Mechanical Engineering Technology
Oregon Institute of Technology
2014-15 Annual Assessment Report

I. Introduction

The Bachelor of Science program in Mechanical Engineering Technology is offered in three locations—Klamath Falls, Wilsonville, and at the Seattle campus for Boeing employees. In Klamath Falls and Seattle the entire program is offered; the Wilsonville campus offers a degree-completion program (i.e. only Junior and Senior courses are offered, the lower-division courses are expected to be taken at a community college). During the years 2004-2014, overall enrollment ranged from 147 to 120, with a high during 2005 of 147 students. Fall term 2013 enrollment was 101 full and part-time students. Of the 2014-2015 graduates responding, an average salary of $67,500 was reported. During the 2014-15 year, the program graduated a total of 7 students.

The Mechanical Engineering Technology (MET) Program at Oregon Institute of Technology (OIT) was first accredited by ABET in 1970. Based on recommendations from the MMET Industry Advisory Council, curricular changes have been made to keep the program current: more 3D parametric modeling programs are available, computational fluid dynamics is using some state of the art software, sketching and some basic CAD tools have been included in the orientation class, project management was added, and elective courses have been added to provide exposure to new technologies related to lean manufacturing, composites and alternative forms of energy such as wave energy.

However, the Manufacturing and Mechanical Engineering and Technology (MMET) Department in which the MET Program resides has experienced numerous changes and upgrades over the past ten years. The first major change was the merger of the Manufacturing Engineering Technology Department with the Mechanical Engineering Technology Department in 2004. This was done to increase administrative efficiency. The result was a stronger program with more resources available and better faculty collaboration. The second major change was the addition of a Bachelor of Science in Mechanical Engineering Degree Program; with the first students graduating in 2007. There was an ABET-ETAC review (both a self-study and on-site visit at all 3 campuses) of the MET and MFG programs that resulted in a full re-accreditation until 2021 when the next visit is scheduled. Both programs reside in the MMET Department under one department chair, and both are available at all three locations catering to the needs of a diverse schedules, student profiles and industry needs.

II. Program Mission, Objectives and Student Learning Outcomes

Following a fall 2008 ABET visit, the faculty revisited the program educational objectives and revised them. These were reviewed and approved by the faculty and the program's industrial advisory council in fall 2009 and have been reviewed multiple times since then by program constituents. Following a fall 2014 ABET visit, the faculty revisited the program student learning outcomes and updated them to reflect the current ABET a-k outcomes. These were reviewed and approved by the faculty in a department meeting held February 3, 2015 (minutes in Appendix B). Most recently, at the Spring 2015 IAC meeting held on April 3rd in Klamath Falls and attended by faculty and industry representatives in Klamath Falls and Wilsonville, the Program Educational Objectives (PEOs) for both the MET and MFG programs and revised student learning outcomes were reviewed and approved (minutes Appendix C).

Mission Statement

The Mechanical Engineering Technology Program at Oregon Institute of Technology is an applied engineering technology program. Its mission is to provide graduates with the skills and knowledge for successful careers in mechanical and manufacturing engineering.

Program Educational Objectives

Program educational objectives (PEO's) are broad statements that describe the career and professional accomplishments that the program is preparing graduates to achieve. The Program Educational Objectives of OIT's mechanical engineering technology program are established to produce graduates who are able to:

- analyze, design, implement and maintain practical mechanical systems.
- communicate effectively and work well on team-based engineering projects.
- succeed in mechanical and manufacturing engineering positions.
- pursue continued professional development.

The faculty assessment cycle for the program's educational objectives is shown in Table 1 below.

Program Objective Assessment Cycle	2014-15	2015-16	2016-17
Review Program Mission and Educational Objectives by the industrial advisory committee	x		
Assess and/or Review Program Mission and Educational Objectives with Constituents (surveys, meetings)		x	

Table 1. Program Education Objectives Assessment Cycle

Student Learning Outcomes

The Mechanical Engineering Technology Program has adopted the ABET a-k outcomes for Engineering Technology programs as listed below. This change to adopt the a-k language was made by program faculty based on input received from the October, 2014 ABET visit.

An engineering technology program must demonstrate that graduates have:

a. an ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities
b. an ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies
c. an ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes
d. an ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives
e. an ability to function effectively as a member or leader on a technical team
f. an ability to identify, analyze, and solve broadly-defined engineering technology problems
g. an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature
h. an understanding of the need for and an ability to engage in self-directed continuing professional development
i. an understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity
j. a knowledge of the impact of engineering technology solutions in a societal and global context
k. a commitment to quality, timeliness, and continuous improvement.

There is an additional outcome identified through the ABET MET specific criteria. This outcome is:

MET a: Baccalaureate degree programs must demonstrate that graduates can apply specific program principles to the analysis, design, development, implementation, or oversight of more advanced mechanical systems or processes depending on program orientation and the needs of their constituents.

III. Three-Year Cycle for Assessment of Student Learning Outcomes

The faculty planned a three-year assessment cycle for the program's student learning outcomes as shown in Table 2 below:

Student Learning Outcome	2014-15	2015-16	2016-17
a. an ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities;			x
b. an ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies;	x		
c. an ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes;			x
d. an ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives;	x		
e. an ability to function effectively as a member or leader on a technical team;		x	
f. an ability to identify, analyze, and solve broadly-defined engineering technology problems;	x		
g. an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature;			x
h. an understanding of the need for and an ability to engage in self-directed continuing professional development;			x
i. an understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity;		x	
j. a knowledge of the impact of engineering technology solutions in a societal and global context;		x	
k. A commitment to quality, timeliness, and continuous improvement		x	
Met1. Graduates must demonstrate that they can apply specific program principles to the analysis, design, development, implementation, or oversight of more advanced mechanical systems or processes	x		

Table 2. Assessment Cycle for MET Student Learning Outcomes

IV. Summary of 2014-15 Assessment Activities

The Mechanical Engineering Technology faculty conducted formal assessment of four student learning outcomes during the 2014-15 academic year. These five outcomes have been mapped to the curriculum as shown in Appendix A. The four SLO's are: b) An ability to apply current knowledge and adapt to emerging applications of mathematics, science, engineering and technology, d) An ability to apply creativity in the design of systems, components or processes appropriate to program objectives, e) An ability to function effectively on teams, f) An ability to identify, analyze and solve technical problems and MET a: Baccalaureate degree programs must demonstrate that graduates can apply specific program principles to the analysis, design, development, implementation, or oversight of more advanced mechanical systems or processes depending on program orientation and the needs of their constituents.

SLO b. An ability to apply current knowledge and adapt to emerging applications of mathematics, science, engineering and technology.

The performance criteria for this learning outcome are:

1. Select and apply math principles to obtain analytical or numerical solution(s) to an engineering problem.
2. Select and apply scientific principles that govern the performance of a given process or system in engineering problem(s).
3. Select and apply engineering principles that govern the performance of a given process or system in engineering problem(s).
4. Select and apply appropriate technology tools (software, equipment, CAD, CNC, instrumentation, etc.) for a given process or system to an engineering problem.

Direct Assessment #1 Klamath Campus
The faculty assessed this outcome in MET 315 Machine Design I fall term 2014, using an exam scored with a rubric. This assessment was administered to students from all majors in the MMET Department. There were nine MET students involved in the assessment, the results are shown in Table 3.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	MET Results
Selects & applies math principles	Rubric-scored exam questions	1-4 proficiency scale	80% score 3 or 4	100%
Selects & applies scientific principles	Rubric-scored exam questions	1-4 proficiency scale	80% score 3 or 4	100%
Selects & applies engineering principles	Rubric-scored exam questions	1-4 proficiency scale	80% score 3 or 4	89%
Selects & applies appropriate technology tools	Rubric-scored exam questions	1-4 proficiency scale	80% score 3 or 4	78%

Table 3. Assessment Results for SLO b, fall 2014, Klamath Campus

Strengths: The results indicate that the majority of students met faculty expectations for all criteria assessed. The instructor indicated that students were able evaluate and solve all problems with minimal guidance (failure prediction methods).

Weaknesses: The instructor suggested that this assessment tool did not fully evaluate student's ability to select and apply scientific principles. Instructor feedback also indicated that students needed guidance to select certain aspects of engineering principles for this particular problem.

Actions: Design future assessment to place more emphasis on the selection and application of scientific and engineering principles.

Direct Assessment #2 Klamath Campus
The faculty assessed this outcome in MET 360 Materials II fall term 2014, using an exam scored with a rubric. This assessment was administered to students from all majors in the MMET Department. There were five MET students involved in the assessment, the results are shown in Table 4.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	MET Results
Selects & applies math principles	Rubric-scored exam questions	1-4 proficiency scale	80% score 3 or 4	100%
Selects & applies scientific principles	Rubric-scored exam questions	1-4 proficiency scale	80% score 3 or 4	100%
Selects & applies engineering principles	Rubric-scored exam questions	1-4 proficiency scale	80% score 3 or 4	100%
Selects & applies appropriate technology tools	Rubric-scored exam questions	1-4 proficiency scale	80% score 3 or 4	100%

Table 4. Assessment Results for SLO b, fall 2014, Klamath Campus

Strengths: The results indicate that the students met faculty expectations for all criteria assessed.
Weaknesses: None indicated by the results or instructor feedback.
Actions: None needed at this time, continue assessment as designed.

Direct Assessment #3 Wilsonville Campus
The faculty assessed this outcome in MET 360 Materials II spring term 2015, using a take home exam and a homework set scored with a rubric. This assessment was administered to students from all majors in the MMET Department. There were eleven mechanical engineering technology (MET) students involved in the assessment. The results are shown in Table 5 below.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	MMET Results
Selects & applies math principles	Rubric-scored exam questions	1-4 proficiency scale	80% score 3 or 4	100%
Selects & applies scientific principles	Rubric-scored exam questions	1-4 proficiency scale	80% score 3 or 4	100%
Selects & applies engineering principles	Rubric-scored exam questions	1-4 prof. scale	80% score 3 or 4	100%

Selects & applies appropriate technology tools	Rubric-scored exam questions	1-4 proficiency scale	80% score 3 or 4	100%

Table 5. Assessment Results for SLO b, spring 2015, Portland Campus

Strengths: For the most part students did an excellent job approaching problems in an organized and logical format.

Weaknesses: Some minor careless mistakes such as unit, sig. fig. errors. Some issues of not knowing what scientific principle to apply.

Action: No required at this time.

Direct Assessment #4 Wilsonville Campus
The faculty assessed this outcome in MET 313 Applied Thermodynamics in the Winter term 2015, using a take home exam and a quiz set scored with a rubric. This assessment was administered to students from all majors in the MMET Department. There were seven mechanical engineering technology (MET) students involved in the assessment. The results are shown in Table 5 below.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	MET Results
Selects & applies math principles	Rubric-scored exam questions	1-4 proficiency scale	80% score 3 or 4	100%
Selects & applies scientific principles	Rubric-scored exam questions	1-4 proficiency scale	80% score 3 or 4	71%
Selects & applies engineering principles	Rubric-scored exam questions	1-4 proficiency scale	80% score 3 or 4	71%
Selects & applies appropriate technology tools	Rubric-scored exam questions	1-4 proficiency scale	80% score 3 or 4	100%

Table 5. Assessment Results for SLO b, spring 2015, Portland Campus

Strengths: Students were usually strong in identifying the major equations and variables requested in the solutions, and where and how to locate needed data.

Weaknesses: Many of the equations used have subtle assumptions taken in their derivations and thus were limited in application. These were often applied in the wrong setting.

Action: Emphasize the appropriate application of equations and thorough checking of application.

Direct Assessment #5 Seattle Campus
The faculty assessed this outcome in MET/MECH 316 Machine Design II in winter term 2015, using an exam scored with a rubric. There were 2 Mechanical Engineering Technology (MET) students who participated in the assessment. The results are shown in Table 6 below.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	MET Results
Selects & applies math principles	Rubric-scored exam questions	1-4 proficiency scale	80% score 3 or 4	100%
Selects & applies scientific principles	Rubric-scored exam questions	1-4 proficiency scale	80% score 3 or 4	100%
Selects & applies engineering principles	Rubric-scored exam questions	1-4 proficiency scale	80% score 3 or 4	50%
Selects & applies appropriate technology tools	Rubric-scored exam questions	1-4 proficiency scale	80% score 3 or 4	100%

Table 6. Assessment Results for SLO b, winter 2015, Seattle Campus

Strengths: Most students demonstrated the ability to apply theoretical knowledge gained during their education to real-world problems

Weaknesses: Some students were overwhelmed and struggled to approach the problem in a n engineering manner. .

Action: I'm going to include more design project type assignments in the course and curriculum to improve on their abilities.

A second assessment of this SLO was done in Seattle with only 1 student in the MECH 313 Thermodynamics class. That student did well in all categories and no Actions were needed.

Indirect Assessment #1 MMET Undergraduate Exit Survey
During the spring term, each graduating senior completes an exit survey. The survey includes questions on how well the program prepared the student on each SLO. This survey data is reviewed by faculty to determine any strengths or weaknesses as perceived by students on this SLO. 6 seniors in Mechanical Engineering Technology (MET) responded to the survey, representing all sites. For SLO b, 33.3% indicated that they were highly prepared 50% indicated that they were prepared, and 16.7% indicated that they were inadequately prepared on this learning outcome. This is a small number of responses to jump to any conclusions except that most felt they were well prepared for this SLO. 4 from Klamath Falls and 2 from Wilsonville, 0 from Seattle.

SLO d. An ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives

The performance criteria for this learning outcome are

1. Identify an appropriate set of realistic constraints and performance criteria.
2. Generate one or more creative solutions to meet the criteria and constraints.
3. Create a detailed design within realistic constraints.
4. Plan and manage a small technical project.

Direct Assessment #1 Klamath Campus

The faculty will assess this outcome in Winter 2016 and the results for the students will be shown in a Table 9 below when the results are in. Faculty wanted to use a new assignment for this assessment.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	MET Results
Identify constraints & criteria	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	##
Generate solutions	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	##
Create a design	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	##
Plan and manage a project	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	##

Table 9. Assessment Results for SLO d, winter 2016, Klamath Campus

Strengths:
Weaknesses:
Actions:

Direct Assessment #2 Wilsonville Campus
The faculty assessed this outcome in MET 491 Senior Project were collected in spring term 2015, using a project scored with a rubric. This assessment was administered to students from only the MET program in the MMET Department. There were three mechanical engineering technology (MET) students involved in the assessment. The results for the students are shown in Table 11 below.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	MET Results
Identify constraints & criteria	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	100%
Generate solutions	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	100%
Create a design	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	100%
Plan and manage a project	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	100%

Table 11. Assessment Results for SLO d, spring 2012, Portland Campus

Strengths: Students followed the reportage templates and got good coverage of the essential points. One student, was an excellent machinist and produced the best finished parts in a complicated project I've seen in 125 projects over the years.
Weaknesses: Some students deviated from the report. One project produced parts without drawings.
Actions: None recommended

Direct Assessment #3 Wilsonville Campus
The faculty assessed this outcome in MET 426 Fluid Power Systems were collected in winter term 2015, using a final project scored with a rubric. This assessment was administered to students from only the MET program in the MMET Department. There were fifteen mechanical engineering technology (MET) students involved in the assessment. The results for the students are shown in Table 11 below.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	MET Results
Identify constraints & criteria	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	80%
Generate solutions	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	80%
Create a design	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	80%
Plan and manage a project	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	80%

Table 11. Assessment Results for SLO d, winter 2015, Wilsonville Campus

Strengths: students have had sufficient knowledge on fluid power systems
Weaknesses: None identified
Actions: None recommended

Direct Assessment #4 Seattle Campus
The faculty assessed this outcome in MECH 316 Machine Design were collected in spring term 2015, using a shaft design project using basic components and was scored with a rubric. This assessment was administered to students from only the MET program in the MMET Department. There were only two mechanical engineering technology (MET) students involved in the assessment. The results for the students are shown in Table 11 below.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	MET Results
Identify constraints & criteria	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	100%
Generate solutions	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	100%
Create a design	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	50%
Plan and manage a project	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	Not Scored

Table 11. Assessment Results for SLO d, winter 2015, Seattle Campus

Strengths: Most students did a very good job of selecting reasonable components and designing an appropriate shaft
Weaknesses: Some students struggled to apply the textbook knowledge to real-world problems.
Actions: I'm going to include more design project type problems in my courses.

Indirect Assessment #1 MMET Undergraduate Exit Survey
During the spring term, each graduating senior completes an exit survey. The survey includes questions on how well the program prepared the student on each SLO. This survey data is reviewed by faculty to determine any strengths or weaknesses as perceived by students on this SLO. Six seniors in Mechanical Engineering Technology (MET) responded to the survey, representing all sites. For SLO d, 33.3% indicated that they were highly prepared, 50% indicated that they were prepared, and 16.7% indicated they were not prepared adequately on this learning outcome. 4 from Klamath Falls and 2 from Wilsonville, 0 from Seattle.

SLO f. An ability to identify, analyze and solve technical problems

The performance criteria for this learning outcome are

1. Identify an engineering problem.
2. Make appropriate assumptions.
3. Formulate a plan which will lead to a solution.
4. Apply engineering principles to analyze the problem.
5. Document results in an appropriate format.

Direct Assessment #1 Klamath Campus
The faculty assessed this outcome in MET 437, Heat Transfer in winter term 2015, using a lab report using a condensing heat exchanger scored with a rubric. There were four mechanical engineering technology (MET) students, the results for 4 students are shown in Table 15 below.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	MET Results
Identify an engineering problem	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	75%
Appropriate assumptions	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	75%
Formulate a plan	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	100%
Apply engineering principles	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	100%
Document results	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	100%

Table 15. Assessment Results for SLO f, winter 2015, Klamath Campus

Strengths: The overall presentation of the document
Weaknesses: Identifying problems and assumptions
Actions: Monitor next cycle of assessment since very few students participated in the assessment

Direct Assessment #2 Klamath Campus
The faculty assessed this outcome in MFG 313 Manufacturing Analysis and Planning fall term 2011, using a project scored with a rubric. This assessment was administered to students from all majors in the MMET Department. There were three Mechanical Engineering Technology (MET) students and nine manufacturing students involved in the assessment. The results of the manufacturing students are shown in Table 15 below.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	MET Results
Identify an engineering problem	Rubric-scored exam questions	1-4 proficiency scale	80% score 3 or 4	88.9%
Appropriate assumptions	Rubric-scored exam questions	1-4 proficiency scale	80% score 3 or 4	88.9%
Formulate a plan	Rubric-scored exam questions	1-4 proficiency scale	80% score 3 or 4	100%
Apply engineering principles	Rubric-scored exam questions	1-4 proficiency scale	80% score 3 or 4	88.9%
Document results	Rubric-scored exam questions	1-4 proficiency scale	80% score 3 or 4	88.9%

Table 15. Assessment Results for SLO f, fall 2011, Klamath Campus

Strengths: Faculty observe that the mechanical engineering technology students are very skilled in identifying, analyzing and solving technical problems.
Weaknesses: No apparent weaknesses.
Actions: None recommended.

Direct Assessment #3 Wilsonville Campus
The faculty assessed this outcome in MFG 331 Industrial Controls winter term 2015, using a project/lab scored with a rubric. This assessment was administered to students from all majors in the MMET Department. There were ten Mechanical Engineering Technology (MET) students involved in the assessment. The results for the students are shown in Table 16 below.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	MMET Results
Identify an engineering problem	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	72.7%
Appropriate assumptions	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	72.7%
Formulate a plan	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	63.6%
Apply engineering principles	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	72.7%
Document results	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	90.9%

Table 16. Assessment Results for SLO f, winter 2015, Wilsonville Campus

Strengths: Most of the student understood the problem and produced a working program to control the mixing tank.

Weaknesses: Some students were light on documentation and lacked adequate English language skills.

Actions: Include a structured documentation exercise in this course.

Direct Assessment #4 Seattle Campus
Data was not collected for this assessment

Indirect Assessment #1 MMET Undergraduate Exit Survey
During the spring term, each graduating senior completes an exit survey. The survey includes questions on how well the program prepared the student on each SLO. This survey data is reviewed by faculty to determine any strengths or weaknesses as perceived by students on this SLO. Six seniors in Mechanical Engineering Technology (MET) responded to the survey, representing all sites. For SLO f, 50.0% indicated that they were highly prepared. 33.3% indicated that they were prepared and 16.7 indicated they were not prepared adequately on this learning outcome. 4 from Klamath Falls and 2 from Wilsonville, 0 from Seattle.

SLO MET1 data was not available at the time of the preparation of this report will be included when it becomes available. This assessment has been done in the past with the data collected for SLO d (Design of Components and Systems). This assessment is scheduled for Senior Project in Winter 16.

V. Summary of Student Learning for 2014-15

MMET faculty from Klamath Falls and Wilsonville met on June 9, 2015 to review assessment results, to determine if improvements were needed, and to decide upon future action plans. A summary of their findings is outlined below.

SLO b. An ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies

Klamath Falls:
Strengths: The results indicate that the majority of students met faculty expectations for all criteria assessed. The instructor indicated that students were able evaluate and solve all problems with minimal guidance (failure prediction methods).
Weaknesses: The instructor suggested that this assessment tool did not fully evaluate student's ability to select and apply scientific principles. Instructor feedback also indicated that students needed guidance to select certain aspects of engineering principles for this particular problem.
Actions: Design future assessment to place more emphasis on the selection and application of scientific and engineering principles.

Wilsonville:
Strengths: For the most part students did an excellent job approaching problems in an organized and logical format.
Weaknesses: Some minor careless mistakes such as unit, sig. fig. errors. Some issues of not knowing what scientific principle to apply.
Action: No required at this time.

Strengths: Students were usually strong in identifying the major equations and variables requested in the solutions, and where and how to locate needed data.
Weaknesses: Many of the equations used have subtle assumptions taken in their derivations and thus were limited in application. These were often applied in the wrong setting.
Action: Emphasize the appropriate application of equations and thorough checking of application.

Seattle
Strengths: Most students demonstrated the ability to apply theoretical knowledge gained during their education to real-world problems
Weaknesses: Some students were overwhelmed and struggled to approach the problem in a n engineering manner. .
Action: I'm going to include more design project type assignments in the course and curriculum to improve on their abilities.

SLO d. An ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives

Due to the failure to collect all the data in Klamath Falls for this outcome, the assessment plan has been revised and data will be collected in 16.

Wilsonville:
Strengths: Students followed the reportage templates and got good coverage of the essential points. One student, was an excellent machinist and produced the best finished parts in a complicated project I've seen in 125 projects over the years.
Weaknesses: Some students deviated from the report. One project produced parts without drawings.
Actions: None recommended

Seattle:
Strengths: Most students did a very good job of selecting reasonable components and designing an appropriate shaft
Weaknesses: Some students struggled to apply the textbook knowledge to real-world problems.
Actions: I'm going to include more design project type problems in my courses.

SLO f. An ability to identify, analyze, and solve broadly-defined engineering technology problems

Klamath Falls:
Strengths: The overall presentation of the document
Weaknesses: Identifying problems and assumptions
Actions: Monitor next cycle of assessment since very few students participated in the assessment

Wilsonville:
Strengths: Most of the student understood the problem and produced a working program to control the mixing tank.
Weaknesses: Some students were light on documentation and lacked adequate English language skills.
Actions: Include a structured documentation exercise in this course.

Appendix A1
SLO-Curriculum Map

Outcome b: an ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies

I = Introduced R = Reinforced E = Emphasized

	Freshman			Sophomore			Junior			Senior		
Fall	Math 111	Coll Algebra		MATH 252	Integral Calc		ENGR 236	Elect Circuits		MET 323	Heat Transfer	R
	MET 111	Orient I	I	MET 160	Materials I	R	ENGR 266	Comp Program		MET 326	EPS	
	WRI 121	Eng Comp		PHY 201/221	Physics		MET 315	Machine Design I	R	IMGT 345	Engineer Economy	
	CHE 101	Chem		WRI 227	Tech Report		MET 360	Materials II	E	MET 490	Senior Proj I	R
	CHE 104	Chem Lab		MET 241	CAD I	R	MET 363	Instrum	R	WRI 321	Adv Tech Wr	
		Psy Elective									MET Elective	
Win	Math 112	Trig		ENGR 211	Statics		ENGR 212	Dynamics		MET 426	FPS	
	MET 112	Orient II	I	Math 254N	Vector Calc I		ENGR 355	Thermo	I	MET 437	Heat Tran Lab	R
	MFG 103	Welding		MET 242	CAD II		MET 316	Machine Design II	R	MET 491	Senior Proj II	R
	WRI 122	Eng Comp		MFG 112	Intro Mfg Proc	I	MET 375	Solid Modelling		SPE 321	Small Group	
		Soc Sci Elevtive		PHY 202/222	Physics			Soc Sci Elective		WRI 322	Adv Tech Wr	
											MET Elective	
Spr	Math 251	Diff Calc		ENGR 213	Strengths		MET 313	Applied Thermo	E	MET 492	Senior Proj III	R
	MFG 120	Mfg Proc I	I	Math 361	Stats I		MET 415	Design Project		MFG 331	Indust Controls	
	SPE 111	Speech		MET 218	Fluids	R	MET 351	FEA		WRI 323	Adv Tech Wr	
		Econ Elective		PHY 203/223	Physics		MFG 314	GDT			Engineer Exam	
		Hum Elective						Hum Elective			Hum Elective	
											MET Elective	
											MET Elective	

Appendix A2
SLO-Curriculum Map

Outcome d: an ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives

I = Introduced R = Reinforced E = Emphasized

	Freshman			Sophomore			Junior			Senior		
Fall	Math 111	Coll Algebra		MATH 252	Integral Calc		ENGR 236	Elect Circuits		MET 323	Heat Transfer	
	MET 111	Orient I	I	MET 160	Materials I		ENGR 266	Comp Program		MET 326	EPS	
	WRI 121	Eng Comp		PHY 201/221	Physics		MET 315	Machine Design I	R	IMGT 345	Engineer Economy	
	CHE 101	Chem		WRI 227	Tech Report		MET 360	Materials II		MET 490	Senior Proj I	E
	CHE 104	Chem Lab		MET 241	CAD I	R	MET 363	Instrum		WRI 321	Adv Tech Wr	
		Psy Elective									MET Elective	
Win	Math 112	Trig		ENGR 211	Statics		ENGR 212	Dynamics		MET 426	FPS	
	MET 112	Orient II	I	Math 254N	Vector Calc I		ENGR 355	Thermo		MET 437	Heat Tran Lab	
	MFG 103	Welding		MET 242	CAD II	R	MET 316	Machine Design II	E	MET 491	Senior Proj II	E
	WRI 122	Eng Comp		MFG 112	Intro Mfg Proc		MET 375	Solid Modelling	E	SPE 321	Small Group	
		Soc Sci Elevtive		PHY 202/222	Physics			Soc Sci Elective		WRI 322	Adv Tech Wr	
											MET Elective	
Spr	Math 251	Diff Calc		ENGR 213	Strengths		MET 313	Applied Thermo		MET 492	Senior Proj III	E
	MFG 120	Mfg Proc I	I	Math 361	Stats I		MET 415	Design Project	E	MFG 331	Indust Controls	
	SPE 111	Speech		MET 218	Fluids	R	MET 351	FEA	E	WRI 323	Adv Tech Wr	
		Econ Elective		PHY 203/223	Physics		MFG 314	GDT			Engineer Exam	
		Hum Elective						Hum Elective			Hum Elective	
											MET Elective	
											MET Elective	

Appendix A3
SLO-Curriculum Map

Outcome f: an ability to identify, analyze, and solve broadly-defined engineering technology problems.

I = Introduced R = Reinforced E = Emphasized

	Freshman			Sophomore			Junior			Senior		
Fall	Math 111	Coll Algebra		MATH 252	Integral Calc		ENGR 236	Elect Circuits	R	MET 323	Heat Transfer	E
	MET 111	Orient I	I	MET 160	Materials I		ENGR 266	Comp Program	R	MET 326	EPS	R
	WRI 121	Eng Comp		PHY 201/221	Physics		MET 315	Machine Design I	E	IMGT 345	Engineer Economy	
	CHE 101	Chem		WRI 227	Tech Report		MET 360	Materials II		MET 490	Senior Proj I	E
	CHE 104	Chem Lab		MET 241	CAD I		MET 363	Instrum	E	WRI 321	Adv Tech Wr	
		Psy Elective									MET Elective	
Win	Math 112	Trig		ENGR 211	Statics	R	ENGR 212	Dynamics	E	MET 426	FPS	R
	MET 112	Orient II	I	Math 254N	Vector Calc I		ENGR 355	Thermo	E	MET 437	Heat Tran Lab	E
	MFG 103	Welding		MET 242	CAD II		MET 316	Machine Design II	E	MET 491	Senior Proj II	E
	WRI 122	Eng Comp		MFG 112	Intro Mfg Proc		MET 375	Solid Modelling		SPE 321	Small Group	
		Soc Sci Elevtive		PHY 202/222	Physics			Soc Sci Elective		WRI 322	Adv Tech Wr	
											MET Elective	
Spr	Math 251	Diff Calc		ENGR 213	Strengths	R	MET 313	Applied Thermo	E	MET 492	Senior Proj III	E
	MFG 120	Mfg Proc I	I	Math 361	Stats I		MET 415	Design Project	E	MFG 331	Indust Controls	R
	SPE 111	Speech		MET 218	Fluids	R	MET 351	FEA	E	WRI 323	Adv Tech Wr	
		Econ Elective		PHY 203/223	Physics		MFG 314	GDT			Engineer Exam	
		Hum Elective						Hum Elective			Hum Elective	
											MET Elective	
											MET Elective	

Appendix A4
SLO-Curriculum Map

Outcome MET a: Baccalaureate degree programs must demonstrate that graduates can apply specific program principles to the analysis, design, development, implementation, or oversight of more advanced mechanical systems or processes depending on program orientation and the needs of their constituents.

I = Introduced R = Reinforced E = Emphasized

	Freshman			Sophomore			Junior			Senior		
Fall	Math 111	Coll Algebra		MATH 252	Integral Calc		ENGR 236	Elect Circuits		MET 323	Heat Transfer	
	MET 111	Orient I		MET 160	Materials I		ENGR 266	Comp Program		MET 326	EPS	
	WRI 121	Eng Comp		PHY 201/221	Physics		MET 315	Machine Design I	I	IMGT 345	Engineer Economy	
	CHE 101	Chem		WRI 227	Tech Report		MET 360	Materials II		MET 490	Senior Proj I	E
	CHE 104	Chem Lab		MET 241	CAD I		MET 363	Instrum		WRI 321	Adv Tech Wr	
		Psy Elective									MET Elective	
Win	Math 112	Trig		ENGR 211	Statics		ENGR 212	Dynamics		MET 426	FPS	R
	MET 112	Orient II		Math 254N	Vector Calc I		ENGR 355	Thermo		MET 437	Heat Tran Lab	R
	MFG 103	Welding		MET 242	CAD II		MET 316	Machine Design II	R	MET 491	Senior Proj II	E
	WRI 122	Eng Comp		MFG 112	Intro Mfg Proc		MET 375	Solid Modelling		SPE 321	Small Group	
		Soc Sci Elevtive		PHY 202/222	Physics			Soc Sci Elective		WRI 322	Adv Tech Wr	
											MET Elective	
Spr	Math 251	Diff Calc		ENGR 213	Strengths		MET 313	Applied Thermo		MET 492	Senior Proj III	E
	MFG 120	Mfg Proc I		Math 361	Stats I		MET 415	Design Project	E	MFG 331	Indust Controls	
	SPE 111	Speech		MET 218	Fluids	I	MET 351	FEA		WRI 323	Adv Tech Wr	
		Econ Elective		PHY 203/223	Physics		MFG 314	GDT			Engineer Exam	
		Hum Elective						Hum Elective			Hum Elective	
											MET Elective	
											MET Elective	

Appendix B

Department Meeting Minutes
Review of ABET Accreditation results 02/03/15

Present: Jeffrey Hayen, John Glen Swanson, Joe Stuart, Sean Sloan, Irina Demeshko, Yanquin Gao, Don Lee, Brian Moravec, Steve Edgeman, David Culler, Sandra Bailey, Phone: Wahab Abrous, Nathan Mead and Wangping Sun

We need to submit a response to Charlie by 02/20 so an important part of our response is this meeting and it is being recorded and the minutes from this meeting and discussion are part of the response. Three of the items are common to MFG & MET. MFG has additional items. David passed out a handout.

Weaknesses that have been identified were for MET in particular although MFG has it mentioned. It really is about pre-req overrides and the justification and procedures and the reason that we give for the pre-req overrides and the forms we use.

Program educational objective we had a problem with our constituents. ABET says that if we list ABET and students as our constituents we need to ask for their input. So we should take them off the list as constituents or you have to ask them for their input.

SLO's are out of date EAC and ETAC over the last year they had gotten together and reworded them and words had been added in – need to include the new wording and need to incorporate them into rubric, score sheets and assessment of those items.

Do not co-mingle assessment data – separate MFG & MET into separate columns. Site specific data needs to be separated out. Over 100 pages had been combined and needs to be separated out.

Concern came from advising. People getting out of sequence, timing we offer our classes, number of times per year that we offer classes, number of students we have in the program makes it a challenge. Student progress, pre-reqs came up again. ABET talked with the MFG120 machining class who are mostly freshman. They had talked about needing quality advising, needed more help, probably not the best group for them to talk to.

They talked about teaching load and professional development came up as a concern. Had both under MFG & MET in Seattle facilities came up as a concern. Classrooms, offices, laboratories, equipment came up – Seattle has already started meeting to develop a response to include in the response to Charlie.

Students taking third or fourth year classes without having taken the pre-reqs. Students taking classes and co-requisites instead of pre-requisites. Students out of sequence or missing one to two classes for graduation and we won't give them an extension to get lined back up for graduation. Seemed reasons being listed are invalid. Maybe we should take a look at our pre-reqs to see if they should be removed or revised. ABET said these were invalid reasons on the forms. Course substitution forms where courses were listed but not found on transcripts. There are CPC forms that have been turned in but not processed. Sean brought up the idea of having a recommended list of pre-reqs instead of pre-req override forms. David suggested course waiver forms with three common reasons listed, i.e. course in process or will be taken over the summer. Brian suggested including will be challenging the course. Pre-req override forms will now require a department chair's signature. If you don't have the pre-requisite override form in, the registrar's office removes the student from the class. We need to inform all the adjunct faculty also. Seattle has 35 – 40 adjuncts. A big chunk of it goes back to the CPC revisions.

Going back to the Program Educational Objective we have MFG & MET PEOs and voted unanimously to remove students/ABET from Program Constituencies or we would have to ask them for input. The PEOs are directed more towards students five years after graduation.

We have old wording for our SLO's for ETAC – someone has added words. We have to update rubrics, score sheets and assessment. All of them have changed except SLO K. A lot of work to be done.

MFG assessment needs to be broken out by program and site. In our response we should direct them to our website where everything is broken out separately.

Final concerns: Advising, curriculum, student progress, pre-reqs, professional development and Seattle facilities – all were mentioned under concerns.

Appendix C

MMET IAC Meeting Minutes 04/03/15

In Attendance: David Culler, Yanging Gao, Irina Demeshko, Sean Sloan, Steve Edgeman, Don Lee, Steve Martin, Steve Hamblin, Randy Pico, Dan Schuman, Joe Stuart, Charlie Jones; Barb Metcalf, Seattle: Marcus Harrell, Nathan Mead, Wahab, Brian Moravec, Wilsonville: John Vandecouvering , Wangping Sun, John Vandecouvering, Pat Kraft, Linda Browning.

John Vandecouvering officially handed over the chair position to Steve Hamblin and said he would do an excellent job. John was recognized for his 10 years as chair of the IAC and presented with a plaque an OIT sweat shirt. John's grandson has just been awarded a Presidential Scholarship to OIT and will be attending OIT on this scholarship in Mechanical Engineering.

Steve Hamblin: Minutes from last meeting will be emailed out.

John V. MECOP says industry still growing – steady growth. More companies joining organization. 79 students placed at Intel 50 some students placed at Freight Liner. Nothing on fire but steady growth.

Randy P. Hiring approx. 25 people per month. Need technologists – it is a mature workforce and many are retiring so need to hire to replace them. They will be seeing attrition over the next five years. They are growing strong and steady and have funding for the next five years. Seeing more activity with the community colleges. Especially EE & technologist and returning veterans. Advanced Bio-Engineering – Projection of 600 summer students 30 – 40. 200 academic coop program from schools – increased pool of scientist with a large concentration of Ph.D.s. Large amount of veterans being hired.

Steve M. Boeing 47 not hiring going down a little 67 increase in hiring 777X increase in hiring FAUB Fuselage Automated Upright Build 737 up in rate 737 max being introduced – increase in hiring 787 going up as well. They are coming out of South Carolina to Everett. Gone up from 3 to 7 a month. Opened a location in Seal Beach, CA. to support all in service planes that shifted from Everett. Large presence in California. 80 thousand people in the Puget Sound area. Keep workforce active and productive while retaining the knowledge.

Steve H. Last summer he left GE and moved to California to a company that makes two seaters for small aircraft. Develop an aircraft that looks more automotive. Engineering Manufacturing expertise in California. Headquarters are in L.A. Will be moving to Vacaville this summer. They will be designing a factory from scratch. They are consolidating to Vacaville using cutting edge technology with virtual factory layout. They already have 1500 aircraft orders with a good run of production with new technologies. Aviation aircraft kicking off F44 promote general aviation into the US. Cessna is still building with new

technology – virtual screens, spin resistant – governing body creates the regulations and present to FAA.

Page two

Hiring trend – can't hire engineers fast enough – it is a challenge getting people to move to the area. Looking at Oregon Tech grads to lead the Stress group. Oregon Tech questions for industry?

Randy P. – Would like to hear from the instructors – what's new and exciting?

Sean – Received a grant for welding titanium and will teach the basic on how to weld and use titanium. Wants to push the technology here.

Would like to start an Oregon Laser Institute 3 – 6 kilowatt laser and start up optical in Wilsonville with a 10 watt optical laser and high optical robots. Possibly make it a certificate program. The funds will become available in 2016. Has 500K for toys. Still has to go thru senate yet. Wants to bring Klamath Falls into the research area.

Steve M. Robotics – hoping to offer certificate programs and a Master's program to have better taught students in robotics and metrology.

Steve H. Tech shift busy very much digital – uses CREO and MPSE. Wind-chill for PDM side MFG Engineering concerns how planes are built – used to CAD shots – Dataset flows manufacturing and into manuals. Digitally controlled laser tech for installing tools into aircraft.

Dan Pro E windmill uses everything Steve just said.

Steve M. Catia – velocity as built for 87.

David C. Cad Cam – Taught PLM to Master students – lightweight 3D data 10% of data being utilized by engineers. CREO/Catia under PLM program important area to continue to increase knowledge of PLM/PDM. Makes them more knowledgeable and marketable – cross paths works together for team work – missing link API – utilizes. Sharing data – real time trend gaining steam.

Steve H. Staffed enterprise resource leader CAD ERP wind-chill utilized – engineers doing non engineer work. Traditionally IT work – gap in communication. Develop student skills in this area.

Wangping CAD Catia administration encourages getting rid of CATIA. How does industry feel?

Rico P. – At Livermore they use Pro E – it would be nice if they had the training. Get the best deal you can and teach the students how to use it.

John V. Up and coming one is Solidworks – a lot of companies cannot afford Catia. From recent graduates what are companies using when they go out into the work field.

Dan uses Cross the board – get the best financial deal – teach students how to use it.

John Agrees – best deal very important. Students know they will be exposed to multiple programs. Solid Works easy to use and apply.

Steve M. Not moving from CATIA.

Steve H. What is common software used?

David Solid works in the finite eliminate analysis CREO certified soli works campus 14 passes certification.

David Parametric Modeling – work done in CREO prepares you for everything – all packages fairly equal.

Randy P. Solid work packages about 30 they have 200 people who know solid works.

David Much more reliable - blurs line between software.

Steve E. Exposure to software was an edge in an interview.

Jeff Inquires why required to learn software? Randy wrote an exposé on why he believes CREO is best. Parametric modeling learn how to do it that way other software becomes easy to use.

Steve H. Have Barb distribute.

Irina Students struggle with CREO at the beginning but used it later.

Steve M. It is a software that becomes easier to use later on but not at the beginning

Steve H. Teach digital manufacturing - errors in reporting pushing up front.

Steve M. Do we still have FANUC robots?

Steve E. Steve is FANUC certified – attempting to get the ball rolling on FANUC Robots.

Steve M. Knowledge differentiates them from others.

Don FANUC is one of the best robots. What's going on with the controller? Have to know how to use kinematics. Combine vision technology. Using technology PLC and vision combine technologies required for MFG, MET & ME elective.

Steve E. Students learn hands on – understanding their function.

Joe As automation becomes more needed by industry in general should we consider expanding so it becomes at least an elective?

Page Four

John V. 3rd year MECOP Inc. placed 600 interns this year, 545 last year and 470 the year before. The demand is there. In application process for juniors – 600 applicants for 320 positions. Need instructors and advisors to work with students on professional polish. Interviews are a major part of hiring process. OIT doubled applicants from last year.

John 600 @ 20K ea. Program is strong. Added University of Portland this year so now have OSU, OIT, U of O, and PSU. Bring on more competition – the best students get the job.

Brian 600 X 20K is 12 mil. OIT topped 50 students – double 4 years ago – 30 out of MMET the rest out of other majors. Meeting Monday with new Director of Career Services from Wilsonville. Will work on mock interviews. Last year -0- applied from Wilsonville.

John Have a lot this year. Pushing 130 ME apps. They should say they are interested in Industrial Engineering and Manufacturing track to get a MECOP position. The demand is there – 330 will be the max. out of 600+ applicants.

Joe Do they apply in the spring?

Brian March 1st – 31st. Past application cut off. Posted on wall outside MMET, emailed, on the reader board and on the TVs around campus.

John To get in to MECOP high school grads must have at least a 3.9 GPA. 100 for that category – pre-placement guaranteed a spot in MECOP if they keep their grades up and stay in engineering.

Randy P. For interviews 1/7 criteria Grades/Technical Aspect/Problem Solving and questions about how do you work in teams? What are complicated Tech Problem you had? How do you choose corrective actions? Raised minimums for admitted to program. Must have at least a 3.0 GPA looking for applicants who can be a team player, problem solver, etc.

John Retention is approximately 30% higher for MECOP applicants – returns are better

Randy A lot of statistics on that. What are the main geographical areas?

John V. Boeing is our largest northern member.

John Bakersfield, Seattle, Eastern Oregon with a few exceptions – would love to have Lawrence Livermore as a member. Should have MECOP students.

Randy P. Gets 200 of local students for free. Main Lawrence Livermore site is in Livermore, Tracy and Los Alamos. New test site in Nevada.

Steve M. University assessment next item. David is not here – Jeff has to leave. Latest data for student success rate, starting salaries?

Joe Students talked about success in work field. Wood products doing well – Jeld Wen is going strong.

Wangping Small student population approx. 92 students 90% working students. Posting positions – success of students – very satisfactory.

Randy Where are we at with LEOT?

Charlie Laser option within EE program. A number of students are taking the option. They may be far enough along to graduate this year.

David Assessment – David is the Program Director for MET and Assessment. We had an ABET visit in October and have responded to ABET – final comments will come out in July. Wants to talk about policy for assessment – continuous improvement key aspects – participation in a comprehensive academic assessment activity. Stay in line with industry needs. We need quantative data from assessment. Students demonstrating proficiency each year. 3 - 4 overall institutional processes we can align with the mission and institutional objectives. Program Educational Objectives for IAB - MET & MFG similar in objectives – there is a difference between ME & MFG positions. We need to look at expectations of students 4 – 5 years out after graduation. Should include words implement and maintain in MET & MFG objectives. Any feedback or comments?

> IAC suggested we put “professional development” into the Educational Learning Objectives
> IAC (at the Wilsonville side) suggested they offer more daytime classes so that the ME & MET students can utilize the daytime resources in Wilsonville more.

Charlie Request by ABET to review objectives periodically with IAB.

Dan Why does school need to pursue professional development?

David – Careers in engineering, pursuit of certification in other areas, preparation for the professional exams, certification in Solid Works, are all part of the foundation for entering the workforce.

Sean Each year we should ping on alumni in indirect assessment by surveys.

Randy Are there enrichment programs offered to alumni?

Steve M. Boeing has a great relationship with OIT. We offer a Masters at Boeing in MFG, combine manufacturing and design skill sets. We could do a better job reaching out to alumni. Corrective action – they get great analytical skills – long history of OIT grads.

Sean Get to know students and they keep in touch.

Steve H. How do we improve our relationship with alumni?

Randy Encourage continued educational development.

Page six

Steve E. One issue pointed out by ABET some of the assessments were missing components i.e. rubrics, score sheets, over all descriptions. Showed the old and new learning outcomes rubrics had to be changed to reflect changes in A –K. E did not change too much. M-1 & M-2 were rewritten. They are pretty broad and covers the whole program and a multiple of classes. Continuous improvement and industrial organization and management.

Wangping You are the expert – highlight the major differences between MFG & MET.

David Not much change- fairly general goals for graduates 4 – 5 years out.

Randy What was change between educational objectives?

David Curriculum maps explain difference between two programs. MET goes to mechanical. MFG programming tools – assessment schedule SLO A EAC & ETIC numbered differently – What class will be used for assessment? Which class needs examples collected. All assessment reports on website for last 5 years. Faculty completed a score sheet – there may be 5 different categories in each SLO. Assessment to improve program – reemphasize course improvement – updating SLO & Rubrics to better meet needs.

Steve Do you see improvement in identified areas?

David Sometimes identifying the expectations of the SLOs

John Glen Mission statement for ME is the same. Program Objective changes made from 2 years ago. Graduate studies – very similar. ABET changes procedure – IAC feedback is closing the loop for ABET.

John Send ABET info to the IAC for review.

Jim Barrett Joined also Brittany Miles.

Charlie John Glen writing self-study.

Don What is hiring rate at Boeing? Do we have data? A-K for ME has not changed. Differences thermal and mechanical systems.

John Can we send info in word document – David will convert to word.

Steve H. Any IAC comments?

Steve M. Likes the way ABET is going with the scoring.

Brittany Interact with industry. OIT is training students for real world scenarios in the work field. Industry thinking what they can do for summer internships and senior projects. Can Don talk about industry project?

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Don Working on two projects. Last year received a grant from Oregon Best and reviewed what work had been done. Needs to find out more about trends, needs. They are doing very well. OIT wants to keep all the materials they purchased with grant money. Need to collaborate more – students don't worry about money.

Brittany Went with a company pulling wind and converting to energy as senior project. Need to do better job at working with industry. Can help with expectations of industry, equipment donations. Just one of the avenues students can gain access and internship opportunities. Capitalize on what we are doing. More emphasis on internships vs senior projects. They also are involved with elementary and middle schools. Working with STEP project – will send out packets.

Steve H. Where is the STEM hub?

Brittany In Wilsonville. Teachers posting to the Oregon Connection site. More hands on. Makes industry volunteers feel like they are more involved. Has video conference capabilities.

Joe Mention senior projects and internships. Important timing for senior projects. Need to start in fall so projects can be completed timely. Also get graduates involved.

Brittany Don't have labor or energy to pursue. Needs a company to donate a 3D printer – something that is open and doesn't have a hard dead line is easier to work with. Projects with shorter time lines easier for industry.

Don Internships give students a better chance of being hired at graduation. Request more internships.

Steve H. Where is PCC at?

Jim On a hiring trend – Technology is the new direction – Digital technology – structured light scanning – late add greater automation welding project related stuff

Joe Are you still focusing on lean?

Jim Lean is continuing but woven into the process now

Steve H New members from industry – are there areas we need to focus on?

Joe S. Wood products and composites – should work on Jeld Wen – other Omar Sliper

John V. Deimler, Freightliner, Leatherman, Gerber, Benchmate, Hallmark

Brian Students – Noah Anderson – send an email to brian – ask David to contact Boeing Portland

Joe Are there composites industry in ??? Marcella Minster to contact Accumed. How does the invite process work?

John V. Personal contact – reach out to Alumni

Brian For Portland – contact adjuncts

Barb Probably should send a letter for first invite.

Steve H. Are there any specific needs?

Brian Need heat curing oven – have been without one for several years

Steve H. What size oven?

Brian Any size 3 ½ by 6 ½ X 2' height – Ambush has a water pick and we may be able to work a deal.

Steve What kind of temp?

Joe 350 degrees

Joe We need foam for building molds

Steve H. What density?

Joe Higher density is better for building molds – more expensive but builds a better mold.

Wangping In process of purchasing hydraulic cleaners for GDT lab. Needs for labs – had Epson 1400 robot donated for automation. It is too large for Wilsonville lab and will probably move it to Klamath Falls. Students take machining courses at PCC. Needs a machining lab at Wilsonville campus.

Sean OJ System – hand held one for 30K – point at sub strength would identify steel HVAC – old DAV and modify as HVAC. Needs a diamond saw – lower speed needs higher speed camera to identify chemical flow – formula fluid distribution see what's going on in a freeze frame. It is 15K High speed opens up a lot of things we can show the students as to what is going on.

David ABET accreditation visit – every six years we have a re-accreditation visit – put together a self-study for each year of our programs. A lot of work went into the October visit. Faculty development, lab equipment, supporting education and experience – totaled 5 days for 3 campuses – they attended classes and met with students and administration.

Findings have a ranking – weaknesses are pretty severe – concerns are a little lower – how do you do this? Etc. Pre-reqs not being done right. Courses are being taken out of sequence – co-requisites, etc. Boeing is a little different where everyone is already employed and have field experience. Confusion over difference between ME & MET SLOs are out of date with website/co-mingling of program data for ME/MET critiquing program, finding logistics. MFG/MET have low enrollment – finding ways to work around low enrollment and courses only offered in spring w/o putting students out of sequence. Upcoming visit for EAC coming in spring. Preview days are growing. Everything submitted on ABET is through the Dean's office.

Charlie Did not have any deficiencies – noted faculty were well equipped and teaching well. People were passionate – hands on and applied was noted and appreciated.

Steve H. Announcements – Looking for permanent Program Director in Seattle – Wangping working hard in Wilsonville to grow themselves.

Jeff Klamath Falls is in need of adjuncts. Historically 2 IAB meetings per year or would it be better to have one a year? Is there an IAB requirement? ABET prefers two a year.

Charlie Would like to see it stay at two.

John V. Once a year may be too infrequent. Think spring and fall is a good thing. If we go to once a year and you miss one year you are out two years.

Steve M. Likes meeting with the students twice a year.

Pat K. Keep at two – it is hard to build relationships once a year.

Steve M. Invite students – it is great hearing about their projects and externships, etc.

Tentative date for fall meeting? October 16th, 2015 8 to noon. Invite a student.

David Culler OIT has been hosting Project Lead The Way for 10 years now. This year introducing the new elementary program LAUNCH.

Charlie Governance is changing – state board pulled out – 4 small universities under smaller system. Got approval for individual boards – Oregon techs President will now report to a single board. OUS will go away HEC Higher Education Coordinator new board takes over July 1, 2015. We now have solar panels on the hillside and a new power station. University going thru redo of Gen Ed programs – affected SLOs already. Dean of HAS retiring June 30th.

John V. What is board make-up?

Charlie 14 plus President (non-voting) 1 faculty, 1 non-teaching, industry, governing

Adjourned 2:12