Program Description or Mission:
The Doctor of Science in Engineering Science with an Emphasis in Computer Science is offered through the School of Engineering.

Faculty Involvement (2008-2010 or 2009-2011): The graduate committee of the department (Drs. Chen, Maginnis, Rhodes, and Cunningham) met several times to discuss changes in the assessment mechanism. All changes were approved by the full faculty.

Faculty Involvement (2010-2012 or 2011-2013): The graduate committee of the department (Drs. Chen, Maginnis, Rhodes, and Cunningham) met several times to discuss changes in the assessment mechanism. All changes were approved by the full faculty.

Outcome: Graduates will be able to communicate CS concepts orally.

PhD program graduates will be able to effectively communicate computer science concepts orally.

Outcome Type and Period:
- Learning 9/1/2006 - 8/31/2008
- Learning 9/1/2008 - 8/31/2010
- Learning 9/1/2010 - 8/31/2012

Start Date: 09/01/2006

Current Outcome Status: Currently Assessing

### Means of Assessment

<table>
<thead>
<tr>
<th>Assessment Method</th>
<th>Criterion</th>
<th>Schedule</th>
<th>Active</th>
</tr>
</thead>
<tbody>
<tr>
<td>Every PhD student in the department must make an oral presentation to his or her committee at the prospectus (proposal) stage. The prospectus is a closed forum where only the committee is in attendance. The presentation will be evaluated by the committee on a range of categories related to oral communication. The hard copy evaluation form contains several statements and attendees are asked to provide a score of 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree), or 5 (strongly agree). The statements include: The student's appearance and bearing was professional. Presentation has an Introduction, Background/Related Work, Body, and Conclusion. The introduction clearly states the objectives of the work. The introduction explains why this work is useful and interesting. Related Work/Background clearly presents the context of the work. The work itself is clearly described. Conclusions and Results are clearly described. Audio/Visual Aids are used appropriately. Grammar and Pronunciation are correct. Computing Concepts and Terminology are used appropriately. Responses to Questions were helpful.</td>
<td>The criterion for success is if 80% of the students achieve at least 3 (neutral) in each category.</td>
<td>Yes</td>
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<table>
<thead>
<tr>
<th>Assessment Method Category: Research Paper or Presentation</th>
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</thead>
<tbody>
<tr>
<td>Every PhD student in the department must make an oral presentation to his or her committee at the dissertation defense stage. The defense is an open forum where the committee, other faculty, students and visitors are present. The same evaluation form as used in the prospectus defense (see first means of assessment for outcome number 1) will be used to evaluate the student. All faculty members (not just committee members) will be asked to complete the form.</td>
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<tr>
<td>The criterion for success is if 80% of the students achieve at least 4 (agree) in each category.</td>
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<tr>
<td>Yes</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment Method Category: Oral Defense of Thesis or Dissertation</th>
</tr>
</thead>
</table>
Means of Assessment

**Assessment Method**

Each PhD student will be asked to fill out a PhD Exit Survey. This survey will be provided to each student after their oral thesis defense. The Survey has five questions on it, one pertaining to oral communication: "I am able to present computing concepts orally in an effective manner". The student is asked whether they Strongly Agree (SA), Agree (A), Disagree (D) or Strongly Disagree (SD) with each statement.

**Assessment Method Category:**

Survey

**Criterion**

The outcome will be met if 100% of the students Agree or Strongly Agree with the statement.

**Schedule**

Active

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**Outcome:** Graduates will be able to communicate CS concepts in writing.

PhD program graduates will be able to effectively communicate computer science research results in writing.

**Outcome Type and Period:**

Learning 9/1/2006 - 8/31/2008
Learning 9/1/2008 - 8/31/2010
Learning 9/1/2010 - 8/31/2012

**Start Date:** 09/01/2006

**Current Outcome Status:** Currently Assessing

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Means of Assessment

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<td>Each PhD student is required to write a proposal/prospectus for their thesis. The prospectus generally contains a literature review, overview of work already completed and a description of the work to be done for the dissertation project. All members of the student's PhD committee will read and evaluate the paper. The department has recently revised the standard evaluation form which is filled out by each committee member. The form has two sections, one related to the Structure and Content of the document and the other related to Formatting and Layout. Each section contains eight statements. Committee members rate each statement on a scale of 1 (strongly disagree) to 5 (strongly agree). So the total for each section is between 8 and 40.</td>
<td>The graduate committee has set the criteria for success as 90% of the students achieving 80% (32 out of 40) on each section.</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

**Assessment Method Category:**

Research Paper or Presentation

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Each PhD student is required to write a dissertation. All members of the student's PhD committee will read and evaluate the written communication skills of the student using the same form used for the prospectus (see Outcome #2, First Means of Assessment).

**Assessment Method Category:**

Thesis or Dissertation

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The graduate committee has set the criteria for success as 100% of the students achieving 80% (32 out of 40) on each section.

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Each PhD student will be asked to fill out a PhD Exit Survey. This survey will be provided to each student after their dissertation defense. The Survey has five questions on it, one pertaining to written communication: "I am able to communicate computing concepts effectively in writing". The student is asked whether they Strongly Agree (SA), Agree (A), Disagree (D) or Strongly Disagree (SD) with each statement.

**Assessment Method Category:**

Survey

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The outcome will be met if 100% of the students Agree or Strongly Agree with the statement.

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The graduate committee has set the criteria for success as 100% of the students achieving 80% (32 out of 40) on each section.
Outcome: Graduates will be effective researchers.

PhD program graduates will be effective researchers in computer science.

Outcome Type and Period: Learning 9/1/2006 - 8/31/2008
Learning 9/1/2008 - 8/31/2010
Learning 9/1/2010 - 8/31/2012

Start Date: 09/01/2006
Current Outcome Status: Currently Assessing

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<td>At the time of the defense, each member of the student's PhD committee will complete a form regarding the quality of the research work of the student. The form covers several aspects, including: difficulty, usefulness, implementation aspects, theoretical aspects, quality and publish-ability of the work, and the student's abilities in using tools and techniques. For each statement the possible responses are: strongly agree, agree, disagree and strongly disagree.</td>
<td>The criterion for success is raised to 85% of the students achieving positive (strongly agree or agree) on each statement.</td>
<td>9/1/2010 -- 8/31/2012</td>
<td>Yes</td>
</tr>
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<td>Assessment Method Category:</td>
<td>Thesis or Dissertation</td>
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<tr>
<td>Beginning Spring 2008, each PhD student is be required to submit an &quot;activity report&quot;, similar to the faculty activity report that faculty must file each spring. Each student is asked to supply information about presentations made, papers submitted, papers published, teaching experiences, etc. Each student's activity report is filed in his or her permanent record file in the department. Since the department graduates approximately one PhD student annually, it is difficult to compile enough information to make program improvement decisions with confidence. By the time we have enough data, the program has evolved. Collection of an annual snapshot to include in a portfolio seems necessary.</td>
<td>Question 1 is included in the rubric only to ascertain the teaching load for the evaluation period, and is not a metric of performance. However, for the remaining questions, we consider 80% of the possible points (3.2 out of 4) to be the criterion of success.</td>
<td></td>
<td>Yes</td>
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<tr>
<td>Assessment Method Category:</td>
<td>Portfolio Review</td>
<td></td>
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