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| For Academic Affairs and Research Use Only |
| CIP Code:  |  |
| Degree Code: |  |

**New Course Proposal Form**

**[X] Undergraduate Curriculum Council**

**[ ] Graduate Council**

|  |
| --- |
| **[X] New Course or [ ]Experimental Course (1-time offering) (Check one box)** |

Signed paper copies of proposals submitted for consideration are no longer required. Please type approver name and enter date of approval.

Email completed proposals to curriculum@astate.edu for inclusion in curriculum committee agenda.

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| Jason Stewart 12/4/2017**Department Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**COPE Chair (if applicable)** |
| Jason Stewart 12/4/2017**Department Chair:**  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**Head of Unit (If applicable)**   |
| Jason Stewart 12/4/2017**College Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**Undergraduate Curriculum Council Chair** |
| Brandon Kemp 12/4/2017**College Dean** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**Graduate Curriculum Committee Chair** |
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| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Enter date |

**General Education Committee Chair (If applicable)**   | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**Vice Chancellor for Academic Affairs** |

1. Contact Person (Name, Email Address, Phone Number)

*Yeonsang Hwang, Ph.D.,* *yhwang@astate.edu**, 870-972-3581*

2. Proposed Starting Term and Bulletin Year

*Fall 2018*

3. Proposed Course Prefix and Number (Confirm that number chosen has not been used before. For variable credit courses, indicate variable range. *Proposed number for experimental course is 9*. )

*CE 4293*

4. Course Title – if title is more than 30 characters (including spaces), provide short title to be used on transcripts. Title cannot have any symbols (e.g. slash, colon, semi-colon, apostrophe, dash, and parenthesis). Please indicate if this course will have variable titles (e.g. independent study, thesis, special topics).

*Sustainability and Water Resources* (Short title: *Sustainability and Water Res.*)

5. Brief course description (40 words or fewer) as it should appear in the bulletin.

*Fundamental concepts of sustainability, the interconnection of the water system with other systems, the environmental and socio-economic aspects of water systems, and case studies for sustainable strategies.*

6. Prerequisites and major restrictions. (Indicate all prerequisites. If this course is restricted to a specific major, which major. If a student does not have the prerequisites or does not have the appropriate major, the student will not be allowed to register).

1. YES Are there any prerequisites?
	1. If yes, which ones?

*C or better in CE 3253 Engineering Hydrology and CE 3263 Intro to Environmental Engineering*

* 1. Why or why not?

 *Study of sustainable water resources requires collective understanding of both water quantity and quality.*

1. NO Is this course restricted to a specific major?
	1. If yes, which major? Enter text...

7. Course frequency(e.g. Fall, Spring, Summer). *Not applicable to Graduate courses.*

*Fall, even*

8. Will this course be lecture only, lab only, lecture and lab, activity, dissertation, experiential learning, independent study, internship, performance, practicum, recitation, seminar, special problems, special topics, studio, student exchange, occupational learning credit, or course for fee purpose only (e.g. an exam)? Please choose one.

*Lecture Only*

9. What is the grade type (i.e. standard letter, credit/no credit, pass/fail, no grade, developmental, or other [please elaborate])

*Standard Letter*

10. YES Is this course dual listed (undergraduate/graduate)?

11. NO Is this course cross listed?

*(If it is, all course entries must be identical including course descriptions. Submit appropriate documentation for requested changes. It is important to check the course description of an existing course when adding a new cross listed course.)*

**11.1** – If yes, please list the prefix and course number of cross listed course.

 Enter text...

**11.2** – **Yes / No** Are these courses offered for equivalent credit?

Please explain. Enter text...

12. NO Is this course in support of a new program?

a. If yes, what program?

 Enter text...

13. NO Does this course replace a course being deleted?

a. If yes, what course?

Enter text...

14. NO Will this course be equivalent to a deleted course?

a. If yes, which course?

Enter text...

15. **Yes / No** Has it been confirmed that this course number is available for use?

 *If no: Contact Registrar’s Office for assistance.*

16. NO Does this course affect another program?

If yes, provide confirmation of acceptance/approval of changes from the Dean, Department Head, and/or Program Director whose area this affects.

Enter text...

**Course Details**

17. Outline (The course outline should be topical by weeks and should be sufficient in detail to allow for judgment of the content of the course.)

| **Week** | **Topic** |
| --- | --- |
| 1 | Nexus trade-offs and strategies: food-energy-water nexus |
| 2 | Regenerative sustainability: leave the world a better place |
| 3 | Closing the loop: waste into resources |
| 4 | Urban Socio-hydrology: dynamics of human-water systems |
| 5 | Urban ecological restoration: low impact development |
| 6 | Ethics of water use: water equity |
| 7-8 | Water footprint and water sustainability metrics |
| 9 | Water sustainability for business |
| 10-11 | Water sustainability for agriculture |
| 12 | Water sustainability for industry |
| + 2 weeks  | Exams and/or project presentations |

18. Special features (e.g. labs, exhibits, site visitations, etc.)

N/A

19. Department staffing and classroom/lab resources

NO

1. Will this require additional faculty, supplies, etc.?

 Enter text...

20. NO Does this course require course fees?

 *If yes: please attach the New Program Tuition and Fees form, which is available from the UCC website.*

**Course Justification**

21. Justification for course being included in program. Must include:

 a. Academic rationale and goals for the course (skills or level of knowledge students can be expected to attain)

 *Sustainable water management is a critical issue to address because water scarcity becomes more severe with population growth and extreme weather events.*

b. How does the course fit with the mission established by the department for the curriculum? If course is mandated by an accrediting or certifying agency, include the directive.

 *Water Sustainability is a growing global topic. The topic will improve the understanding of complex environmental systems for Civil engineering students focusing on water resources or environmental areas. This course is* ***not*** *mandated by accrediting agency.*

c. Student population served.

*CE Majors. Open to MSE and EVS grad students.*

d. Rationale for the level of the course (lower, upper, or graduate).

*Students pursuing the study of water and environmental sustainability must be equipped with the good understanding of the combined civil engineering systems.*

**Assessment**

**Relationship with Current Program-Level Assessment Process**

22. What is/are the intended program-level learning outcome/s for students enrolled in this course? Where will this course fit into an already existing program assessment process?

*Students will gain key knowledge of sustainability; develop an understanding of the interconnections between water system and other systems; explore multiple-aspects of the social and natural sciences; connect water sustainability concepts with innovative designs and strategies; calculate water sustainability metrics; learn water sustainability in diverse sectors*

*Outcome 1: A good understanding of mathematics, science, and engineering, and an ability to apply this knowledge in engineering practice*

*Outcome 5: An understanding of professional and ethical responsibility*

*Outcome 7: The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context*

*Outcome 9: A knowledge of contemporary issues*

23. Considering the indicated program-level learning outcome/s (from question #23), please fill out the following table to show how and where this course fits into the program’s continuous improvement assessment process.

**Table VI-3. Relation of Student Outcomes to Curriculum**

|  |  |
| --- | --- |
| **Civil** **Engineering Program Engineering Courses** | **Student Outcome Number** |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** |
| **Engineering Core** | All students must complete the 20 hours of engineering core courses. |
| **ENGR 1402**, Concepts of Engineering |  |  |  |  |  |  |  |  |  |  |  |
| **ENGR 1412**, Software Applications for Engineers |  |  |  |  |  |  |  |  |  |  |  |
| **ENGR 2401**, Applied Engineering Satistics |  |  |  |  |  |  |  |  |  |  |  |
| **ENGR 2403**, Statics |  |  |  |  |  |  |  |  |  |  |  |
| **ENGR 3433**, Engineering Economics |  |  |  |  |  |  |  |  |  |  |  |
| **ENGR 4401**, Senior Seminar |  |  |  |  |  |  |  |  |  |  |  |
| **ENGR 4453**, Numerical Methods for Engineers |  |  |  |  |  |  |  |  |  |  |  |
| **ENGR 4463**, Senior Design I | A |  | A |  | A | A |  | A |  |  |  |
| **ENGR 4482**, SeniorDesign II |  |  | A |  |  | A |  | A |  | A |  |
| **Civil Engineering Required Courses** | All students must complete 60 hours of civil engineering courses. |
| **CE 2202**, Civil Engineering Presentations |  |  |  |  |  |  |  |  |  |  |  |
| **CE 2223**, Plane Surveying |  |  |  |  |  |  |  |  |  |  |  |
| **CE 3213**, Structural Analysis I |  |  |  |  |  |  |  |  |  |  |  |
| **CE 3224**, Civil Engineering Materials |  | A |  |  |  |  |  |  |  |  |  |
| **CE 3253**, Engineering Hydrology |  |  |  |  |  |  |  |  |  | A |  |
| **CE 3263**, Introduction to Environmental Engineering |  |  |  |  |  |  |  |  | A |  |  |
| **CE 3273**, Water and Waste Systems |  |  |  |  |  |  |  |  |  |  | A |
| **CE 4203**, Transportation Engineering I |  |  |  |  |  |  |  |  |  |  |  |
| **CE 4223**, Transportation Engineering II |  |  |  | A |  |  | A |  |  | A | A |
| **CE 4233**, FoundationEngineering |  |  |  |  |  |  |  |  |  |  |  |
| **CE 4243**, Reinforced Concrete Design |  |  |  |  |  |  |  |  |  |  | A |
| **CE 4251**, Soil Mechanics Laboratory |  |  |  |  |  |  |  |  |  |  |  |
|  **Civil** **Engineering Program Engineering Courses** | **Student Outcome Number** |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** |
| **Civil Engineering****Required Courses** |  |
| **CE 4253**, Soil Mechanics |  |  |  |  |  |  |  |  |  |  |  |
| **CE 4283**, Structural Steel Design |  |  |  |  |  |  |  |  |  |  | A |
| **ENGR 2411**, Mechanics of Materials Laboratory |  |  |  |  |  |  |  |  |  |  |  |
| **ENGR 2413**, Mechanics of Materials |  |  |  |  |  |  |  |  |  |  |  |
| **ENGR 3423**, Dynamics |  |  |  |  |  |  |  |  |  |  |  |
| **ENGR 3471**, Fluid Mechanics Laboratory |  |  |  |  |  |  |  |  |  |  |  |
| **ENGR 3473**, Fluid Mechanics |  |  |  |  |  |  |  |  |  |  |  |
| **Civil Engineering Elective Courses** | All students must complete either CE 3233 or CE 4263 AND either ENGR 2423 or ENGR 3443AND one additional course from the CE (not ENGR) courses listed. |
| **CE 3233**, Structural Analysis II |  |  |  |  |  |  |  |  |  |  |  |
| **CE 4263**, Water and Waste Treatment |  |  |  |  |  |  |  |  |  |  |  |
| **CE 4293**,Sustainability and Water Res*.* |  |  |  |  |  |  |  |  |  |  |  |
| **CE 4803**, Open-Channel Flow |  |  |  |  |  |  |  |  |  |  |  |
| **CE 4813**, Groundwater Hydrology |  |  |  |  |  |  |  |  |  |  |  |
| **CE 4823**,Earthquake Engineering |  |  |  |  |  |  |  |  |  |  |  |
| **ENGR 2423**, Electric Circuits I |  |  |  |  |  |  |  |  |  |  |  |
| **ENGR 3443**, Engineering Thermodynamics I |  |  |  |  |  |  |  |  |  |  |  |

*Note; The addressed outcomes will* ***NOT*** *be assessed by the proposed new course.*

 **Course-Level Outcomes**

24. What are the course-level outcomes for students enrolled in this course and the associated assessment measures?

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| **Outcome 1** | *Students will be able to calculate water sustainability metrics* |
| Which learning activities are responsible for this outcome? | *Students will learn and produce water sustainability metrics through group activities and assignments.* |
| Assessment Measure  | *Students will present produced water sustainability metrics as a group with written reports. Contents of their work, presentation skills, and written product will be assessed based on a set rubric.* |

*(Repeat if needed for additional outcomes)*

**Bulletin Changes**

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| **Instructions**  |
| **Please visit** [**http://www.astate.edu/a/registrar/students/bulletins/index.dot**](http://www.astate.edu/a/registrar/students/bulletins/index.dot) **and select the most recent version of the bulletin. Copy and paste all bulletin pages this proposal affects below. Follow the following guidelines for indicating necessary changes.** **\*Please note: Courses are often listed in multiple sections of the bulletin. To ensure that all affected sections have been located, please search the bulletin (ctrl+F) for the appropriate courses before submission of this form.** - Deleted courses/credit hours should be marked with a red strike-through (~~red strikethrough~~)- New credit hours and text changes should be listed in blue using enlarged font (blue using enlarged font). - Any new courses should be listed in blue bold italics using enlarged font (***blue bold italics using enlarged font***)*You can easily apply any of these changes by selecting the example text in the instructions above, double-clicking the ‘format painter’ icon 🡪 , and selecting the text you would like to apply the change to.* *Please visit* [*https://youtu.be/yjdL2n4lZm4*](https://youtu.be/yjdL2n4lZm4) *for more detailed instructions.* |

**CE 4293 Sustainability and Water Resources to be introduced on page 426 between CE 4283. Structural Steel Design and CE 429V. Special Problems in Civil Engineering.**

**CE 4293. Sustainability and Water Resources** Fundamental concepts of sustainability, the interconnection of the water system with other systems, the environmental and socio-economic aspects of water systems, and case studies for sustainable strategies. Lecture three hours per week. Prerequisite, C or better in CE 3253 and CE 3263. Fall, even.



CE 4293

Insert Here