To: Dr. Jacen Maier Moore, Chair  
Undergraduate Curriculum Committee

Through: Dr. Carlos M. Ferregut, Interim Dean  
College of Engineering

Through: Dr. Patricia A. Nava, Associate Dean for Academic Affairs  
College of Engineering

Through: Dr. Luis Rene Contreras, Chair  
Curriculum Committee  
College of Engineering

From: Dr. Cesar Carrasco, Chair  
Department of Civil Engineering

Date: April 20, 2017

Re: Changes on pre-requisites, classification restrictions and approval requirements for Civil Engineering courses and changes to program student outcomes in our BSCEM program

The Department of Civil Engineering is proposing changes to pre-requisites, classification restrictions and the removal of the departmental approval requirement for some of our Civil Engineering courses.

We are also requesting that the Program Student Outcomes for our Bachelor of Science in Construction Engineering and Management (BSCEM) program be updated to reflect the ABET specified outcomes. The ones currently in the catalog are for a different accreditation organization with which we are no longer pursuing accreditation.

A summary of the proposed course changes is included in Table 1 below and course change forms are attached in Appendix A. The changes to the catalog for the BSCEM program are also attached in Appendix B.
<table>
<thead>
<tr>
<th>Subject Prefix</th>
<th>Course Number</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE</td>
<td>1301</td>
<td>Prerequisites and Major Restrictions</td>
</tr>
<tr>
<td>CE</td>
<td>1313</td>
<td>Departmental approval</td>
</tr>
<tr>
<td>CE</td>
<td>2315</td>
<td>Prerequisites</td>
</tr>
<tr>
<td>CE</td>
<td>2375</td>
<td>Prerequisites</td>
</tr>
<tr>
<td>CE</td>
<td>2385</td>
<td>Prerequisites</td>
</tr>
<tr>
<td>CE</td>
<td>3153</td>
<td>Departmental approval</td>
</tr>
<tr>
<td>CE</td>
<td>3336</td>
<td>Prerequisites</td>
</tr>
<tr>
<td>CE</td>
<td>3334</td>
<td>Classification restrictions and Departmental Approval</td>
</tr>
<tr>
<td>CE</td>
<td>3348</td>
<td>Prerequisites and Corequisites</td>
</tr>
<tr>
<td>CE</td>
<td>3456</td>
<td>Prerequisites</td>
</tr>
<tr>
<td>CE</td>
<td>4188</td>
<td>Departmental approval</td>
</tr>
<tr>
<td>CE</td>
<td>4195</td>
<td>Classification restrictions</td>
</tr>
<tr>
<td>CE</td>
<td>4375</td>
<td>Classification restrictions</td>
</tr>
<tr>
<td>CE</td>
<td>4382</td>
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<td>Departmental approval</td>
</tr>
<tr>
<td>CE</td>
<td>4389</td>
<td>Departmental approval</td>
</tr>
</tbody>
</table>
The University of Texas at El Paso
Curriculum Change Proposal
Approval Page

Proposal Title: Changes on pre-requisites, classification restrictions and approval requirements for Civil Engineering courses and changes to program student outcomes in our BSCEM program

Department Chair
I have read the enclosed proposal and approve this proposal on behalf of the department.

Signature

4/20/17

Date

College Curriculum Committee Chairperson
I have read the enclosed documents and approve the proposal on behalf of the college curriculum committee.

Signature

5/12/2017

Date

College Dean
I have read the enclosed documents and approve the proposal on behalf of the college. I certify that the necessary funds will be allocated by the college in support of this proposal:

Signature

May 15, 2017

Date

Graduate Council/Undergraduate Curriculum Committee
Council Action: □ Approved □ Returned to the College

Date of Action Report: ____________________________

Signature, Chairman

Date
Appendix A

Course Change Forms
Course Change Form

Subject Prefix  CE  Course Number  1301

Title: Civil Engineering Fundamentals

Directions: List all items that are being changed in a from/to format:

<table>
<thead>
<tr>
<th>Change</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Restriction</td>
<td>Lower Division Civil Engineering</td>
<td>Civil Engineering, and Construction Engineering and Management</td>
</tr>
<tr>
<td>Co-requisite</td>
<td></td>
<td>MATH 1411</td>
</tr>
</tbody>
</table>

Rationale for Changing the Course

Briefly describe the rationale for changing this course.

This course was first offered during the Fall 2016 semester and we identified some deficiencies in students. These deficiencies should be resolved if they are asked to be calculus ready at the time they enroll in the course.
Course Change Form

Subject Prefix ____CE____ Course Number _____1313____

Title: Engineering Measurement_____________________

Directions: List all items that are being changed in a from/to format:

<table>
<thead>
<tr>
<th>Change</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Departmental Approval</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>

Rationale for Changing the Course

Briefly describe the rationale for changing this course.

Registration for this course does not need departmental approval.
Course Change Form

Subject Prefix: CE Course Number: 2315

Title: Statics

Directions: List all items that are being changed in a from/to format:

<table>
<thead>
<tr>
<th>Change</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prerequisites</td>
<td>(MATH 1411 w/C or better ) OR (MATH 1312 w/C or better ) OR (MATH 2313 w/C or better ) OR (MATH 2326 w/C or better ) OR (MATH 1411A w/C or better AND MATH 1411B w/C or better AND MATH 1411C w/C or better ) AND (CE 1301 w/D or better ) OR (PHYS 2420 w/D or better)</td>
<td>(MATH 1411 w/C or better ) OR (MATH 1312 w/C or better ) OR (MATH 2313 w/C or better ) OR (MATH 2326 w/C or better ) OR (MATH 1411A w/C or better AND MATH 1411B w/C or better AND MATH 1411C w/C or better ) AND (CE 1301 w/C or better ) OR (PHYS 2420 w/C or better)</td>
</tr>
</tbody>
</table>

Rationale for Changing the Course

Briefly describe the rationale for changing this course.

All lower division pre-requisites should require a C or better grade.
Course Change Form

Subject Prefix _____ CE _____ Course Number _____ 2375 _____

Title: Intro to Thermal-Fluid Sciences

Directions: List all items that are being changed in a from/to format:

<table>
<thead>
<tr>
<th>Change</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prerequisites</td>
<td></td>
<td>CE2334 w/C or better</td>
</tr>
</tbody>
</table>

Rationale for Changing the Course

Briefly describe the rationale for changing this course.

Through our ABET accreditation process we identified that students need to take CE2334 to perform well in this course.
Course Change Form

Subject Prefix ____CE____ Course Number ______2385____

Title: Environmental Engr Fundamentals ________________

Directions: List all items that are being changed in a from/to format:

<table>
<thead>
<tr>
<th>Change</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prerequisites</td>
<td>(CE 2375 w/C or better)</td>
<td>(CHEM 1306 w/C or better)</td>
</tr>
</tbody>
</table>

Rationale for Changing the Course

Briefly describe the rationale for changing this course.

Through our ABET accreditation process we identified that students cover the necessary pre-requisites in CHEM 1306 and having CE 2375 as a pre-requisite is not needed.
Course Change Form

Subject Prefix _______ CE _______ Course Number _______ 3153 _______

Title: Water & Waste Water Laboratory

Directions: List all items that are being changed in a from/to format:

<table>
<thead>
<tr>
<th>Change</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Departmental Approval</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Rationale for Changing the Course

Briefly describe the rationale for changing this course.

Registration for this course does not need departmental approval.
Course Change Form

Subject Prefix: CE Course Number: 3334

Title: Construction Management

Directions: List all items that are being changed in a from/to format:

<table>
<thead>
<tr>
<th>Change</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification</td>
<td></td>
<td>JR, SR</td>
</tr>
<tr>
<td>Restrictions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Departmental Approval</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>

Rationale for Changing the Course

Briefly describe the rationale for changing this course.

Although CE3334 does not have specific pre-requisites, students should have taken the majority of the lower division courses to better understand the principles of construction management.
Course Change Form

Subject Prefix _____ CE _____ Course Number _______ 3336

Title: Civil Engineering Materials

Directions: List all items that are being changed in a from/to format:

<table>
<thead>
<tr>
<th>Change</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prerequisites</td>
<td></td>
<td>CE2334 w/C or better</td>
</tr>
</tbody>
</table>

Rationale for Changing the Course

Briefly describe the rationale for changing this course.

Through our ABET accreditation process we identified that students need to take CE2334 to perform well in this course.
Course Change Form

Subject Prefix: CE  Course Number: 3348

Title: Geotechnical Engineering

Directions: List all items that are being changed in a from/to format:

<table>
<thead>
<tr>
<th>Change</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-requisites</td>
<td>(CE 2335 w/C or better AND CE 3336 w/D or better AND CE 3456 w/D or better)</td>
<td>CE 3336 w/D or better</td>
</tr>
<tr>
<td>Co-requisite</td>
<td></td>
<td>CE 2335 or GEO 3321</td>
</tr>
</tbody>
</table>

Rationale for Changing the Course

Briefly describe the rationale for changing this course.

Because of changes in our curriculum CE3348 no longer requires CE3456 Hydrology and Hydraulics. The faculty of the department also considers that having CE2335 Geology for Engineers as a co-requisite is sufficient to satisfy the requirements of CE3348.
Course Change Form

Subject Prefix: CE  Course Number: 3456

Title: Hydrology & Hydraulic Engr.

Directions: List all items that are being changed in a from/to format:

<table>
<thead>
<tr>
<th>Change</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-requisites</td>
<td>(CE 2375 w/C or better ) OR (MECH 2311 w/C or better ) AND (CE 3373 w/C or better) OR (IE 3373 w/C or better)</td>
<td>(CE 2375 w/C or better ) OR (MECH 2311 w/C or better)</td>
</tr>
</tbody>
</table>

Rationale for Changing the Course

Briefly describe the rationale for changing this course.

The faculty in the department recently updated the content of this course and having CE3373/IE3373 Engr Probability & Stastcs Model as a pre-requisite is no longer needed.
Course Change Form

Subject Prefix ___CE___ Course Number ____4188___

Title: Senior Design I ________________________

Directions: List all items that are being changed in a from/to format:

<table>
<thead>
<tr>
<th>Change</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Departmental Approval</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>

Rationale for Changing the Course

Briefly describe the rationale for changing this course.

Registration for this course does not need departmental approval.
Course Change Form

Subject Prefix: CE  Course Number: 4195

Title: Senior Professional Orientation

Directions: List all items that are being changed in a from/to format:

<table>
<thead>
<tr>
<th>Change</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification Restrictions</td>
<td></td>
<td>SR</td>
</tr>
</tbody>
</table>

Rationale for Changing the Course

Briefly describe the rationale for changing this course.

Students need to be in their senior year to perform well on the review sessions conducted in this class.
Course Change Form

Subject Prefix ___ CE ___ Course Number ___ 4375 ___

Title: Advanced Topics in Civil Engineering I  

Directions: List all items that are being changed in a from/to format:

<table>
<thead>
<tr>
<th>Change</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification</td>
<td></td>
<td>JR, SR</td>
</tr>
<tr>
<td>Restrictions</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Rationale for Changing the Course

Briefly describe the rationale for changing this course.

This is an elective course that students take together with master level students and requires that they have a strong background in most civil engineering disciplines. Making sure that students are in their last year puts them on a better position to succeed in this elective course.
Course Change Form

Subject Prefix: CE  Course Number: 4382

Title: Constr. Cost Analys. & Bidding

Directions: List all items that are being changed in a from/to format:

<table>
<thead>
<tr>
<th>Change</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Departmental Approval</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>

Rationale for Changing the Course

Briefly describe the rationale for changing this course.

Registration for this course does not need departmental approval.
Course Change Form

Subject Prefix: **CE**  Course Number: **4385**

Title:  Construction Internship

**Directions:** List all items that are being changed in a from/to format:

<table>
<thead>
<tr>
<th>Change</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Departmental Approval</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>

**Rationale for Changing the Course**

Briefly describe the rationale for changing this course.

Registration for this course does not need departmental approval.
Course Change Form

Subject Prefix: CE  Course Number: 4386  
Title: Construction Law & Ethics

Directions: List all items that are being changed in a from/to format:

<table>
<thead>
<tr>
<th>Change</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Departmental Approval</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>

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Rationale for Changing the Course

Briefly describe the rationale for changing this course.

Registration for this course does not need departmental approval.
Course Change Form

Subject Prefix: CE  Course Number: 4387

Title: Construction Scheduling

Directions: List all items that are being changed in a from/to format:

<table>
<thead>
<tr>
<th>Change</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Departmental Approval</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>

Rationale for Changing the Course

Briefly describe the rationale for changing this course.

Registration for this course does not need departmental approval.
Course Change Form

Subject Prefix: CE  Course Number: 4389

Title: Construction Safety

Directions: List all items that are being changed in a from/to format:

<table>
<thead>
<tr>
<th>Change</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Departmental Approval</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>

Rationale for Changing the Course

Briefly describe the rationale for changing this course.

Registration for this course does not need departmental approval.
Appendix B

Catalog Changes to BSCEM Program
The B.S. in Construction Engineering and Management (BSCEM) provides students with the knowledge and skills to become both construction engineers as well as construction managers.

The program has two primary objectives:

- Develop civil engineers with deep disciplinary knowledge in construction engineering and expertise in construction management
- Prepare graduates for certification as construction managers, a preferred qualification that few industry professionals possess

Program Student Outcomes
The program student's outcomes are in line with the learning outcomes described by the Accreditation Board for Engineering and Technology (ABET)

The graduates will be able to:

a) Apply mathematics, science, and engineering (construction management) principles

b) Design and conduct experiments and interpret data
c) Design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
d) Function on multidisciplinary teams
e) Identify, formulate, and solve engineering (construction management) problems
f) Understand professional legal and ethical responsibility
g) Communicate effectively

h) Understand the impact of engineering (construction management) solutions in a global context

i) Recognize the need for, and an ability to engage in life-long learning

j) Understand contemporary issues

k) Use the techniques, skills, and modern engineering (construction management) tools necessary for engineering (construction management) practice.
Create written communications appropriate to the construction discipline.
Create oral presentations appropriate to the construction discipline.
Create a construction project safety plan.
Create construction project cost estimates.
Create construction project schedules.
Analyze professional decisions based on ethical principles.
Analyze construction documents for planning and management of construction processes.
Analyze methods, materials, and equipment used to construct projects.
Apply construction management skills as a member of a multi-disciplinary team.
Apply electronic-based technology to manage the construction process.
Apply basic surveying techniques for construction layout and control.
Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.
Understand construction risk management.
Understand construction accounting and cost control.
Understand construction quality assurance and control.
Understand construction project control processes.
Understand the legal implications of contract, common, and regulatory law to manage a construction project.
Understand the basic principles of sustainable construction.
Understand the basic principles of structural behavior.
Understand the basic principles of mechanical, electrical and piping systems.