

2015-2016 Annual Assessment Report Template

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Report: MS Mechanical Engineering

Question 1: Program Learning Outcomes

Q1.1.

Which of the following Program Learning Outcomes (PLOs) and Sac State Baccalaureate Learning Goals (BLGs) **did you assess?** [Check all that apply]

- ☐ 1. Critical Thinking
- ☐ 2. Information Literacy
- ☒ 3. Written Communication
- ☒ 4. Oral Communication
- ☐ 5. Quantitative Literacy
- ☐ 6. Inquiry and Analysis
- ☒ 7. Creative Thinking
- ☐ 8. Reading
- ☐ 9. Team Work
- ☒ 10. Problem Solving
- ☐ 11. Civic Knowledge and Engagement
- ☐ 12. Intercultural Knowledge and Competency
- ☐ 13. Ethical Reasoning
- ☐ 14. Foundations and Skills for Lifelong Learning
- ☐ 15. Global Learning
- ☐ 16. Integrative and Applied Learning
- ☐ 17. Overall Competencies for GE Knowledge
- ☒ 18. Overall Competencies in the Major/Discipline
- ☐ 19. Other, specify any assessed PLOs not included above:

- a.
- b.
- c.

Q1.2.

Please provide more detailed background information about **EACH PLO** you checked above and other information such as how your specific PLOs are **explicitly** linked to the Sac State BLGs:

The MS ME PLOs are not specifically linked to the BLGs because this is an MS program. The PLOs are, however, coordinated with and build upon the PLOs for the BS ME program.

In 2014-15 we assessed the oral a communication portion of the MS ME program for the annual assessment, but the foundation of our assessment is evaluation of capstone thesis requirement through review of the written theses and evaluation of the oral presentation of the work.

Our PLO for Communication is:

Write technical reports specifying clear contributions, explanation, and conclusions. Publish reports (including thesis) following a standard professional format. **Present technical work for a targeted audience with effective oral communication and visual aids.**

The proposed University Graduate Learning Objectives include one for Communication and the MS ME PLO addresses this specifically.

Q1.2.1.

Do you have rubrics for your PLOs?

- ☒ 1. Yes, for all PLOs
- ☐ 2. Yes, but for some PLOs
- ☐ 3. No rubrics for PLOs
- ☐ 4. N/A
- ☐ 5. Other, specify:

Q1.3.

Are your PLOs closely aligned with the mission of the university?

- ☒ 1. Yes
☐ 2. No
☐ 3. Don't know

Q1.4.

Is your program externally accredited (other than through WASC Senior College and University Commission (WSCUC))?

- ☐ 1. Yes
☒ 2. No (skip to **Q1.5**)
☐ 3. Don't know (skip to **Q1.5**)

Q1.4.1.

If the answer to Q1.4 is **yes**, are your PLOs closely aligned with the mission/goals/outcomes of the accreditation agency?

- ☐ 1. Yes
☐ 2. No
☐ 3. Don't know

Q1.5.

Did your program use the *Degree Qualification Profile* (DQP) to develop your PLO(s)?

- ☐ 1. Yes
☒ 2. No, but I know what the DQP is
☐ 3. No, I don't know what the DQP is
☐ 4. Don't know

Q1.6.

Did you use action verbs to make each PLO measurable?

- ☒ 1. Yes
☐ 2. No
☐ 3. Don't know

(**Remember:** Save your progress)

Question 2: Standard of Performance for the Selected PLO

Q2.1.

Select **ONE(1)** PLO here as an example to illustrate how you conducted assessment (be sure you *checked the correct box* for this PLO in Q1.1):

Oral Communication

Q2.1.1.

Please provide more background information about the **specific PLO** you've chosen in Q2.1.

MS ME students are expected to be able to articulate clearly the problems they are trying to solve, the methods, the proposed solutions, the specific resolution to the problem and their conclusions. These presentations are expected to be clear and complete and addressed to a targeted audience (other Mechanical Engineers/technical specialists)

This PLO is evaluated in all courses - core, specialization and electives - the student takes in the MS ME program. One of the first core courses, ME 209, is especially focused on this PLO

Q2.2.

Has the program developed or adopted **explicit** standards of performance for this PLO?

- ☒ 1. Yes
☐ 2. No

☐ 3. Don't know

☐ 4. N/A

Undo

Q2.3.

Please **provide the rubric(s)** and **standards of performance** that you have developed for this PLO here or in the appendix.



ME MS Oral Communication Rubric.docx
16.42 KB



Click here to attach a file

Q2.4. PLO	Q2.5. Stdrd	Q2.6. Rubric	Please indicate where you have published the PLO , the standard of performance, and the rubric that was used to measure the PLO:
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1. In SOME course syllabi/assignments in the program that address the PLO
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2. In ALL course syllabi/assignments in the program that address the PLO
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3. In the student handbook/advising handbook
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. In the university catalogue
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5. On the academic unit website or in newsletters
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	6. In the assessment or program review reports, plans, resources, or activities
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7. In new course proposal forms in the department/college/university
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8. In the department/college/university's strategic plans and other planning documents
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9. In the department/college/university's budget plans and other resource allocation documents
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10. Other, specify: <input type="text"/>

Question 3: Data Collection Methods and Evaluation of Data Quality for the Selected PLO

Q3.1.

Was assessment data/evidence **collected** for the selected PLO?

- ☒ 1. Yes
- ☐ 2. No (skip to **Q6**)
- ☐ 3. Don't know (skip to **Q6**)
- ☐ 4. N/A (skip to **Q6**)

Undo

Q3.1.1.

How many assessment tools/methods/measures **in total** did you use to assess this PLO?

2

Q3.2.

Was the data **scored/evaluated** for this PLO?

- ☒ 1. Yes
- ☐ 2. No (skip to **Q6**)
- ☐ 3. Don't know (skip to **Q6**)
- ☐ 4. N/A (skip to **Q6**)

Undo

Q3.2.1.

Please describe how you collected the assessment data for the selected PLO. For example, in what course(s) or by what means were data collected:

Thesis proposals (beginning of the program) and thesis presentations (culminating experience) were used for this PLO

(Remember: Save your progress)

Question 3A: Direct Measures (key assignments, projects, portfolios, etc.)

Q3.3.

Were direct measures (key assignments, projects, portfolios, course work, student tests, etc.) used to assess this PLO?

- ☒ 1. Yes
- ☐ 2. No (skip to **Q3.7**)
- ☐ 3. Don't know (skip to **Q3.7**)

Undo

Q3.3.1.

Which of the following direct measures were used? [**Check all that apply**]


- ☒ 1. Capstone project (e.g. theses, senior theses), courses, or experiences
- ☒ 2. Key assignments from required classes in the program
- ☐ 3. Key assignments from elective classes
- ☐ 4. Classroom based performance assessment such as simulations, comprehensive exams, or critiques
- ☐ 5. External performance assessments such as internships or other community-based projects
- ☐ 6. E-Portfolios
- ☐ 7. Other Portfolios
- ☐ 8. Other, specify:


Q3.3.2.

Please **explain** and **attach** the direct measure you used to collect data:

Thesis proposals in ME 209 - core course, beginning of the MS ME program

Thesis presentations at the end of the program

 Click here to attach a file

 Click here to attach a file

Q3.4.

What tool was used to evaluate the data?

- ☐ 1. **No** rubric is used to interpret the evidence (skip to **Q3.4.4.**)
- ☐ 2. Used rubric developed/modified by the faculty who teaches the class (skip to **Q3.4.2.**)
- ☒ 3. Used rubric developed/modified by a group of faculty (skip to **Q3.4.2.**)
- ☐ 4. Used rubric pilot-tested and refined by a group of faculty (skip to **Q3.4.2.**)
- ☐ 5. The VALUE rubric(s) (skip to **Q3.4.2.**)
- ☐ 6. Modified VALUE rubric(s) (skip to **Q3.4.2.**)
- ☐ 7. Used other means (Answer **Q3.4.1.**)

Undo

Q3.4.1.

If you used other means, which of the following measures was used? [Check all that apply]

- ☐ 1. National disciplinary exams or state/professional licensure exams (skip to **Q3.4.4.**)
- ☐ 2. General knowledge and skills measures (e.g. CLA, ETS PP, etc.) (skip to **Q3.4.4.**)
- ☐ 3. Other standardized knowledge and skill exams (e.g. ETC, GRE, etc.) (skip to **Q3.4.4.**)
- ☐ 4. Other, specify: (skip to **Q3.4.4.**)

Q3.4.2.

Was the **rubric** aligned directly and explicitly **with the PLO**?

- ☒ 1. Yes
- ☐ 2. No
- ☐ 3. Don't know
- ☐ 4. N/A

Undo

Q3.4.3.

Was the **direct measure** (e.g. assignment, thesis, etc.) aligned directly and explicitly **with the rubric**?

- ☒ 1. Yes
- ☐ 2. No
- ☐ 3. Don't know
- ☐ 4. N/A

Undo

Q3.4.4.

Was the **direct measure** (e.g. assignment, thesis, etc.) aligned directly and explicitly **with the PLO**?

- ☒ 1. Yes
- ☐ 2. No
- ☐ 3. Don't know
- ☐ 4. N/A

Undo

Q3.5.

How many faculty members participated in planning the assessment data **collection** of the selected PLO?

2

Q3.5.1.

How many faculty members participated in the **evaluation** of the assessment data for the selected PLO?

5

Q3.5.2.

If the data was evaluated by multiple scorers, was there a norming process (a procedure to make sure everyone was scoring similarly)?

- ☐ 1. Yes
- ☒ 2. No
- ☐ 3. Don't know
- ☐ 4. N/A

Undo

Q3.6.

How did you **select** the sample of student work (papers, projects, portfolios, etc.)?

Students in the ME 209 course and all students finishing the thesis portion

Q3.6.1.

How did you **decide** how many samples of student work to review?

There were 38 students in ME 209 - 15 presentations were assessed

There were 13 total thesis presentations in 2015-16 and all were evaluated

Q3.6.2.

How many students were in the class or program?

50 at various stages

Q3.6.3.

How many samples of student work did you evaluate?

28

Q3.6.4.

Was the sample size of student work for the direct measure adequate?

- ☒ 1. Yes
☐ 2. No
☐ 3. Don't know

Undo

(Remember: Save your progress)

Question 3B: Indirect Measures (surveys, focus groups, interviews, etc.)

Q3.7.

Were indirect measures used to assess the PLO?

- ☐ 1. Yes
☒ 2. No (skip to **Q3.8**)
☐ 3. Don't Know (skip to **Q3.8**)

Undo


Q3.7.1.


Which of the following indirect measures were used? [Check all that apply]

- ☐ 1. National student surveys (e.g. NSSE)
☐ 2. University conducted student surveys (e.g. OIR)
☐ 3. College/department/program student surveys or focus groups
☐ 4. Alumni surveys, focus groups, or interviews
☐ 5. Employer surveys, focus groups, or interviews
☐ 6. Advisory board surveys, focus groups, or interviews
☐ 7. Other, specify:

Q3.7.1.1.

Please explain and attach the indirect measure you used to collect data:

 [Click here to attach a file](#)

 [Click here to attach a file](#)

Q3.7.2.

If surveys were used, how was the sample size **decided**?

Q3.7.3.

If surveys were used, how did you **select** your sample:

Q3.7.4.

If surveys were used, what was the response rate?

Question 3C: Other Measures (external benchmarking, licensing exams, standardized tests, etc.)

Q3.8.

Were external benchmarking data, such as licensing exams or standardized tests, used to assess the PLO?

- ☐ 1. Yes
- ☒ 2. No (skip to **Q3.8.2**)
- ☐ 3. Don't Know (skip to **Q3.8.2**)
-

Q3.8.1.

Which of the following measures was used? [**Check all that apply**]

- ☐ 1. National disciplinary exams or state/professional licensure exams
- ☐ 2. General knowledge and skills measures (e.g. CLA, ETS PP, etc.)
- ☐ 3. Other standardized knowledge and skill exams (e.g. ETC, GRE, etc.)
- ☐ 4. Other, specify:

Q3.8.2.


Were other measures used to assess the PLO?


- ☐ 1. Yes
☒ 2. No (skip to **Q4.1**)
☐ 3. Don't know (skip to **Q4.1**)

Undo

Q3.8.3.

If other measures were used, please specify:

 Click here to attach a file

 Click here to attach a file

(Remember: Save your progress)

Question 4: Data, Findings, and Conclusions


Q4.1.

Please provide simple tables and/or graphs to summarize the assessment data, findings, and conclusions for the selected PLO for **Q2.1**:

Based on our evaluation of thesis proposals and culminating experience thesis presentations the majority of our MS ME students are able to communicate orally in a clear, complete and professional manner. It is of particular importance to for career success for MS level Mechanical Engineers to be able to communicate effectively in spoken English. Our students have any communication problems identified at the ME 209 level and then work on those throughout the program as they acquire additional technical knowledge so that they are ready to enter the professional world upon graduation.



ME MS Oral Communication Assessment Outcomes.docx
13.27 KB


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Q4.2.

Are students doing well and meeting the program standard? If not, how will the program work to improve student performance of the selected PLO?

Yes. All students seem to be coming into the program well prepared for professional work and augment their skills as they progress through the program. 80% were at the Very Good or Excellent level at the beginning of the program and over 90% were at Very Good or Excellent upon completion.

We will continue to work on adding more opportunities for formal assessment of oral communication in other components of the MS ME curriculum

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Q4.3.

For the selected PLO, the student performance:

- ☐ 1. **Exceeded** expectation/standard
☒ 2. **Met** expectation/standard
☐ 3. **Partially** met expectation/standard
☐ 4. Did not meet expectation/standard
☐ 5. No expectation/standard has been specified
☐ 6. Don't know

Undo

Question 4A: Alignment and Quality

Q4.4.

Did the data, including the direct measures, from all the different assessment tools/measures/methods directly align with the PLO?

- ☒ 1. Yes
☐ 2. No
☐ 3. Don't know

Undo

Q4.5.

Were **all** the assessment tools/measures/methods that were used good measures of the PLO?

- ☒ 1. Yes
☐ 2. No
☐ 3. Don't know

Undo

Question 5: Use of Assessment Data (Closing the Loop)

Q5.1.

As a result of the assessment effort and based on prior feedback from OAPA, do you anticipate *making any changes* for your program (e.g. course structure, course content, or modification of PLOs)?

- ☐ 1. Yes
☐ 2. No (skip to **Q5.2**)
☒ 3. Don't know (skip to **Q5.2**)

Undo

Q5.1.1.

Please describe *what changes* you plan to make in your program as a result of your assessment of this PLO. Include a description of how you plan to assess the impact of these changes.

Q5.1.2.

Do you have a plan to assess the *impact of the changes* that you anticipate making?

- ☐ 1. Yes
☐ 2. No
☐ 3. Don't know

Undo

Q5.2.

How have the assessment data from the last annual assessment been used so far? [**Check all that apply**]

	1. Very Much	2. Quite a Bit	3. Some	4. Not at All	5. N/A
1. Improving specific courses	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Modifying curriculum	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Improving advising and mentoring	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Revising learning outcomes/goals	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Revising rubrics and/or expectations	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Developing/updating assessment plan	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Annual assessment reports	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. Program review	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Prospective student and family information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
10. Alumni communication	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. WSCUC accreditation (regional accreditation)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
12. Program accreditation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
13. External accountability reporting requirement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
14. Trustee/Governing Board deliberations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
15. Strategic planning	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. Institutional benchmarking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
17. Academic policy development or modifications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
18. Institutional improvement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
19. Resource allocation and budgeting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
20. New faculty hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
21. Professional development for faculty and staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
22. Recruitment of new students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>

23. Other, specify:

Q5.2.1.

Please provide a detailed example of how you used the assessment data above:

We use every opportunity to refine our curriculum to meet the needs of our students and local industry

(Remember: Save your progress)

Additional Assessment Activities

Q6.

Many academic units have collected assessment data on aspect of their program *that are not related to the PLOs* (i.e. impacts of an advising center, etc.). **If** your program/academic unit has collected data on program *elements*, please briefly report your results here:



Click here to attach a file



Click here to attach a file

Q7.

What PLO(s) do you plan to assess next year? [Check all that apply]

- ☐ 1. Critical Thinking
- ☐ 2. Information Literacy
- ☒ 3. Written Communication
- ☐ 4. Oral Communication
- ☐ 5. Quantitative Literacy

- ☐ 6. Inquiry and Analysis
- ☐ 7. Creative Thinking
- ☐ 8. Reading
- ☐ 9. Team Work
- ☐ 10. Problem Solving
- ☐ 11. Civic Knowledge and Engagement
- ☐ 12. Intercultural Knowledge and Competency
- ☐ 13. Ethical Reasoning
- ☐ 14. Foundations and Skills for Lifelong Learning
- ☐ 15. Global Learning
- ☐ 16. Integrative and Applied Learning
- ☐ 17. Overall Competencies for GE Knowledge
- ☐ 18. Overall Competencies in the Major/Discipline
- ☐ 19. Other, specify any PLOs not included above:

- a.
- b.
- c.

Q8. Please attach any additional files here:



Click here to attach a file



Click here to attach a file



Click here to attach a file



Click here to attach a file

Q8.1.

Have you attached any files to this form? If yes, please list every attached file here:

ME MS Oral Communication Rubric

ME MS Oral Communication Assessment

Graduate Learning Goals

Program Information (Required)

P1.

Program/Concentration Name(s): [by degree]

MS Mechanical Engineering

P1.1.

Program/Concentration Name(s): [by department]

Select...

P2.

Report Author(s):

Susan L. Holl

P2.1.

Department Chair/Program Director:

Susan L. Holl/AKihiko Kumaga

P2.2.

Assessment Coordinator:

Kenneth Sprott

P3.

Department/Division/Program of Academic Unit

Mechanical Eng.

P4.

College:

College of Engineering and Computer Science

P5.

Total enrollment for Academic Unit during assessment semester (see Departmental Fact Book):

53 (from last Fact Book)

P6.

Program Type:

- ☐ 1. Undergraduate baccalaureate major
- ☐ 2. Credential
- ☒ 3. Master's Degree
- ☐ 4. Doctorate (Ph.D./Ed.D./Ed.S./D.P.T./etc.)
- ☐ 5. Other, specify:

P7. Number of **undergraduate degree programs** the academic unit has?

1

P7.1. List all the names:

BS Mechanical Engineering

P7.2. How many concentrations appear on the diploma for this undergraduate program?

N/A

P8. Number of **master's degree programs** the academic unit has?

1

P8.1. List all the names:

MS Mechanical Engineering

P8.2. How many concentrations appear on the diploma for this master's program?

N/A

P9. Number of **credential programs** the academic unit has?

0

P9.1. List all the names:

P10. Number of **doctorate degree programs** the academic unit has?

0

P10.1. List all the names:

When was your **assessment plan...**

Undo

	1. Before 2010-11	2. 2011-12	3. 2012-13	4. 2013-14	5. 2014-15	6. No Plan	7. Don't know
P11. developed?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P11.1. last updated?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

P11.3.

Please attach your latest **assessment plan**:



Graduate Learning Goals_Objectives_call October 2015 2 ME.docx
22.74 KB

P12.

Has your program developed a **curriculum map**?

- ☐ 1. Yes
☒ 2. No
☐ 3. Don't know

Undo

P12.1.

Please attach your latest **curriculum map**:



Click here to attach a file

P13.

Has your program indicated in the curriculum map where assessment **of student learning** occurs?

- ☐ 1. Yes
☒ 2. No
☐ 3. Don't know

Undo

P14.

Does your program have a capstone class?

- ☐ 1. Yes, indicate:
☒ 2. No
☐ 3. Don't know

Undo

P14.1.

Does your program have **any** capstone project?

- ☒ 1. Yes
☐ 2. No
☐ 3. Don't know

Undo

(**Remember: Save your progress**)

ME MS Assessment Rubric for Graduate Learning Outcomes

Criteria	Excellent A (4)	Very Good B (3)	Satisfactory C (2)	Unacceptable D/F (1)	Score
1) Write technical reports specifying clear contributions, explanation, and conclusions. Publish reports (including thesis) following a standard professional format. Present technical work for a targeted audience with effective oral communication and visual aids.	Student writing clearly conveys the details of the work at a professional level; includes all pertinent information about the project objectives, process used, results and conclusions.	Student writing presents some of the details of their work; may lack clarity or be incomplete in some areas.	Student writing conveys the most important details of the project at a satisfactory level.	Student cannot clearly convey the purpose or significance of work through writing.	
4) Write technical reports specifying clear contributions, explanation, and conclusions. Publish reports (including thesis) following a standard professional format. Present technical work for a targeted audience with effective oral communication and visual aids.	Student's speaking (words/style) and presentation techniques clearly convey the details of the project at a professional level; all pertinent project points are presented at the appropriate level.	Student's speaking and presentation conveys some of the details of the work; may lack clarity or be incomplete in some areas.	Student's speaking and presentation conveys the most important details of the project at a satisfactory level.	Student's speaking and presentation do not convey the purpose or significance of the work.	

ME MS Oral Communication Assessment Outcomes					
Present technical work for a targeted audience with effective oral communication and visual aids.	Excellent A (4)	Very Good B (3)	Satisfactory C (2)	Unacceptable D/F (1)	Score
ME 209	13%	67%	20%		N=15; 2.93
Thesis Presentation	31%	62%	7%		N=13; 3.24

Graduate Learning Goals/Objectives Policy

The Faculty Senate recommends that departments/interdisciplinary groups with graduate programs in their purview be required to establish Graduate Goals/Objectives, Program Learning Outcomes with an associated curriculum map, and an assessment plan with an associated action plan, to be submitted to the Office of Graduate Studies within one full academic year of approval of this policy (Approved in May 2015). Items in *italics* are additional elements being requested to assist with institutional level data collection.

Graduate Learning Goals/Objectives and Program Learning Outcomes

The Faculty Senate further recommends that in developing graduate learning goals/objectives, faculty consult resources such as the information submitted in the Instructional Program Priorities (IPP) process, the Graduate Learning Goals recommended by the Graduate Studies Policies Committee, and/or the Lumina Foundation Degree Qualifications Profile in framing their learning goals/objectives and assessment components.

Graduate programs shall develop Program Learning Outcomes (PLOs) that represent their unique perspectives. Each graduate program shall define its own set of learning outcomes, specific to the level of study and to the discipline, which are clearly more advanced in content than those defined for related undergraduate work. For some programs, these might already be defined, at least in part, by external accrediting agencies. Such defined outcomes shall also form the basis for assessment plans within graduate programs and offer foci for future academic program review terms.

Program Learning Outcomes are designed with the goal of placing graduated master's or doctoral students into post-degree positions in secondary education, non-profits, business and consulting, government and private agencies, and other fields that draw on the knowledge and skills of graduates in the focused areas of their degree preparation.

Graduate Learning Objectives	Program Learning Outcomes
A. Technical and Professional Maturity: Will enter professional employment at an advanced level and/or Ph.D. programs in the following areas of mechanical engineering practice: machine design, thermal and fluids systems, and manufacturing.	A. Technical and Professional Maturity: Demonstrate proficiencies in technical materials which are up-to-date and high in demand especially in the concentration area.
B. Knowledge and Analysis: Will use knowledge of the principles of science, mathematics, and engineering, to identify, formulate, and solve problems in mechanical engineering.	B. Knowledge and Analysis: Identify and formulate technical requirements. Use mathematical and scientific tools to analyze, test, solve problems, and improve performance of designs.
C. Creativity: Will apply creativity in the design of systems, components, or processes to meet desired needs.	C. Creativity: Identify needs or system improvements in a real world environment. Operationalize these needs and system improvements into specific technical requirements. Based on the technical requirements, perform engineering synthesis, design and analysis to develop products and/or solve problems.
D. Communication: Will communicate effectively through speaking, writing, and graphics.	D. Communication: Write technical reports with specifying clear contributions, explanations, and conclusions. Publish reports (including thesis) following a standard professional format. Present technical work for a targeted audience with effective oral communication and visual aids.

Curriculum Map

Each program shall create a curriculum map:

1. List all courses, both required and elective, as well as other required graduate education activities.
2. Indicate where in the curriculum each PLO is addressed through development of a curriculum map. The curriculum map may be presented in many formats, including tabular form as the template below. Another format may be substituted
3. *Please indicate if the course is a core (C), an elective (E), or culminating experience (Thesis, Project, or Comprehensive Examination) course.*

Course Work	PLO 1	PLO 2	PLO 3	PLO 4
ENGR 201 Engineering Analysis I (3 units) C		XX		x
ENGR 202 Eng. Analysis II or ME 206 Stoch. Mod. for Engineers (3 units) C		XX		x
ME 209 Research Methodology (2 units) C	X	X	X	XX
ME 240 Mech. Design Analysis (3 units) C or E	X	XX		X
ME 241 Optimal Mech. Design (3 units) C or E	X	XX	X	X
ME 270 Adv. CAD of Dyn. Sys. (3 units) C or E	X	XX	X	X
ME 272 FEM in CAD (3 units) C or E	X	XX	X	X
ME 276 Adv. Vibration Theory (3 units) C or E	X	XX		X
ME 274 Flight Dynamics (3 units) C or E	X	XX		X
ME 233 Intel. Prod. Des. & Mfg. (3 units) C or E	XX	XX	X	X
ME 236 Comp. Contl. Mfg. Proc. (3 units) C or E	XX	XX	X	X
ME 237 Dig. Contl. Of Mfg. Proc. (3 units) C or E	XX	XX		
ME 238 Automated Inspection (3 units) C or E	XX	XX	X	X
ME 250 Heat Transfer: Conduction (3 units) C or E	XX	XX	X	X
ME 251 Heat Transfer: Convection	XX	XX	X	X

(3 units) C or E				
ME 252 Heat Transfer: Radiation (3 units) C or E	XX	XX	X	X
ME 253 Advanced Fluid Mechanics (3 units) C or E	XX	XX	X	X
ME 256 Mech. & Thermo of Comp. Flow (3 units) C or E	XX	XX	X	X
ME 258 Adv. Thermodynamics (3 units) C or E		XX		X
ME 259 Introduction to CFD (3 units) C or E	XX	XX	X	X
ME 299 Special Problems (1-3 units) E	X	X	X	X
ME 500 Thesis (4-6 units) Culminating Experience	XX	XX	XX	XX

XX: Strong relationship
X: Moderate relation ship
Blank: Weak or no relationship

Assessment Plan

Each graduate program shall develop a plan for assessing student achievement of its Program Learning Outcomes:

1. *Indicate the date assessment of the PLO started and identify each PLO separately in the Assessment Plan.*
2. Identify graduate program-specific direct and indirect lines of evidence for each of the PLOs. (See the policy for summaries of the kinds of direct and indirect evaluative data programs might draw on to assess progress towards and achievement of PLOs).
3. *Please indicate the lead personnel associated with evaluating each PLO.*
4. *Articulate evaluation parameters for measuring introductory and advanced levels of graduate student development for each PLO and the timeline for measurement, e.g., at time of admission or prior to culminating experience coursework.*
5. Evaluate each of the PLOs based on direct lines of evidence, collectively supporting the evaluation of introductory and advanced levels of development over the course of each student's program trajectory. Emphasis should be placed on early assessment of indicators that predict success in the graduate experience.

Lines of Evidence for Assessing Graduate Program Learning Outcomes						
Date	PLO	Direct Lines of Evidence (Example: Assignments in core courses; early writing assessment)	Indirect Lines of Evidence (Mid-course assessments; Alumni Survey)	Lead/Resources (Example: Faculty Advisors; Course Instructor; Department Chair)	Evaluation Parameters & Timeline: Examples of timeline: Admission (A); Exit (E); On-going (O); Follow up with Alumni (F); Qualification for Culminating Experience (Q)	Evaluation of each PLO based on direct lines of evidence
2013-05-01	A. Technical and Professional Maturity	Homework; Exams; Projects; Reports; Presentations	Course Outcomes Survey; Exit Survey; Alumni Survey	Course instructors; Faculty advisors	Exit Survey; On-going; Follow up with Alumni; Completion of Culminating Experience	Most of students accomplish this objective.
2013-05-01	B. Knowledge and Analysis	Homework; Exams; Projects; Reports; Presentations	Course Outcomes Survey; Exit Survey; Alumni Survey	Course instructors; Faculty advisors	Exit Survey; On-going; Follow up with Alumni; Completion of Culminating Experience	Most of students take the engineering applied math core courses Engr 201 and Engr 202 in the first two semesters. Overall, there is a strong evidence that when students complete those math courses successfully with a grade of B or above, they perform well for the rest of courses in the program.
2013-05-01	C. Creativity	Homework; Exams; Projects; Reports; Presentations	Course Outcomes Survey; Exit Survey; Alumni Survey	Course instructors; Faculty advisors	Exit Survey; On-going; Follow up with Alumni; Completion of Culminating Experience	ME 500 Thesis is required for all students in our program. Completion of this cumulative experience is a strong evidence that students accomplished this objective.
2013-05-01	D. Communication	Homework; Exams; Projects; Reports; Presentations	Course Outcomes Survey; Exit Survey; Alumni Survey	Course instructors; Faculty advisors	Exit Survey; On-going; Follow up with Alumni; Completion of Culminating Experience	Most of students accomplish this objective.

Action Plan

Based on the assessment data collected, each graduate program shall provide detailed information about action steps to be taken to maintain program quality and/or address identified deficiencies.

1. Assessment Data Summary
2. Evaluation
3. Actions for Program Improvements and/or Continuation

PLO	Assessment Data Summary	Evaluation	Actions for Program Improvement and/or Continuation
A. Technical and Professional Maturity	Most of students successfully completed technical courses mapped to this outcome.	We believe that this objective has been achieved satisfactory in terms of how students have been successfully completing courses for this objective.	We will continue to collect inputs from local industries and alumni to assess needs of the region and California. We will keep updating our curriculum responding to those needs.
B. Knowledge and Analysis	<p>Most of students successfully completed technical courses mapped to this outcome.</p> <p>Average score of the Fall 2013 Alumni survey (1 to 4 scale: 1 lowest, 4 highest): 3.5</p>	<p>We believe that this objective has been achieved satisfactory in terms of how students have been successfully completing courses for this objective.</p> <p>Our alumni also recognize that what they learned from our program are very useful for their professional careers.</p>	We will make continuous efforts on providing up-to date and cutting edge materials to students based on expertise of faculty members.
C. Creativity	<p>Average score of the Fall 2013 Alumni survey: 3.0</p> <p>Most of responses from Alumni and Exit surveys indicate that ME 500 Thesis was significant experience for identifying problems, finding solutions and writing a report.</p>	Both graduating students and alumni believe that they obtained valuable experience for creative activities. However, they also point out that we need to make more efforts on securing necessary resources for students pursuing those creative activities more productively.	<p>We will continue to make our effort on generating practical and meaningful projects with local community and industries.</p> <p>We will make our continuous effort on providing necessary resources for students pursuing those creative activities.</p>
D. Communication	<p>Average score of the Fall 2013 Alumni survey: 3.3.</p> <p>Most of responses from Alumni and Exit surveys indicate that ME 500 Thesis was significant experience for identifying problems, finding solutions and writing a report.</p>	Both graduating students and alumni believes that their experience for writing reports and making presentations are essential for their careers.	We will continue to strengthen our curriculum for helping students produce high quality theses, publish conference and journal papers, and present our findings to local community and industries.