UNIT REPORT

Civil and Environmental Engineering MS - Final Annual Report

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Definition of Unit: Civil and Environmental Engineering

Start: 07/01/2013

End: 06/30/2018

Providing Department: Civil and Environmental Engineering MS

Department/Unit Contact: Ben Mohr

Mission/Vision/Goal Statement:

The mission of the civil engineering program is to offer the strong academic content necessary to produce well-educated graduates who become innovative and productive members of society. Graduates will possess both the problem solving skills and the fundamentals of critical thinking and analysis that are crucial for success within the framework of the civil and environmental engineering profession.

Program Goal 1 and Student Learning Outcomes

Progress: Ongoing

Define Goal:

Program Goals

Program Goal 1: Graduates of the M.S. program will have the technical competence to be successful in the chosen area of study in civil engineering professional practice or research.

Intended Outcomes / Objectives:

Student Learning Outcomes

Students of the MS program in Civil Engineering will be able to:

1. Demonstrate clear understanding of the chosen area of emphasis in civil engineering covered in course material in the graduate program.
2. Apply advanced methods in the development of solutions in the chosen area of emphasis in civil engineering.
3. Give professional presentations or write scholarly manuscripts worthy of publication in peer reviewed journals.

Program Goal 2 and Student Learning Outcomes

Progress: Ongoing

Define Goal:

Program Goals

Program Goal 2: Graduates of the M.S. program will have the skills to undertake technically sound analysis independently and present their work at professional meetings or publish their work in scholarly journals.

Intended Outcomes / Objectives:

Student Learning Outcomes

Students of the MS program in Civil Engineering will be able to:

1. Demonstrate clear understanding of the chosen area of emphasis in civil engineering covered in course material in the graduate program.
2. Apply advanced methods in the development of solutions in the chosen area of emphasis in civil engineering.
3. Give professional presentations or write scholarly manuscripts worthy of publication in peer reviewed journals.

Program Goal 3 and Student Learning Outcomes

Progress: Ongoing

Define Goal:

Program Goals

Program Goal 3: Graduates of the M.S. program will have the technical competence to successfully undertake further advanced study at the doctoral level in civil engineering or a related area, and pursue lifelong learning through professional education.

Intended Outcomes / Objectives:

Student Learning Outcomes

Students of the MS program in Civil Engineering will be able to:

1. Demonstrate clear understanding of the chosen area of emphasis in civil engineering covered in course material in the graduate program.
2. Apply advanced methods in the development of solutions in the chosen area of emphasis in civil engineering.
3. Give professional presentations or write scholarly manuscripts worthy of publication in peer reviewed journals.

Assessment Tool 1: Alumni Surveys

Goal/ Outcome/ Objective: All

Type of Tool: Survey

Frequency of Assessment: Annual

Rationale:

- **Alumni Survey**: One year after graduation and every five years thereafter, alumni are given a set of questionnaires to examine (1) the appropriateness and relevance of the curriculum structure to their activities after graduation, (2) the extent to which they acquire needed skills for job performance and the degree of engagement in professionally-related learning experience, and (3) whether the curriculum objectives and outcomes are met. The metric that has been established is that at least eighty percent of alumni respondents “agree” or “strongly agree” that the program provided them with adequate preparation. A lesser percentage and response on individual questions that constitute less than fifty percent combined “agree or strongly agree” would generate a concern, which would require a review and actions by department ABET advisory committee.

1. The CEE MS degree has provided me with skills to be successful in civil engineering professional practice.
2. The CEE MS degree has made me aware of the present day professional practice in my area of study in civil engineering.
3. The CEE MS degree has provided me with the necessary skills to present work at professional meetings or publish work in scholarly journals.
4. The CEE MS degree has provided me with skills to independently undertake technically sound analysis.
5. The CEE MS degree has provided me with the technical competence needed to successfully undertake further advanced study at the doctoral level in civil engineering or a related area.
6. The CEE MS degree has provided me with the technical competence to pursue lifelong learning through professional education.
7. Would you recommend the TTU CEE MS degree program to other potential candidates in future?

The first six questions were framed as multiple choice (no opinion, strongly disagree, disagree, agree and strongly.

Assessment Tool 4: Completion of thesis and oral defense

Goal/ Outcome/ Objective: All

Type of Tool: Tracking Spreadsheet

Frequency of Assessment: Each semester

Rationale:

- **Completion of thesis and oral defense:** Students are monitored each semester for appropriate progress in their program of study based on their own individualized program. The student's program of study (also referred to as "plan of study" previously) is developed by the student as soon as an advisory committee is selected. In this plan of study, the student outlines a thoughtful plan on which courses to take, the order in which these courses should be taken, and the amount of effort to be devoted to research/project each semester.

Either formally or informally, the student has to identify a research problem of interest, and then present a plan for self-inquiry that demonstrates an ability to independently address the research objectives to the satisfaction of the advisory committee. During this stage, a student receives constructive input from the Advisory Committee on improving the plan to make a successful study more likely.

The student must complete a comprehensive examination, a part of which is open to the public, conducted by the Advisory Committee at least three weeks prior to graduation. During this stage, the quality of the student's work and development as an independent thinker is assessed by the advisory committee to determine if he/she is indeed ready to be classified as a "Master of Science" in Civil Engineering. Prior to and after the comprehensive oral examination, the thesis document goes through rounds of editing and revision in close consultation with the major advisor and the advisory committee until it is of acceptable quality and meets graduate school requirements.

The student has to submit the final version of his/her thesis (for thesis option) or project report (for non-thesis option) to the Graduate School at least two weeks prior to graduation.

Assessment Tool 5: Publications and presentations

Goal/ Outcome/ Objective: All

Type of Tool: Tracking Spreadsheet

Frequency of Assessment: Each semester

Rationale:

- **Publications (peer-reviewed and conference) and presentations**

A critical element of the process for facilitating a students' development in independent thinking is the requirement that each student work on a research project of real-world significance to the Civil Engineering discipline and to present their work at a peer-reviewed conference and/or publish it in a peer-reviewed journal.