, which apply to most flows occurring in the nature and environmental engineering applications. Existing courses are either introductory course in fluid mechanics or focus on classical fluid mechanics and potential flows which does not include all the characteristics of turbulent flows encountered in the real world. Proposed course will also introduce students to laboratory and computational techniques used for analyzing turbulent flows in rivers and streams.
2. Note whether this course is: Required Elective
3. In addition to the major/program in which this course is offered, what other majors/programs will be affected by this course?
Proposed course should be useful to students in the Civil, Mechanical, and Agricultural Engineering Departments who have a general background in fluid mechanics.
4. If this will be a dual listed course, indicate how the distinction between the two levels will be made.
Graduate students are required to complete additional homework assignments and will be assessed using a separate grading policy from the undergraduate students.
5. Desired section size 10
6. Provide qualifications of faculty who will teach this course. List name(s), rank(s), and degree(s).
Francis Ting, Professor, Ph.D., PE
7. Note whether adequate facilities are available and list any special equipment needed for the course.
Yes. The fluid mechanics laboratory at SDSU is a modern research facility and will be available for teaching this course.
8. Note whether adequate library and media support are available for the course.
Yes
9. Will the new course duplicate courses currently being offered on this campus?
 Yes No
If yes, provide justification.
10. If this course may be offered for variable credit, explain how the amount of credit at each offering is to be determined.
N/A