2014 Program Assessment

Program
PhD Civil Engineering
Department
Civil and Architectural Engineering and Construction Management
College
Engineering and Applied Science
Year
2014

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Two other members to be determined
TABLE OF CONTENTS

I. Program Overview ........................................................................................................3
II. Program Outcomes .....................................................................................................4
III. Curriculum/Program Map .......................................................................................5
    Curriculum Mapping Matrix ....................................................................................6
IV. Methods and Measures ............................................................................................7
    Assessment Measures Alignment Matrix ................................................................8
V. Assessment Infrastructure .......................................................................................17
VI. Findings ..................................................................................................................18
VII. Use of Findings ......................................................................................................18
A. Appendix ..................................................................................................................19
I. Program Overview

The doctoral program in Civil Engineering follows in the more than centenary tradition of the Civil Engineering programs at the University of Cincinnati, which produced historical engineering figures such as Joseph Strauss, the chief engineer for the Golden Gate Bridge.

The doctoral program prepares students for success in any career path they may choose, by empowering them with advanced knowledge in the chosen field, coupled with superior technical communication skills. Specializations are available in construction engineering, geotechnical engineering, pavement engineering, structural engineering, and transportation engineering. The graduate faculty of the program are national leaders in their field and have contributed to the development of numerous aspects of the current specifications and to the state-of-the-art in their respective fields. Through classroom learning, classroom teaching, grant writing, and research activities, the doctoral students will be prepared to tackle any challenges, be it in the academic world, in the engineering profession, or within government agencies.

As part of the doctoral program in Civil Engineering, candidates will have the opportunity of engaging in mentored classroom teaching, as well as in advanced research activities that are meant to further the state-of-the-art in a specific field. Research activities include experimental, analytical, and multidisciplinary work that can lead to intra- and inter-college collaborations, and also to international activities. As part of their experience during the doctoral curriculum, doctoral students will be expected to write conference and journal papers, attend conferences, and disseminate their work among the scientific and professional community.

Students will become an expert in their field of choice, capable of producing new knowledge in that field. They will become exceptional technical communicators, with different audiences in mind. They will be able to prepare effective proposals for funding new research activities and will be able to coordinate and organize research groups.

Alumni graduating from the doctoral program in Civil Engineering have pursued diverse careers: some have successfully made a career in academia, developing their own research paths, advising students, teaching, and providing service to the engineering profession. Some have elected to focus their advanced knowledge in the design field, and sought employment in consulting firms in which they run departments and tackle advanced design issues. Some have found employment in industry, as chief engineers of departments, plants, or entire corporations. Others have chosen public service, be it in government agencies or as chief engineer of counties, townships, etc.

The doctoral program in Civil Engineering constantly seeks exceptional candidates irrespective of race, gender, creed, or any other non-academic considerations. Applications are considered at any time, with preference for a starting date in the Fall Semester.
II. Program Outcomes

Current Program Outcomes from the P-1 form in its current version

1. Students will contribute to the advancement of knowledge in construction engineering and management, geotechnical engineering, structural engineering and mechanics, pavement engineering, or transportation engineering
2. Students will be able to identify and articulate the status of research development in the form of literature review in the chosen discipline of Civil Engineering
3. Students will be able to identify and formulate the engineering problem and develop solutions by integrating and incorporating fundamental concepts of analysis, design, simulation, mathematics, economics, and other disciplines.
4. Students will recognize the roles of major theories and methods and propose a significant development of focused research plan
5. Students will develop a dissertation as a result of executing the proposed research plan, demonstrating its relevance and uniqueness
6. Students will be able to effectively communicate the technical problem both orally and in writing
7. Students will be able to contribute to journal publications, conferences, and workshops.

Proposed Program Outcomes:

1. Demonstrate advanced knowledge of fundamental civil engineering concepts
2. Identify an engineering problem for which a solution has not been addressed in the scholarly literature
3. Develop a methodology to solve an engineering problem by incorporating fundamental engineering concepts and advanced approaches
4. Formulate a solution to an engineering problem by incorporating fundamental engineering concepts and advanced approaches
5. Effectively communicate technical content both orally and in writing to various audiences
6. Produce original research which contributes to the state of the art in the form of a dissertation and at least one refereed article
7. Prepare and submit a grant proposal in collaboration with the advisor
8. Develop teaching skills and strategies through formal course instruction and mentoring
III. Curriculum/Program Map

The doctoral program in Civil Engineering requires a minimum of 48 credit hours of research credits. The student's advisor will provide the graduate program director with an annual review of the overall progress of the student.

Doctoral students are expected to sustain a PhD Qualifier Examination, prepare and defend a research proposal, and prepare and defend a dissertation.

Doctoral students are expected to take part in a formal Teaching Effectiveness course, followed by a mentored teaching experience. Doctoral students are also expected to prepare and submit at least one grant proposal in collaboration with the advisor. Finally, doctoral students are expected to publish at least one journal paper as part of their experience.

The following table shows a matrix mapping the program outcomes to the activities and experiences required of the students. The activities and experiences that will be used for assessment purposes are shown in bold face.
<table>
<thead>
<tr>
<th>OUTCOMES</th>
<th>PhD Qualifier Exam</th>
<th>PhD Proposal</th>
<th>PhD Defense</th>
<th>Annual Review</th>
<th>Teaching Effectiveness</th>
<th>Grant Writing</th>
<th>Course Teaching</th>
<th>Publications</th>
<th>Interviews/Surveys</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Demonstrate advanced knowledge in fundamental civil engineering concepts</td>
<td>E,D</td>
<td>D</td>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>2. Identify an engineering problem for which a solution has not been addressed in the scholarly literature.</td>
<td>E,D</td>
<td>A</td>
<td>D</td>
<td></td>
<td>D</td>
<td></td>
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<td></td>
<td>A</td>
</tr>
<tr>
<td>3. Develop a methodology to solve an engineering problem by incorporating fundamental engineering concepts and advanced approaches.</td>
<td>E,D</td>
<td>A</td>
<td>D</td>
<td></td>
<td>D</td>
<td></td>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>4. Formulate a solution to an engineering problem by incorporating fundamental engineering concepts and advanced approaches.</td>
<td>E</td>
<td>D</td>
<td>A</td>
<td></td>
<td>D</td>
<td></td>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>5. Effectively communicate technical content both orally and in writing to various audiences.</td>
<td>E,D</td>
<td>A</td>
<td></td>
<td></td>
<td>E,D</td>
<td>A</td>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>6. Produce original research which contributes to the state of the art in the form of a dissertation and at least one refereed article.</td>
<td>E,D</td>
<td>A</td>
<td>E</td>
<td></td>
<td>D</td>
<td></td>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>7. Prepare and submit a grant proposal in collaboration with the advisor.</td>
<td>E,D</td>
<td>D</td>
<td></td>
<td></td>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>8. Develop teaching skills and strategies through formal course instruction and mentoring.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>E,D</td>
<td>A</td>
</tr>
</tbody>
</table>

* Please note that you are only identifying required courses and experiences that are housed within your academic unit.

** Bold face letters indicate activities and experiences that will be used for assessment purposes
IV. Methods and Measures

Various assessment methods have been implemented to assess each of the program learning outcomes, as shown in the matrix below. The assessment measures and methods are as follows:

- **PhD Qualifying exam.** At the start of the second year of doctoral studies, each student is required to undergo a comprehensive qualifying examination, administered by a graduate faculty committee, chaired by the graduate program director, focused on topics appropriate for the track chosen by the student. The examination consists in an in-class written exam, a take-home written exam, and of an oral examination.

- **PhD Proposal Defense.** Each student is expected to prepare a document presenting an original problem, not addressed in existing literature, containing a thorough literature review, a problem statement, a proposed methodology to solve the problem, and a path to the solution. This document is provided to the doctoral committee, chaired by the advisor, and is defended in front of the committee, who deliberates whether the proposal is acceptable or not. The graduate director approves of the committee and certifies the outcome of the proposal defense.

- **PhD Final Defense.** At least 12 months after defending the proposal, each student will prepare a dissertation, which will be submitted for review to the doctoral committee, followed by a defense. The committee will deliberate whether the defense is successful, and the graduate director will certify the outcome of the final defense.

- **Annual Performance Assessment.** At the end of the Spring Semester of each year, each student is expected to initiate a review process with their advisor, consisting of the compilation of a form, indicating whether the research/classwork progress has been satisfactory or not, and pointing out explicitly at issues or problems. The graduate director collects these forms.

- **Artifact.** During the course of their doctoral studies, and preferably before the proposal document is prepared, each student is expected to prepare a grant proposal in collaboration with the advisor, to be submitted for consideration to a private or public funding agency.

- **Performance Assessment on Teaching Effectiveness.** Each student is expected to undergo formal instruction in Teaching Effectiveness. The advisor, in consultation with the Teaching Effectiveness instructor, will assess the documents prepared as a result of the class (syllabus, course plan, etc.).

- **Performance Assessment on Teaching.** Each student, after undergoing formal instruction in Teaching Effectiveness, is expected to put the concepts learned into practice in a mentored teaching experience, being the instructor for an undergraduate course. The advisor, based on direct observation, and on the course evaluations provided by the pupils, will assess, in consultation with the graduate director.
• **Exit Interview.** Each student, before certification for graduation by the graduate program director, is expected to schedule a meeting with the graduate program director for a brief exit interview, assessing achievement of the Program Outcomes, and collecting additional continuous improvement information.

• **5-year Alumni Survey.** The graduate director will maintain when possible a current list of program alumni to be used to poll the graduates of the program 5 years after graduation, assessing achievement of the Program Outcomes and collecting additional continuous improvement information.

The materials collected in exit interviews (to be performed by the Graduate Director before certifying a student for graduation) and in the 5-year alumni survey (to be performed annually, polling students that have graduated in the 5th previous academic year) will be used for the 5-year assessment cycle, over and above the yearly assessment data.

Rubrics for the activities listed herein, annual assessment forms, performance assessment forms, and interview forms are provided in the Appendix to this document.
<table>
<thead>
<tr>
<th>Program Outcome</th>
<th>Assessment Measures</th>
<th>Course/ Experience</th>
<th>Time Line</th>
<th>Responsible Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Demonstrate advanced knowledge of fundamental civil engineering concepts</td>
<td>Qualifying exam (written in-class, written take-home, oral) E</td>
<td>PhD Qualifying Exam</td>
<td>First semester of second year of doctoral studies. Assessed after Spring Semester</td>
<td>PhD Qualifier Committee (Graduate Director, chair)</td>
</tr>
<tr>
<td></td>
<td>PhD Proposal Defense (oral presentation, written document) D</td>
<td>PhD Proposal Defense D</td>
<td>After PhD Qualifying Exam, at least 12 months before Final Defense. Assessed after Spring Semester</td>
<td>PhD Committee (Advisor, chair), Graduate Director</td>
</tr>
<tr>
<td></td>
<td>PhD Final Defense (oral presentation, dissertation) A</td>
<td>PhD Final Defense A</td>
<td>Completion of doctoral work, at least 12 months after Proposal Defense. Assessed after Spring Semester</td>
<td>PhD Committee (Advisor, chair), Graduate Director</td>
</tr>
<tr>
<td>Program Outcome</td>
<td>Assessment Measures</td>
<td>Course/ Experience</td>
<td>Time Line</td>
<td>Responsible Person</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>2. Identify an engineering problem for which a solution has not been addressed in the scholarly literature.</td>
<td>PhD Proposal Defense (oral presentation, written document) E Performance assessment by Advisor D PhD Final Defense (oral presentation, dissertation) A</td>
<td>PhD Proposal Defense, E,D</td>
<td>After PhD Qualifying Exam, at least 12 months before Final Defense. Assessed after Spring Semester</td>
<td>PhD Committee (Advisor, chair), Graduate Director</td>
</tr>
<tr>
<td></td>
<td>Annual Performance Review, D</td>
<td>PhD Final Defense, A</td>
<td>End of Spring Semester, annually</td>
<td>Advisor, Graduate Director</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>Completion of doctoral work, at least 12 months after Proposal Defense. Assessed after Spring Semester</td>
<td>PhD Committee (Advisor, chair), Graduate Director</td>
</tr>
</tbody>
</table>
### Assessment Measures Alignment Matrix

<table>
<thead>
<tr>
<th>Program Outcome</th>
<th>Assessment Measures</th>
<th>Course/ Experience</th>
<th>Time Line</th>
<th>Responsible Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Develop a methodology to solve an engineering problem by incorporating fundamental engineering concepts and advanced approaches.</td>
<td>PhD Proposal Defense (oral presentation, written document)</td>
<td>PhD Proposal Defense, E</td>
<td>After PhD Qualifying Exam, at least 12 months before Final Defense. Assessed after Spring Semester</td>
<td>PhD Committee (Advisor, chair), Graduate Director</td>
</tr>
<tr>
<td></td>
<td>Performance assessment by Advisor D</td>
<td>Annual Performance Review, D</td>
<td>End of Spring Semester, annually</td>
<td>Advisor, Graduate Director</td>
</tr>
<tr>
<td></td>
<td>PhD Final Defense (oral presentation, dissertation)</td>
<td>PhD Final Defense, A</td>
<td>Completion of doctoral work, at least 12 months after Proposal Defense. Assessed after Spring Semester</td>
<td>PhD Committee (Advisor, chair), Graduate Director</td>
</tr>
</tbody>
</table>
### Assessment Measures Alignment Matrix

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<th>Program Outcome</th>
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<th>Time Line</th>
<th>Responsible Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Formulate a solution to an engineering problem by incorporating fundamental engineering concepts and advanced approaches.</td>
<td>Qualifying exam (written in-class, written take-home, oral) E&lt;br&gt;PhD Proposal Defense (oral presentation, written document) D&lt;br&gt;PhD Final Defense (oral presentation, dissertation) A</td>
<td>PhD Qualifying Exam E&lt;br&gt;PhD Proposal Defense D&lt;br&gt;PhD Final Defense A</td>
<td>First semester of second year of doctoral studies. Assessed after Spring Semester&lt;br&gt;After PhD Qualifying Exam. Assessed after Spring Semester&lt;br&gt;After PhD Qualifying Exam, at least 12 months before Final Defense. Assessed after Spring Semester</td>
<td>PhD Qualifier Committee (Graduate Director, chair)&lt;br&gt;PhD Committee (Advisor, chair), Graduate Director&lt;br&gt;PhD Committee (Advisor, chair), Graduate Director</td>
</tr>
<tr>
<td>Program Outcome</td>
<td>Assessment Measures</td>
<td>Course/ Experience</td>
<td>Time Line</td>
<td>Responsible Person</td>
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<tr>
<td>5. Effectively communicate technical content both orally and in writing to various audiences.</td>
<td>PhD Proposal Defense (oral presentation, written document) E Performance assessment on teaching effectiveness class D PhD Final Defense (oral presentation, dissertation) A</td>
<td>PhD Proposal Defense E Performance assessment for the teaching effectiveness course. D PhD Final Defense, A</td>
<td>After PhD Qualifying Exam, at least 12 months before Final Defense. Assessed after Spring Semester Fall semester of first year. Assessed after Spring Semester. Completion of doctoral work, at least 12 months after Proposal Defense. Assessed after Spring Semester.</td>
<td>PhD Committee (Advisor, chair), Graduate Director Teaching effectiveness instructor, Advisor PhD Committee (Advisor, chair), Graduate Director</td>
</tr>
<tr>
<td>Program Outcome</td>
<td>Assessment Measures</td>
<td>Course/ Experience</td>
<td>Time Line</td>
<td>Responsible Person</td>
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<tr>
<td>6. Produce original research which contributes to the state of the art in the form of a dissertation and at least one refereed article.</td>
<td>Performance assessment by Advisor E PhD Proposal Defense (oral presentation, written document) D PhD Final Defense (oral presentation, dissertation) A</td>
<td>Annual Performance Review, E PhD Proposal Defense D PhD Final Defense, A</td>
<td>End of Spring Semester, annually After PhD Qualifying Exam, at least 12 months before Final Defense. Assessed after Spring Semester Completion of doctoral work, at least 12 months after Proposal Defense. Assessed after Spring Semester</td>
<td>Advisor, Graduate Director PhD Committee (Advisor, chair), Graduate Director PhD Committee (Advisor, chair), Graduate Director</td>
</tr>
<tr>
<td>Program Outcome</td>
<td>Assessment Measures</td>
<td>Course/ Experience</td>
<td>Time Line</td>
<td>Responsible Person</td>
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<tr>
<td>7. Prepare and submit a grant proposal in collaboration with the advisor.</td>
<td>PhD Proposal Defense (oral presentation, written document) E</td>
<td>PhD Proposal Defense</td>
<td>After PhD Qualifying Exam, at least 12 months before Final Defense. Assessed after Spring Semester</td>
<td>PhD Committee (Advisor, chair), Graduate Director</td>
</tr>
<tr>
<td></td>
<td>Performance assessment by Advisor D</td>
<td>Annual Performance Review, D</td>
<td>End of Spring Semester, annually</td>
<td>Advisor, Graduate Director</td>
</tr>
<tr>
<td></td>
<td>Artifact. Student will prepare a grant proposal in collaboration with advisor A</td>
<td>Preparation of a grant proposal to be submitted in collaboration with advisor A</td>
<td>After PhD Qualifying Exam. Assessed after Spring Semester</td>
<td>Advisor, Graduate Director</td>
</tr>
<tr>
<td>Program Outcome</td>
<td>Assessment Measures</td>
<td>Course/ Experience</td>
<td>Time Line</td>
<td>Responsible Person</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>8. Develop teaching skills and strategies through formal course instruction and mentoring.</td>
<td>Performance assessment on teaching effectiveness class E,D</td>
<td>Performance assessment for the teaching effectiveness course. E,D</td>
<td>Fall semester of first year. Assessed after Spring Semester.</td>
<td>Teaching effectiveness instructor, Advisor</td>
</tr>
<tr>
<td></td>
<td>Performance Assessment on teaching, based on student and advisor evaluations A</td>
<td>Mentored teaching of an undergraduate course A</td>
<td>After completing Teaching Effectiveness course, before Final Defense. Assessed after Spring Semester</td>
<td>Advisor, Graduate Director</td>
</tr>
</tbody>
</table>
V. Assessment Infrastructure

The assessment committee will be chaired by the graduate program director. The committee is charged with collecting assessment data, preparing assessment report to the graduate faculty of the program, and proposing improvements and changes for the graduate faculty approval.

Data will be collected in the form of defense and assessment forms from the relevant parties for each of the assessment activities, at the prescribed times of the year. Data will be collated annually for review and presentation. A 5-year cycle is implemented for in-depth review of the doctoral program and for the proposal and implementation of major changes, using the results of exit interviews and alumni surveys in addition to the data used for yearly assessment. The longer time period will allow to capture the whole spectrum of activities and experiences of doctoral student, providing a more global overview of the program.

The assessment committee will make an annual presentation to the graduate faculty, reporting on the findings of the annual assessment cycle, and proposing changes and improvements for the approval of the graduate faculty, as needed. The graduate faculty will then discuss and approve/amend/reject the proposed recommendations.

All data will be collected by the graduate program director at the end of the Spring Semester. Relevant faculty will be requested to provide the required information via email and at a graduate faculty meeting at the start of each Semester, as appropriate. The graduate director will approve of most forms, and as such the collection will happen during the year as forms are turned in for approval. All other assessment forms will be collected by request.

The assessment committee will compile the assessment report before the annual orientation session in August, in order to allow the report to be discussed by the faculty before the new Semester starts. As necessary, graduate faculty meetings will be called for follow-up discussions on the assessment or improvement of required courses and required experiences.

The work of the assessment committee will be considered as service, and will be likened to the workload related to the ABET activities for the accreditation and continuous improvement of the Civil Engineering and Architectural Engineering undergraduate programs.
VI. Findings

Here you will describe and explain in this section any multi-year patterns and trends that your assessment efforts have identified, including a description of any relevant relationships to national standards.

TO BE COMPLETED UPON THE FIRST ASSESSMENT CYCLE

VII. Use of Findings

In this final section, you will describe how your program intends to make use of the program-level assessment data it has gathered.

- How will this information be presented to and discussed among the faculty?
- How might this data or these discussions result in review and possible revision of course or program learning outcomes and pedagogical strategies?

TO BE COMPLETED UPON THE FIRST ASSESSMENT CYCLE
A. Appendix – Forms and Rubrics

This section contains the sample forms and rubrics that have been created to assist in the assessment process. The following items are included:

- CAECM Qualifier Examination Evaluation Form
- CEAS Defense Form (used for both proposal and final defense)
- CAECM Defense Form (used for both proposal and final defense)
- CAECM Proposal Defense Evaluation Form
- CAECM Doctoral Defense Evaluation Form
- CAECM Doctoral Annual Evaluation Form
- CAECM Teaching Effectiveness Evaluation Form
- CAECM Grant Writing Evaluation Form
- CAECM Course Teaching Evaluation Form
- CAECM Exit Interview Form for Doctoral Students

In all of the above assessment forms, the assessment rubric is as follows, on a scale from 1 (lowest) to 5 (highest), based on assessment levels (emerging, developing, achieved):

1. The Program Educational Objective has not been met at the appropriate assessment level
2. The Program Educational Objective has been marginally met at the appropriate assessment level
3. The Program Educational Objective has been met in an average sense at the appropriate assessment level
4. The Program Educational Objective has been met satisfactorily (above average) at the appropriate assessment level
5. The Program Educational Objective has been fully met at the appropriate assessment level.
PhD QUALIFIER EXAMINATION
COMMITTEE EVALUATION FORM

Date (MM/DD/YYYY): ______________________________________
Candidate Name (First, Last): _______________________________
Candidate M-Number: M  ____________
Qualifier Committee Chair: __________________________________
Qualifier Committee Members:
_____________________________________
_____________________________________
_____________________________________
_____________________________________

EVALUATION MATRIX (1=lowest, 5=highest)
The candidate demonstrated advanced knowledge in fundamental civil engineering concepts at the emerging level

The candidate formulated a solution to an engineering problem by incorporating fundamental engineering concepts and advanced approaches at the emerging level

Last revised: Aug 22 2014
COLLEGE OF ENGINEERING and APPLIED SCIENCE

RECORD OF ORAL/DEFENSE FORM

Name of Student:
Date of Defense:
Student ID M#:
Student Phone #:
Email Address:

Program: Select
Candidate for the degree of: Select

The below committee testifies that the candidate was examined and has

Passed  Did Not Pass
MS Thesis  MEng
Proposal  Final  PhD Dissertation

Thesis or Dissertation Title:

Examiners:

Chairperson/Advisor  Signature
Print Name

Print Name  Signature

Print Name  Signature

Print Name  Signature

Print Name  Signature

Program of Study submitted?  Yes  No
Baccalaureate Degree Checked?  Yes  No

GRADUATE DIRECTOR APPROVAL:__________________________________________

*MS students continuing to PhD program must submit appropriate application form

Last revised: Aug 22 2014
CAECM PhD Student Defense Assessment Form

Student Name: 

Committee Chair: 

Committee Members: 

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**To be compiled for BOTH proposal defense and final defense** (1=lowest, 5=highest)  
For proposal defense, assessment is at the emerging and developing levels, as indicated in parentheses case by case. For final defense, assessment is always at the achieved level.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>The student demonstrates advanced knowledge in fundamental civil engineering concepts (D)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>The student can identify an engineering problem for which a solution has not been addressed in the scholarly literature (E)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>The student can develop a methodology to solve an engineering problem by incorporating fundamental engineering concepts and advanced approaches (E)</td>
<td></td>
<td></td>
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<tr>
<td>The student can formulate a solution to an engineering problem by incorporating fundamental engineering concepts and advanced approaches (D)</td>
<td></td>
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</tr>
<tr>
<td>The student can effectively communicate technical content both orally and in writing to various audiences (E)</td>
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</tr>
<tr>
<td>The student can produce original research which contributes to the state of the art in the form of a dissertation and at least one refereed article (D)</td>
<td></td>
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</tbody>
</table>

Continued on back
To be compiled for proposal defense ONLY (1=lowest, 5=highest)

<table>
<thead>
<tr>
<th>The student is capable of preparing and submitting a grant proposal in collaboration with the advisor (E)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
</table>

Committee Chair Signature: 

Graduate Program Director Signature: 

Date: 

Last revised: August 22, 2014
PhD PROPOSAL DEFENSE
COMMITTEE EVALUATION FORM

Date (MM/DD/YYYY) _________________________________________
Candidate Name (First, Last): ________________________________
Candidate M-Number: M_ _ _ _ _ _ _
Committee Chair: _________________________________________
Committee Members: _______________________________________
_____________________________________
_____________________________________
_____________________________________
_____________________________________

EVALUATION MATRIX (1=lowest, 5=highest)
The candidate demonstrated advanced knowledge in fundamental civil engineering concepts at the developing level

The candidate identified an engineering problem for which a solution has not been addressed in the scholarly literature at the emerging level

The candidate developed a methodology to solve an engineering problem by incorporating fundamental engineering concepts and advanced approaches (emerging)

The candidate formulated a solution to an engineering problem by incorporating fundamental engineering concepts and advanced approaches at the developing level

The candidate effectively communicates technical content both orally and in writing (emerging)

The candidate is on track to producing original research which contributes to the state of the art in the form of a dissertation and at least one refereed article (developing)

The candidate is on track to prepare and submit a grant proposal in collaboration with the advisor (emerging)
PhD FINAL DEFENSE
COMMITTEE EVALUATION FORM

Date (MM/DD/YYYY) _____________________________________________________________________________
Candidate Name (First, Last) _____________________________________________________________________
Candidate M-Number: M ____________
Committee Chair: ______________________________________________________________________________
Committee Members: ____________________________________________________________________________

EVALUATION MATRIX (1=lowest, 5=highest) – All assessment levels are achieved
The candidate demonstrated advanced knowledge in fundamental civil engineering concepts

The candidate identified an engineering problem for which a solution has not been addressed in the scholarly literature

The candidate developed a methodology to solve an engineering problem by incorporating fundamental engineering concepts and advanced approaches

The candidate formulated a solution to an engineering problem by incorporating fundamental engineering concepts and advanced approaches

The candidate effectively communicates technical content both orally and in writing to various audiences

The candidate is capable of producing original research which contributes to the state of the art in the form of a dissertation and at least one refereed article
CAECM PhD Student Annual Progress Review

Student Name: 
Faculty Advisor: 

Date of first enrollment in graduate program: 
Date of start of work with current advisor: 
Date(s) of previous annual progress reviews: 
Date of Qualifier Exam (e.g., Fall 2016) 
Date of Proposal Defense (e.g. actual or anticipated) 
Date of Final defense (anticipated): 
Date of graduation (anticipated): 
Number of course credits completed: Cumulative QPA: 
Course deficiencies (F, NG, I, U, WX, or X….list course title, semester, grade, use back if)

Faculty Advisor Assessment (1=lowest, 5=highest) (use back of sheet for additional comments)

<table>
<thead>
<tr>
<th>Student is making satisfactory progress toward degree:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student has been able to identify an engineering problem for which a solution has not been addressed in the scholarly literature (developing)</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Student is developing a methodology to solve an engineering problem by incorporating fundamental engineering concepts and advanced approaches (developing)</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Student is producing original research which contributes to the state of the art in the form of a dissertation and at least one refereed article (emerging)</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Student is progressing in the preparation and submittal of a grant proposal in collaboration with the advisor (developing)</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Continued on back
TEACHING EFFECTIVENESS
INSTRUCTOR EVALUATION FORM

Date (MM/DD/YYYY)  
Candidate Name (First, Last):  
Candidate M-Number:  
Committee Chair:  
Teaching Effectiveness Instructor:  

EVALUATION MATRIX (1=lowest, 5=highest)
The candidate effectively communicates technical content both orally and in writing (developing)  
The candidate developed teaching skills and strategies through formal course instruction and mentoring (emerging, developing)  

Last revised: August 22, 2014
GRANT WRITING
ADVISOR EVALUATION FORM

Date (MM/DD/YYYY) ____________________________
Candidate Name (First, Last): ____________________________
Candidate M-Number: M ___________
Committee Chair: ____________________________
Title of Proposal: ____________________________
Funding Agency: ____________________________
Date of Submittal (MM/DD/YYYY): ____________________________
Expected Date of Decision (MM/DD/YYYY): ____________________________
Amount Requested: ____________________________

EVALUATION MATRIX (1=lowest, 5=highest)
The candidate prepared and submitted a grant proposal in collaboration with the advisor (achieved)
COURSE TEACHING
ADVISOR EVALUATION FORM

Date (MM/DD/YYYY): ____________________________________________
Candidate Name (First, Last): ____________________________________
Candidate M-Number: M__________
Committee Chair: _______________________________________________
Semester Taught (e.g., 15FS): _____________________________________
Course Number (e.g., CVE3001): ________________________________
Course Title: ___________________________________________________
Enrollment: ____________________________________________________

EVALUATION MATRIX (1=lowest, 5=highest)
The candidate prepared and submitted a grant proposal in collaboration with the advisor (achieved)

Overall course evaluation (from CEAS course evaluations)

Overall instructor evaluation (from CEAS course evaluations)
CAECM PhD Student Final Interview Form

<table>
<thead>
<tr>
<th>Student Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty Advisor:</td>
</tr>
</tbody>
</table>

Date of first enrollment in graduate program:  
Date of start of work with current advisor:  
Date of proposal defense:  
Date of final defense:

Number of course credits completed: Cumulative QPA:  
Course deficiencies (F, NG, I, U, UP, WX, or X….list course title, semester, grade, use back if necessary)

<table>
<thead>
<tr>
<th>Graduate Director (1=lowest, 5=highest) (use back of sheet for additional comments)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student feels he/she has acquired advanced technical knowledge of fundamental civil engineering topics</td>
</tr>
<tr>
<td>Student feels he/she has acquired technical competency in civil engineering topics relevant to the program of study</td>
</tr>
<tr>
<td>Student feels he/she is capable of developing a methodology to solve an engineering problem by incorporating fundamental engineering concepts and advanced approaches</td>
</tr>
<tr>
<td>Student feels he/she can formulate a solution to an engineering problem by incorporating fundamental engineering concepts and advanced approaches</td>
</tr>
<tr>
<td>Student can effectively communicate technical content both orally and in writing to various audiences</td>
</tr>
<tr>
<td>Student is capable of producing original research contributing to the state of the art in the form a dissertation and at least one refereed article</td>
</tr>
<tr>
<td>Student has prepared and submitted a grant proposal in collaboration with the advisor</td>
</tr>
<tr>
<td>Student can effectively communicate technical content both orally and in writing to various audiences</td>
</tr>
</tbody>
</table>

Continued on back
**Student Comments**

What was the best experience in your PhD career?

What was the worst experience in your PhD career?

What, if anything, could be improved in the PhD program and how?

Other comments

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Graduate Program Director Signature: ________________________________

Date: ________________________________