


# Doctor of Philosophy - Civil and Environmental Engineering

2 Graduate Program Change 2020-21

## I. General Information

The faculty member originating this proposal is to complete sections I and II.

TURN ON help text before starting this proposal by clicking  in the top right corner of the heading. You will need to turn on help text again after any actions that refresh the page including after saving proposals, importing information, or running impact reports.

IMPORT curriculum data from the Catalog by clicking  in the top left corner.

Do not make any changes to any information until the proposal has been launched in Step 4.

Department\*

Civil and Environmental Engineering and Construction

Degree/ Certificate Name\*

Doctor of Philosophy - Civil and Environmental Engineering

Plan Code\*

CEGPHD

Degree Type\*

Doctor of Philosophy

Program Type\*

Doctoral

## II. Program Changes

FILL IN ONLY fields required marked with an \* after importing data. You will not be able to launch the proposal without completing required fields. Do not make proposed changes to the information that was imported until after the proposal has been launched in Step 4. Changes will only be tracked after the proposal is launched




Are you changing admission requirements?\*

Yes  No

Are you changing course requirements?*	<input type="radio"/> Yes <input checked="" type="radio"/> No
Are you changing degree completion requirements?*	<input type="radio"/> Yes <input checked="" type="radio"/> No
Are you changing the primary instructional mode?*	<input type="radio"/> Yes <input checked="" type="radio"/> No
Are you changing program learning objectives?*	<input type="radio"/> Yes <input checked="" type="radio"/> No
If yes, describe changes to learning objectives:	
Provide a Brief Summary of Proposed Changes	CEE 798 is added as an elective course. This is an optional course.
Provide a rationale for each proposed change	CEE 798 course needs to be added because OISS required international students to get enrolled in this course before getting approval for Curricular Practical Training (CPT).

**Do not make any changes to any information until the proposal has been launched in Step 4.**

Follow these steps to change the program curriculum:

1. Click on  "View Curriculum Schema." Edit existing cores or click 'Add Core' and name your core (please use a comparable degree program in the current graduate catalog as a template). Edit or add any descriptive text (do not add courses until Step 2). Descriptive text is generally used in the following cores: Plan Description, Plan Admission Requirements, Plan Requirements, Plan Graduation Requirements.
2. There are two options for adding courses (see Step 3 to remove courses): "Add Course" and "Import Course." For courses already in the catalog, click on "Import Course" and find the courses needed. For new classes going through a Curriculog Approval Process click on "Add Course"-- a box will open asking you for the Prefix, Course Number and Course Title.
3. Click on  "View Curriculum Schema." Click on the area/header of the program where you would like to add courses. When you click on "Add Courses" it will bring up the list of courses available from Step 2. Select the courses you wish to add. For removing courses click on the  and proceed.

After you have launched proposal, update prospective curriculum here\*

## Plan Description

The Department of Civil and Environmental Engineering & Construction (CEEC) at UNLV offers a number of program degree options leading to the Doctor of Philosophy (Ph.D.) - Civil and Environmental Engineering. Specific areas of engineering that are currently available include Construction, Geotechnical, Structural, Transportation, and Water Resources/Environmental. Two tracks are available (1) Post-Master's Track and (2) Post-Bachelor's Track. For more information about your program, including your graduate program handbook and learning outcomes please visit the Degree Directory.

## Plan Admission Requirements

**Application deadlines** Applications available on the UNLV Graduate College website. Admission to the program leading to the Ph.D. in Engineering in the field of Civil and Environmental Engineering is open to those students completing the following requirements: Applications should be submitted in the Grad Rebel Gateway System. The applicant must submit a Statement of Intent (SOI) with no more than two pages, indicating his/her interests in the area of specialization (construction, geotechnical, structural, transportation, and water resources/environmental) and objectives in working toward a Ph.D. degree. In addition, three letters of recommendation (LOR) must be submitted from individuals familiar with the applicant's knowledge, skills and abilities. It is highly recommended that LOR be written on official letter head. International applicants must meet English Proficiency requirements established in UNLV Graduate Catalog. All applicants are required to take GRE General Test and submit the scores to the University of Las Vegas, Nevada (code 4861). Successful applicants generally have a combined verbal and quantitative GRE score of at least 300 and analytical writing score of at least 3.

**Post-Master's Track** The applicant to this track must have a Master of Science in Engineering degree or equivalent with a major in civil engineering or a closely allied field. Students with non-engineering backgrounds will be required to complete a set of coursework requirements that will ensure successful completion of the Ph.D. specialization. The CEEC Graduate Program Committee (GPC) and Graduate Coordinator make all the final decisions after the review of each applicants records and admissions information. A minimum post-baccalaureate GPA of 3.20 on a 4.00 scale (4.00=A) or equivalent is required for admission. The CEEC GPC and Graduate Coordinator make all the final decisions after the review of each applicants records and admissions information.

**Post-Bachelor's Track** The applicant to this track must have earned a Bachelor of Science in Engineering degree or equivalent with a major in civil engineering or a closely allied field. The CEEC GPC and Graduate Coordinator make all the final decisions after the review of each applicants records and admissions information. A minimum baccalaureate overall GPA of 3.20 on a 4.00 scale (4.00=A) and GPA of 3.5 for the last 60 credit hours is required for admission. The CEEC GPC and Graduate

Coordinator make all the final decisions after the review of each applicants records and admissions information. All domestic and international applicants

must review and follow the Graduate College Admission and Registration Requirements. Students are accepted into a degree program as described in the Graduate Catalog. The faculty and corresponding sub-disciplines and sub-plans within the described programs are subject to change at any time.

## Plan Requirements

See Subplan Requirements below. Subplan 1: Post-Master's Track Subplan 2: Post-Bachelor's Track

## Subplan 1 Requirements: Post-Master's Track

Total Credits Required: 42

## Course Requirements

### Elective Courses - Credits: 42

Students must successfully complete a minimum of 3 courses from one of the five categories mentioned in the discipline-based list.

## Construction

<b>CEM 651 Construction Estimating</b>	<b>4</b>
<b>CEM 653 Construction Scheduling and Resource Optimization</b>	<b>3</b>
<b>CEM 751 Construction Cost Analysis and Estimating</b>	<b>3</b>
<b>CEE 609 Engineering Project Management</b>	
<b>CEE 710 Modular Construction</b>	<b>3</b>
<b>CEE 720 Information and Sensing Technology in Construction</b>	<b>3</b>
<b>CEE 785 Construction Engineering Management</b>	<b>3</b>

## **Geotechnical**

<b>CEE 710 Modular Construction</b>	<b>3</b>
<b>CEE 731 Pavement Materials and Design</b>	<b>3</b>
<b>CEE 732 Advanced Foundation Engineering</b>	<b>3</b>
<b>CEE 734 Advanced Soil Mechanics</b>	<b>3</b>
<b>CEE 736 Earth Slopes and Retaining Structures</b>	<b>3</b>
<b>CEE 737 Soil Dynamics and Earthquake Engineering</b>	<b>3</b>
<b>CEE 741 Design of Highway Bridge Structures</b>	<b>3</b>
<b>CEE 785 Construction Engineering Management</b>	<b>3</b>

## **Transportation**

<b>CEE 725 Freight Transportation</b>	<b>3</b>
<b>CEE 726 Railroad Operations</b>	<b>3</b>
<b>CEE 735 Earth Dams and Embankments</b>	<b>3</b>
<b>CEE 761 Transportation Demand Analysis</b>	<b>3</b>
<b>CEE 762 Operations Research Applications in Civil Engineering</b>	<b>3</b>
<b>CEE 763 Advanced Traffic Engineering</b>	<b>3</b>

## **Structure**

<b>CEE 741 Design of Highway Bridge Structures</b>	<b>3</b>
<b>CEE 744 Design of Prestressed/Post-Tensioned Concrete Structures</b>	<b>3</b>
<b>CEE 748 Advanced Design of Timber Structures</b>	<b>3</b>
<b>CEE 775 Seismic Response of Structures</b>	<b>3</b>
<b>CEE 780 Advanced Reinforced Concrete Structures</b>	<b>3</b>

## **Water Resources/ Environmental**

<b>CEE 704 Environmental &amp; Water Systems</b>	<b>3</b>
<b>CEE 709 Numerical Methods in Mechanics</b>	<b>3</b>
<b>CEE 750 Urban Runoff Quality and Control</b>	<b>3</b>
<b>CEE 751 Water Reuse Principles and Design</b>	<b>3</b>
<b>CEE 754 Biochemical Wastewater Treatment Fundamentals</b>	<b>3</b>

<b>CEE 755 Advanced Physicochemical Methods for Water Treatment</b>	<b>3</b>
<b>CEE 756 Advanced Waste Treatment Design</b>	<b>3</b>
<b>CEE 757 Engineering Modeling of Natural Systems</b>	<b>3</b>
<b>CEE 758 Air Quality Modeling</b>	<b>3</b>
<b>CEE 759 Mass Transfer in Environmental Systems</b>	<b>3</b>
<b>CEE 768 Applied Geographic Information Systems</b>	<b>4</b>

### **(Optional) Graduate Internship Course - Credits: Maximum up to 3**

Students engaged in Curricular Practical Training (CPT) must take CEE 798. The course can be taken maximum three times during their study. However, these credits will not be counted towards the degree.

**CEE 798 Graduate Internship for Civil Engineering and Transportation Students**

### **Dissertation – Credits: 18**

**CEE 799 Dissertation Research**

**1 – 6**

### **Degree Requirements**

Complete 24 credits of advisor-approved elective graduate-level coursework. Doctoral students who have not completed CEE 700, or its 3-credit equivalent, or did not write a thesis as part of their Master of Science studies, will be required to complete CEE 700. CEE 700 course will be counted towards elective credit hours. In addition to CEE 700, all students must successfully complete a minimum of 21 credit hours of approved graduate-level coursework beyond the degree of Master of Science in Engineering. For students who have completed CEE 700, or equivalent, during their Master of Science studies, a minimum of 24 credit hours of approved graduate-level coursework is required. A Doctoral Advisory Committee composed of at least five members of the UNLV graduate faculty is to be formed for the student. At least three of the committee members must be from tenured or tenure-track faculty of the CEEC Department and the fourth member from a related field. The fifth faculty member, the Graduate College Representative, is recommended by advisor/advisee and appointed by the Graduate College. It is strongly recommended that the Doctoral Advisory Committee collective expertise reflects the dissertation topic. The committee chair must be a faculty from the area of expertise chosen for dissertation topic. In addition to the coursework requirements, a dissertation consisting of at least 18 credits of CEE 799 is

required with the outcome being manuscripts written for a specific indexed conference or journal. At least 50% of the courses (600 and 700 level) within

the total coursework must be from the College of Engineering. At least 50% of the courses within the total coursework must be 700 level. Students must maintain a minimum grade point average of 3.00. A course, in which a grade of less than C was earned, will not be considered for use toward the degree. Students must take doctoral qualifying exam including a written component prepared by the student's graduate committee. The graduate committee shall provide the examination to the CEEC Department Graduate Coordinator who will administer the written qualifying exam for the CEEC Department on scheduled dates. Students who have not passed the qualifying exam by their second attempt will be terminated from the Ph.D. program. After passing the qualifying exam in one area of specialty, the student moves to other area of specialty by changing the advisor; he/she must retake the qualifying exam in the new area of specialty chosen by the student. After passing the qualifying exam, the doctoral student must pass a preliminary exam consisting of the preparation of a written proposal for the dissertation research followed by an oral defense of the proposal. The proposal must be approved by the student's Doctoral Advisory Committee.

## **Graduation Requirements**

The student must submit all required forms to the Graduate College and then apply for graduation up to two semesters prior to completing his/her degree requirements. The student must submit and successfully defend his/her dissertation by the posted deadline. The defense must be advertised and is open to the public. After the thesis defense, the student must electronically submit a properly formatted pdf copy of their thesis to the Graduate College for format check. Once the thesis format has been approved by the Graduate College, the student will submit the approved electronic version to ProQuest. Deadlines for thesis defenses, format check submissions, and the final ProQuest submission can be found here.

## **Subplan 2 Requirements: Post-Bachelor's Track**

Total Credits Required: 60

## **Course Requirements**

**Elective Courses - Credits: 42**

Students must successfully complete a minimum of 3 courses from one of the five categories mentioned in the discipline-based list.

## Construction

<b>CEM 651 Construction Estimating</b>	<b>4</b>
<b>CEM 653 Construction Scheduling and Resource Optimization</b>	<b>3</b>
<b>CEM 751 Construction Cost Analysis and Estimating</b>	<b>3</b>
<b>CEE 609 Engineering Project Management</b>	
<b>CEE 720 Information and Sensing Technology in Construction</b>	<b>3</b>
<b>CEE 710 Modular Construction</b>	<b>3</b>
<b>CEE 785 Construction Engineering Management</b>	<b>3</b>

## Geotechnical

<b>CEE 710 Modular Construction</b>	<b>3</b>
<b>CEE 731 Pavement Materials and Design</b>	<b>3</b>
<b>CEE 732 Advanced Foundation Engineering</b>	<b>3</b>
<b>CEE 734 Advanced Soil Mechanics</b>	<b>3</b>
<b>CEE 736 Earth Slopes and Retaining Structures</b>	<b>3</b>
<b>CEE 737 Soil Dynamics and Earthquake Engineering</b>	<b>3</b>
<b>CEE 741 Design of Highway Bridge Structures</b>	<b>3</b>
<b>CEE 785 Construction Engineering Management</b>	<b>3</b>

## Transportation

<b>CEE 725 Freight Transportation</b>	<b>3</b>
<b>CEE 726 Railroad Operations</b>	<b>3</b>
<b>CEE 735 Earth Dams and Embankments</b>	<b>3</b>
<b>CEE 761 Transportation Demand Analysis</b>	<b>3</b>
<b>CEE 762 Operations Research Applications in Civil Engineering</b>	<b>3</b>
<b>CEE 763 Advanced Traffic Engineering</b>	<b>3</b>

## Structure



<b>CEE 741 Design of Highway Bridge Structures</b>	<b>3</b>
<b>CEE 744 Design of Prestressed/Post-Tensioned Concrete Structures</b>	<b>3</b>
<b>CEE 748 Advanced Design of Timber Structures</b>	<b>3</b>
<b>CEE 775 Seismic Response of Structures</b>	<b>3</b>
<b>CEE 780 Advanced Reinforced Concrete Structures</b>	<b>3</b>

## **Water Resources/ Environmental**

<b>CEE 704 Environmental &amp; Water Systems</b>	<b>3</b>
<b>CEE 709 Numerical Methods in Mechanics</b>	<b>3</b>
<b>CEE 750 Urban Runoff Quality and Control</b>	<b>3</b>
<b>CEE 751 Water Reuse Principles and Design</b>	<b>3</b>
<b>CEE 754 Biochemical Wastewater Treatment Fundamentals</b>	<b>3</b>
<b>CEE 755 Advanced Physicochemical Methods for Water Treatment</b>	<b>3</b>
<b>CEE 756 Advanced Waste Treatment Design</b>	<b>3</b>
<b>CEE 757 Engineering Modeling of Natural Systems</b>	<b>3</b>
<b>CEE 758 Air Quality Modeling</b>	<b>3</b>
<b>CEE 759 Mass Transfer in Environmental Systems</b>	<b>3</b>
<b>CEE 768 Applied Geographic Information Systems</b>	<b>4</b>

## **(Optional) Graduate Internship Course - Credits: Maximum up to 3**

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**CEE 798 Graduate Internship for Civil Engineering and Transportation Students**

## **Dissertation - Credits: 18**

<b>CEE 799 Dissertation Research</b>	<b>1 – 6</b>
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## **Degree Requirements**

Complete 42 credits of advisor-approved elective graduate-level coursework. Students will be required to complete CEE 700. CEE 700 course will be counted towards elective credit hours. In addition to CEE 700, all students must successfully complete a minimum of 39 credit hours of approved graduate-level coursework beyond the BS degree. A Doctoral Advisory Committee composed of at least five members of the UNLV graduate faculty is to be formed for the student. At least three of the committee members must be from tenured or tenure-track faculty of the CEEC Department and the fourth member from a related field. The fifth faculty member, the Graduate College Representative, is recommended by advisor/advisee and appointed by the Graduate College. It is strongly recommended that the Doctoral Advisory Committee collective expertise reflects the dissertation topic. The committee chair must be a faculty from the area of expertise chosen for dissertation topic. In addition to the coursework requirements, a dissertation consisting of at least 18 credits of CEE 799 is required with the outcome being manuscripts written for a specific indexed conference or journal. At least 50% of the courses (600 and 700 level) within the total coursework must be from the College of Engineering. At least 50% of the courses within the total coursework must be 700 level. Students must maintain a minimum grade point average of 3.00. A course, in which a grade of less than C was earned, will not be considered for use toward the degree. Students must take doctoral qualifying exam including a written component prepared by the student's graduate committee. The graduate committee shall provide the examination to the CEEC Department Graduate Coordinator who will administer the written qualifying exam for the CEEC Department on scheduled dates. Students who have not passed the qualifying exam by their second attempt will be terminated from the Ph.D. program. After passing the qualifying exam in one area of specialty, the student moves to other area of specialty by changing the advisor; he/she must retake the qualifying exam in the new area of specialty chosen by the student. After passing the qualifying exam, the doctoral student must pass a preliminary exam consisting of the preparation of a written proposal for the dissertation research followed by an oral defense of the proposal. The proposal must be approved by the student's Doctoral Advisory Committee.

## **Graduation Requirements**

The student must submit all required forms to the Graduate College and then apply for graduation up to two semesters prior to completing his/her degree requirements. The student must submit and successfully defend his/her dissertation by the posted deadline. The defense must be advertised and is open to the public. After the thesis defense, the student must electronically submit a properly formatted pdf copy of their thesis to the Graduate College for format check. Once the thesis format has been approved by the Graduate College, the student will submit the approved electronic version to ProQuest. Deadlines for thesis defenses, format check submissions, and the final ProQuest submission can be found [here](#).

## Plan Graduation Requirements

Refer to your subplan for Graduation Requirements. Subplan 1: Post-Master's Track Subplan 2: Post-Bachelor's Track

The [Degrees Directory](#) provides current and consistent degree information. Submission of this form indicates acknowledgment and understanding that every department is responsible creating and maintaining accurate and updated program information on the UNLV Degrees Directory.

If the changes included on this form impact the program handbook attach the updated handbook before submitting this form. If you need a Word version of the most recent handbook please email [GradCurriculum@unlv.edu](mailto:GradCurriculum@unlv.edu).

Degrees Directory  
Program Entry\*

Check this box to acknowledge the above statement.

Changes will be  
applicable to\*

Current Students  
 New Students  
 Both Current and New Students

If applicable to  
current students,  
changes are


Mandatory  Optional

Effective Date\*

Fall 2021

4. LAUNCH proposal by clicking  in the top left corner.

5. After launching the proposal, make all changes and fill in all additional fields.


6. Finish the launch of your proposal by clicking the icon  located in the Proposal Toolbox on left side at top. Make your decision, comment is optional, and click on "Make decision".

You can check the status of the proposal by clicking  in Proposal Toolbox to verify that the proposal has gone to the next step.

### III. Department Vote Information

Note: This section is to be filled out by the Department Chair on behalf of the committee.

(The role has been assigned to the corresponding person on this step. If incorrect, please notify GradCurriculum@unlv.edu)

1. Review the proposal. Discuss and make appropriate revisions.
2. Fill in vote information.
3. Then go to the proposal toolbox at the top right side. Click on  and select the corresponding decision for the committee. This will enable the proposal to go to the next person on the workflow.


You can check the status of the proposal by clicking  in Proposal Toolbox to verify that the proposal has gone to the next step.

Date faculty voted on proposal	2/12/2020	Result of vote	12 Yes out of 17 faculty
Manner of vote	Email		

#### IV. Unit Vote Information

Note: This section is to be filled out by the College Committee Chair on behalf of the committee.

(The role has been assigned to the corresponding person on this step. If incorrect, please notify GradCurriculum@unlv.edu)

1. Review the proposal. Discuss and make appropriate revisions.
2. Fill in vote information.
3. Then go to the proposal toolbox at the top right side. Click on  and select the corresponding decision for the committee. This will enable the proposal to go to the next person on the workflow.

You can check the status of the proposal by clicking  in Proposal Toolbox to verify that the proposal has gone to the next step.

Date faculty voted on proposal	04/01/2020	Result of vote	4/0/0
Manner of vote	online		

#### V. Processing Notes (Graduate College/Registrar Use Only)

**Program Alerts (E.g.  
This program is no  
longer accepting  
applications)**

**PS Processing Notes**

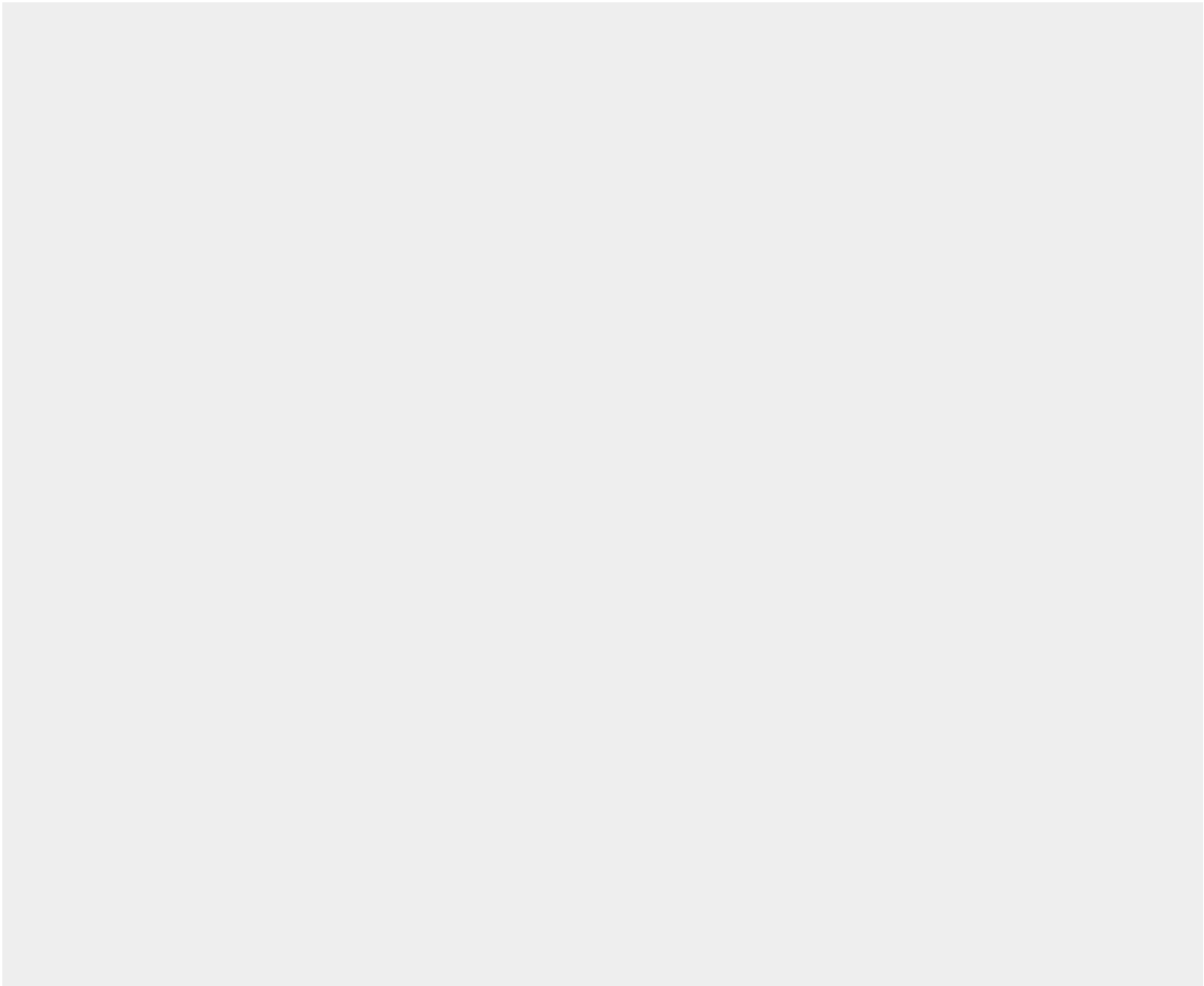
**PS Processing Date**

**Initials**

**Aalog Processing  
Notes**

**Aalog Processing  
Date**

**Initials**



## Comments for Doctor of Philosophy - Civil and Environmental Engineering

<b>Curriculog</b>	4/8/2020 3:39 pm <a href="#">Reply</a>
Emily Lin has approved this proposal on Graduate College Dean.	
<b>Curriculog</b>	4/8/2020 12:14 pm <a href="#">Reply</a>
Graduate Curriculum has approved this proposal on Graduate Programs Committee.	
<b>Gregory Moody</b>	4/7/2020 5:51 pm <a href="#">Reply</a>
11 in favor - WebEx Meeting	
<b>Curriculog</b>	4/7/2020 5:51 pm <a href="#">Reply</a>
Gregory Moody has approved this proposal on Graduate Programs Committee.	
<b>Graduate Curriculum</b>	4/1/2020 6:32 pm <a href="#">Reply</a>
On behalf of Dr. Trabia through email authorization.	
<b>Curriculog</b>	4/1/2020 6:32 pm <a href="#">Reply</a>
Graduate Curriculum has force approved this proposal.	
<b>Melissa Morris</b>	4/1/2020 3:10 pm <a href="#">Reply</a>
The College Curriculum Committee Approves Unanimously.	
<b>Curriculog</b>	4/1/2020 3:10 pm <a href="#">Reply</a>
Melissa Morris has approved this proposal on School/College Committee.	
<b>Curriculog</b>	3/31/2020 2:44 pm <a href="#">Reply</a>
CEEC Chair has approved this proposal on Department Chair.	
<b>Curriculog</b>	3/31/2020 1:50 pm <a href="#">Reply</a>
CEEC Graduate Coordinator has approved this proposal on Graduate Coordinator.	
<b>Curriculog</b>	3/31/2020 12:43 pm <a href="#">Reply</a>
Graduate Curriculum has approved this proposal on Technical Review.	

**Curriculog**

3/30/2020 5:22 pm [Reply](#)

CEEC Graduate Coordinator has approved this proposal on Originator.

**Graduate Curriculum**

3/30/2020 1:39 pm [Reply](#)

Sending back to originator by request of originator

**Curriculog**

3/30/2020 1:39 pm [Reply](#)

Graduate Curriculum has rejected this proposal on Technical Review.

**Curriculog**

3/26/2020 7:11 pm [Reply](#)

CEEC Graduate Coordinator has approved this proposal on Originator.

**Curriculog**

3/26/2020 6:42 pm [Reply](#)

CEEC Graduate Coordinator has launched this proposal.

**Curriculog**

3/26/2020 6:40 pm [Reply](#)

CEEC Graduate Coordinator imported from the map 2020-2021 Working Graduate Catalog into the following proposal fields: I. General Information: Department, I. General Information: Degree/ Certificate Name, I. General Information: Plan Code, I. General Information: Degree Type, I. General Information: Program Type, II. Program Changes: After you have launched proposal, update prospective curriculum here, V. Processing Notes (Graduate College/Registrar Use Only): Program Alerts (E.g. This program is no longer accepting applications).