MARQUETTE UNIVERSITY
Program Assessment Report (AY2009-2010)
Electrical and Computer Engineering Thesis Masters

I. Background Information

1. College or Division reporting: College of Engineering

Department/Program/Degree:
Electrical and Computer Engineering Thesis Master’s

2. Name of the program assessment leader filing this report:
Mike Johnson, DGS

3a. Did faculty/staff change any program learning outcomes since the last report (Sept. 2009)?
   ☐ No  ☒ Yes

3b. If yes, list the current program learning outcomes:
1. Demonstrate technical expertise in key areas of Electrical and Computer Engineering
2. Communicate research results to a scientific audience
3. Perform quality research work under the guidance of a faculty mentor

4. Are the program learning outcomes listed on the program’s web pages?
   ☐ No  ☒ Yes

5. Do students in the program routinely receive copies of the learning outcomes?
   ☒ No  ☐ Yes

6. Do program faculty/staff regularly receive copies of the learning outcomes?
   ☐ No  ☒ Yes

7. Academic programs only: Provide the number of students graduating (receiving a degree) from this program in AY 2009-2010.
5

II. Reporting on Learning Outcomes Assessed in AY 2009-2010

8a. Please enter the text of the first program learning outcome assessed this year (in 2009-2010).
Demonstrate technical expertise in key areas of Electrical and Computer Engineering
8b. List and describe all of the measures used to assess this learning outcome.
Instructor evaluation in EECE 6010 core course
Instructor evaluation in EECE 6020 core course
(This outcome assessed jointly across MS nonthesis, MS thesis, and PhD students)

8c. Provide the total number of students assessed on each measure for this learning outcome.
EECE 6010: 18 students
EECE 6020: 15 students

8d. Data Table for Learning Outcome 1:

<table>
<thead>
<tr>
<th>Performance Indicators</th>
<th>Below Expectations</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>EECE 6010 assessment</td>
<td>3</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>EECE 6020 assessment</td>
<td>2</td>
<td>7</td>
<td>6</td>
</tr>
</tbody>
</table>

9a. Please enter the text of the second program learning outcome assessed this year.
Communicate research results to a scientific audience

9b. List and describe all of the measures you used to assess this learning outcome.
Oral communication rubric completed by committee members at thesis defense
Written communication rubric, completed by committee members on thesis approval
Number of students giving conference presentations and publishing scholarly articles

9c. Provide the total number of students assessed on each measure for this learning outcome.
5 MS thesis graduates, 16 committee members filling out rubrics
Presentation and publishing statistics accumulated across all students

9d. Data Table for Learning Outcome 2:

<table>
<thead>
<tr>
<th>Performance Indicators</th>
<th>MEAN</th>
<th>No. Below Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral Rubric Item</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization</td>
<td>2.5</td>
<td>1</td>
</tr>
<tr>
<td>Mechanics</td>
<td>2.6</td>
<td>0</td>
</tr>
<tr>
<td>Delivery</td>
<td>2.8</td>
<td>0</td>
</tr>
<tr>
<td>Relating to audience</td>
<td>2.6</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Written Rubric Item</th>
<th>MEAN</th>
<th>No. Below Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Style</td>
<td>2.4</td>
<td>0</td>
</tr>
<tr>
<td>Organization</td>
<td>2.4</td>
<td>1</td>
</tr>
<tr>
<td>Use of graphs/tables</td>
<td>2.5</td>
<td>0</td>
</tr>
</tbody>
</table>

# MS students pub. journals 0
# MS students pub. confs
2

# MS students w/ other pubs
5

10a. Please enter the text of the third program learning outcome assessed this year. Perform quality research work under the guidance of a faculty mentor

10b. List and describe all of the measures you used to assess this learning outcome. Research strength rubric, completed by committee members at defense
Number of students giving conference presentations and publishing scholarly articles (results already presented under previous outcome)

10c. Provide the total number of students assessed on each measure for this learning outcome. 5 MS thesis graduates, 16 committee members filling out rubrics
Presentation and publishing statistics accumulated across all students

10d. Data Table for Learning Outcome 3:

<table>
<thead>
<tr>
<th>Performance Indicators</th>
<th>MEAN</th>
<th>No. below Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem design</td>
<td>2.3</td>
<td>0</td>
</tr>
<tr>
<td>Implementation</td>
<td>2.6</td>
<td>0</td>
</tr>
<tr>
<td>Contribution</td>
<td>2.3</td>
<td>1</td>
</tr>
<tr>
<td>Dissemination</td>
<td>2.0</td>
<td>1</td>
</tr>
</tbody>
</table>

14. If each one of the program’s learning outcomes were not assessed in AY2009-2010, is the program following a written assessment rotation plan?

☐ No  ☑ Yes

III. Use of the Assessment Data

15. Did department or program faculty/staff receive a report of these AY2009-2010 assessment results?

☐ No  ☑ Yes

16. Did department or program faculty/staff meet face-to-face to discuss and analyze the AY2009-2010 assessment results?

☐ No  ☑ Yes
17. Please describe the conclusions that program faculty/staff reached about student learning based on their analyses of the assessment results for AY2009-2010.

Summary of key assessment results:
- “Dissemination” component of research strength rubric in MS defenses is clearly lowest. That, along with very low publication numbers for MS students (0 students with journal articles, 2 with any peer reviewed pubs) compared to PhD students (14 current and former students with journal articles published this year), suggests we might want to think about how to increase the emphasis on publication or other dissemination of research results for our MS thesis students.
- Core course evaluations, exit survey, defense rubrics, all seem to be in reasonable range to get good assessment information (i.e., there are both higher and lower evaluations present), but no patterns yet to indicate specific issues that need to be addressed. Overall assessment results are positive.
- Relatively low number of graduates returned exit survey (3 of 12 graduates). Might want to work on methodology for distribution, collection, and reminders (right now just via an email from DGS, so there is implied identifiability).

18. Describe the actions to improve student learning that the program will undertake as a result of the learning assessment data. Be sure to include a time-table to implement the change and identify who is responsible to implement the action. If no actions were adopted, provide the rationale for this decision in the first box (Improvement Action #1).

Improvement Action #1
Work on emphasizing publications for MS thesis student work.

Improvement Action #2
Improve methodology for distribution and collection of graduate exit surveys.

19. Please list and describe the status of the actions taken by the program faculty to improve learning during AY2009-2010 that were proposed and reported in the academic year 2008-2009 annual program assessment report and/or earlier reports.

<table>
<thead>
<tr>
<th>Program action to improve student learning</th>
<th>Status of action: Developing, Implementing, Implemented, Assessing</th>
<th>Targeted student learning outcome</th>
<th>Year when improvement will be seen in the assessment data.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Not Applicable.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

IV. Brief Program Assessment Report Statements

20a. In 2 to 3 sentences provide an example of the program’s most interesting or important assessment finding that demonstrates the program’s success associated with a program learning outcome.

Assessment of our student's oral and written communication, as well as research strengths, indicates that our MS thesis students are able to effectively present meaningful research work to an appropriate scientific audience.
20b. In 2 to 3 sentences describe an assessment result that indicates an opportunity for improvement and identify the specific actions the program will take to improve student learning.

The relatively small number of MS thesis students, as compared to PhD students, publishing or presenting peer-reviewed research work, suggests that there is significant room for improvement in terms of scientific contribution at the MS program level.

21. The Department Chair has read and approved the Brief Program Assessment Report Statements in Items 20a and 20b.

☐ No
☒ Yes