Bachelor of Science in Mechanical Engineering (BSME)
2020 - 2021 Program Assessment Report

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This report documents the assessment activities undertaken within the Bachelor of Science in Mechanical Engineering (BSME) program at the Oregon Institute of Technology during the 2020-21 academic year.

1. Program Mission and Educational Objectives

The mission statement of the Mechanical Engineering (ME) Program is in-line with and built upon the mission statements of both the Institution and the Department. The ME program's Mission Statement and Program Educational Objectives are stated as:

Mechanical Engineering Program Mission Statement

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

Program Educational Objectives (PEO)

The program expects graduates to achieve, within several years of graduation, the following objectives. Mechanical Engineering graduates will have:

- demonstrated the ability to analyze, design and improve practical thermal and/or mechanical systems.
- shown the ability to communicate effectively and work well on team-based engineering projects.
- succeeded in entry-level mechanical engineering positions.
- pursued continued professional development, including professional registration if desired.
- successfully pursued engineering graduate studies and research if desired.

2. Program Description and History

Program History

The Mechanical Engineering (ME) Program at Oregon Institute of Technology (Oregon Tech) was implemented in fall 2005. It gained initial accreditation by the Engineering Accreditation Commission (EAC) of ABET in fall 2009. Subsequently the program was visited in 2011 and its accreditation continued. The accreditation of the ME program was extended to the Oregon Tech campus in the Seattle, WA area in 2013; and to the Portland-Metro campus in 2018. Enrollment trends from 2015 – 2020 have varied from 205 to 244 students per year in the program.

Program Location: The BSME program is delivered at three campuses within the University –

Klamath Falls, Portland-Metro (in Wilsonville) and Seattle. The MMET Department's other two degree programs (the Bachelor of Science in Mechanical Engineering Technology, BSMET and the Bachelor of Science in Manufacturing Engineering Technology, BSMFG) share a number of common courses with the BSME and thus faculty input from the staff on these programs is also considered when assessing the effectiveness of several Departmental courses.

Program Enrollment:

The program enrollment for each campus, and the program total, are shown below in Table 1 for the last 5 years. Also shown in the % Change in these numbers over the 5-year period.

	2015-16	2016-17	2017-18	2018-19	2019-20	5 Year Difference	5Year % Change
Klamath Falls	205	210	227	241	244	39	19.0%
Portland-Metro	6	13	32	29	42	36	600%
Seattle	120	100	95	88	75	-45	-37.5%
Total	331	323	354	358	361	30	9.1%

Table 1 BSME Program 5-Year Enrollment Data

Program Graduates:

The program graduates for each campus, and the combined total are shown below for the last 5 years.

	2015-16	2016-17	2017-18	2018-19	2019-20
Klamath Falls	28	38	35	38	35
Portland-Metro		2	4	3	8
Seattle	17	12	12	14	12
Total	45	52	51	55	55

Table 2 BSME Program 5-Year Graduate Data

Employment Rates and Salaries:

The Employment rates and salaries for Oregon Tech BSME students shown below. These numbers are the combined results for the 2017/2018/2019 graduating classes.

% Employed	% Continuing Education	% Seeking	% Not Seeking	Medium Salary	Success Rate
96%	1%	3%	1%	$65,000	97%

Table 3 BSME Program Employment Rates and Salaries

3. Program Student Learning Outcomes

The PSLO's for the BSME degree are shown below, and are based on the ABET EAC 1-7 Criterion 3 outcomes.

Upon graduating from the BSME program at Oregon Tech, students should possess:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. an ability to communicate effectively with a range of audiences.
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

4. Curriculum Map

The mapping of the PLSO to the course curriculum are shown below. The BSME PLSO's are closely aligned with the Oregon Tech ESLO's, and are mapped approximately as shown below for the purpose of identifying which BSME program courses which support the Oregon Tech ESLOs. The BSME Program uses the terminology of "Introduced", "Reinforced", and "Emphasized"; which corresponds to the Oregon Tech terms of "Foundation", "Practice", and "Capstone" respectively.

BSME PLSO	Oregon Tech ESLO
1. An ability to solve problems	Quantitative Literacy and Reasoning
2. An ability to apply designs	Diverse Perspectives
3. Communication	Communications
4. Ethics	Ethics and Reasoning
5. Teamwork	Teamwork
6. Experimentation	--
7. Apply Knowledge	Inquiry and Analysis

Table 4 BSME Program PLSO to ELSO Course Outcome Mapping

MMET - Mechanical Engineering - SLO-Curriculum Map

EAC SLO 1: An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics

I = Introduced R = Reinforced E = Emphasized

	Freshman		Sophomore		Junior		Senior	
Fall	MATH if needed	Algebra/ Trig.	MATH 252	Integral Calc	MATH 341	Linear Algebra	ENGR 491	MMET Sen Proj I
	ENGR 111	Orient I	MECH 260	Engr Materials I	MECH 318	Fluid Mechanics	MECH 323	Heat Transfer I
	WRI 121	Eng Comp	MET 242	CAD II	MECH 363	Engr Instrument	MECH 351	Fin Elem Anal
	CHE 201	Gen. Chem I	PHY 221	Gen Phy I w/calculus	MET 375	Solid Modeling	MECH Elective	Engr/Mech 407 / other
	CHE 204	Chem Lab I	WRI 122 /227	Arg or Tech Report Wri	MATH Statistics	Statistics Requiremnt	Fluid Mech II	Fluids II
	Hum or Soc Sci	Elective					WRI 327	Adv Tech Wr
Win	MATH if needed	Algebra/ Trig.	ENGR 211	Engr Mech Statics	ENGR 212	Engr Mech Dynamics	ENGR 492	MMET Sen Proj II
	CHE 202	Gen Chem II	Math 254	Vector Calc I	ENGR 355	Thermo – Dynamics I	MECH 437	Heat Transfer II
	CHE 205	Chem Lab	MFG 314	Geom Dim & Tolerance	MECH 315	Machine Design I	MECH 480	Mechanical Vibrations
	MFG 103	Intro Welding	PHY 222	Gen Phy II w/calculus	ENGR 326	Elec Pwr Systems	PHIL 331	Ethics in Professions
	SPE 111	Public Speaking			MECH 360	Engr Materials II	MECH Elective	Engr/Mech 407 / other
	Hum or Soc Sci	Elective			SPE 321	Small Grp/ Team Comm		
Spr	MATH 251	Diff Calc	ENGR 213	Engr Mech Strengths	MATH 451	Numerical Mthds I	ENGR 493	MMET Sen Proj III
	MFG 120	Machine Process	ENGR 236	Fund of Elect Circuits	MECH 313	Thermo – Dynamics II	MECH 436	Class Ctrl Systems
	MET 241	CAD I	ENGR 266	Engr Computation	MECH 316	Machine Design II	MECH Elective	Engr/Mech 407 / other
	ECON 201/201	Econ Elective	MATH 321	Appl. Diff. Equations	MECH Elective	Engr/Mech 407 / other	MGT 345	Engr Economy
			PHY 223	Gen Phy III w/calculus	HUM 125	Intro Tech, Soc, Value	Hum or Soc Sci	Elective

MMET - Mechanical Engineering - SLO-Curriculum Map

EAC SLO 2: An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors

I = Introduced R = Reinforced E = Emphasized

	Freshman		Sophomore		Junior		Senior	
Fall	MATH if needed	Algebra/ Trig.	MATH 252	Integral Calc	MATH 341	Linear Algebra	ENGR 491	MMET Sen Proj I
	ENGR 111	Orient I	MECH 260	Engr Materials I	MECH 318	Fluid Mechanics	MECH 323	Heat Transfer I
	WRI 121	Eng Comp	MET 242	CAD II	MECH 363	Engr Instrument	MECH 351	Fin Elem Anal
	CHE 201	Gen. Chem I	PHY 221	Gen Phy I w/calculus	MET 375	Solid Modeling	MECH Elective	Engr/Mech 407 / other
	CHE 204	Chem Lab I	WRI 122 /227	Arg or Tech Report Wri	MATH Statistics	Statistics Requiremnt	Fluid Mech II	Fluids II
	Hum or Soc Sci	Elective					WRI 327	Adv Tech Wr
Win	MATH if needed	Algebra/ Trig.	ENGR 211	Engr Mech Statics	ENGR 212	Engr Mech Dynamics	ENGR 492	MMET Sen Proj II
	CHE 202	Gen Chem II	Math 254	Vector Calc I	ENGR 355	Thermo – Dynamics I	MECH 437	Heat Transfer II
	CHE 205	Chem Lab	MFG 314	Geom Dim & Tolerance	MECH 315	Machine Design I	MECH 480	Mechanical Vibrations
	MFG 103	Intro Welding	PHY 222	Gen Phy II w/calculus	ENGR 326	Elec Pwr Systems	PHIL 331	Ethics in Professions
	SPE 111	Public Speaking			MECH 360	Engr Materials II	MECH Elective	Engr/Mech 407 / other
	Hum or Soc Sci	Elective			SPE 321	Small Grp/ Team Comm		
Spr	MATH 251	Diff Calc	ENGR 213	Engr Mech Strengths	MATH 451	Numerical Mthds I	ENGR 493	MMET Sen Proj III
	MFG 120	Machine Process	ENGR 236	Fund of Elect Circuits	MECH 313	Thermo – Dynamics II	MECH 436	Class Ctrl Systems
	MET 241	CAD I	ENGR 266	Engr Computation	MECH 316	Machine Design II	MECH Elective	Engr/Mech 407 / other
	ECON 201/201	Econ Elective	MATH 321	Appl. Diff. Equations	MECH Elective	Engr/Mech 407 / other	MGT 345	Engr Economy
			PHY 223	Gen Phy III w/calculus	HUM 125	Intro Tech, Soc, Value	Hum or Soc Sci	Elective

MMET - Mechanical Engineering - SLO-Curriculum Map

EAC SLO 3 An ability to communicate effectively with a range of audiences

I = Introduced R = Reinforced E = Emphasized

	Freshman		Sophomore		Junior		Senior	
Fall	MATH if needed	Algebra/ Trig.	MATH 252	Integral Calc	MATH 341	Linear Algebra	ENGR 491	MMET Sen Proj I
	ENGR 111	Orient I	MECH 260	Engr Materials I	MECH 318	Fluid Mechanics	MECH 323	Heat Transfer I
	WRI 121	Eng Comp	MET 242	CAD II	MECH 363	Engr Instrument	MECH 351	Fin Elem Anal
	CHE 201	Gen. Chem I	PHY 221	Gen Phy I w/calculus	MET 375	Solid Modeling	MECH Elective	Engr/Mech 407 / other
	CHE 204	Chem Lab I	WRI 122 /227	Arg or Tech Report Wri	MATH Statistics	Statistics Requiremnt	Fluid Mech II	Fluids II
	Hum or Soc Sci	Elective					WRI 327	Adv Tech Wr
Win	MATH if needed	Algebra/ Trig.	ENGR 211	Engr Mech Statics	ENGR 212	Engr Mech Dynamics	ENGR 492	MMET Sen Proj II
	CHE 202	Gen Chem II	Math 254	Vector Calc I	ENGR 355	Thermo – Dynamics I	MECH 437	Heat Transfer II
	CHE 205	Chem Lab	MFG 314	Geom Dim & Tolerance	MECH 315	Machine Design I	MECH 480	Mechanical Vibrations
	MFG 103	Intro Welding	PHY 222	Gen Phy II w/calculus	ENGR 326	Elec Pwr Systems	PHIL 331	Ethics in Professions
	SPE 111	Public Speaking			MECH 360	Engr Materials II	MECH Elective	Engr/Mech 407 / other
	Hum or Soc Sci	Elective			SPE 321	Small Grp/ Team Comm		
Spr	MATH 251	Diff Calc	ENGR 213	Engr Mech Strengths	MATH 451	Numerical Mthds I	ENGR 493	MMET Sen Proj III
	MFG 120	Machine Process	ENGR 236	Fund of Elect Circuits	MECH 313	Thermo – Dynamics II	MECH 436	Class Ctrl Systems
	MET 241	CAD I	ENGR 266	Engr Computation	MECH 316	Machine Design II	MECH Elective	Engr/Mech 407 / other
	ECON 201/201	Econ Elective	MATH 321	Appl. Diff. Equations	MECH Elective	Engr/Mech 407 / other	MGT 345	Engr Economy
			PHY 223	Gen Phy III w/calculus	HUM 125	Intro Tech, Soc, Value	Hum or Soc Sci	Elective

MMET - Mechanical Engineering - SLO-Curriculum Map

EAC SLO 4: An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts

I = Introduced R = Reinforced E = Emphasized

	Freshman		Sophomore		Junior		Senior	
Fall	MATH if needed	Algebra/ Trig.	MATH 252	Integral Calc	MATH 341	Linear Algebra	ENGR 491	MMET Sen Proj I
	ENGR 111	Orient I	MECH 260	Engr Materials I	MECH 318	Fluid Mechanics	MECH 323	Heat Transfer I
	WRI 121	Eng Comp	MET 242	CAD II	MECH 363	Engr Instrument	MECH 351	Fin Elem Anal
	CHE 201	Gen. Chem I	PHY 221	Gen Phy I w/calculus	MET 375	Solid Modeling	MECH Elective	Engr/Mech 407 / other
	CHE 204	Chem Lab I	WRI 122 /227	Arg or Tech Report Wri	MATH Statistics	Statistics Requiremnt	Fluid Mech II	Fluids II
	Hum or Soc Sci	Elective					WRI 327	Adv Tech Wr
Win	MATH if needed	Algebra/ Trig.	ENGR 211	Engr Mech Statics	ENGR 212	Engr Mech Dynamics	ENGR 492	MMET Sen Proj II
	CHE 202	Gen Chem II	Math 254	Vector Calc I	ENGR 355	Thermo – Dynamics I	MECH 437	Heat Transfer II
	CHE 205	Chem Lab	MFG 314	Geom Dim & Tolerance	MECH 315	Machine Design I	MECH 480	Mechanical Vibrations
	MFG 103	Intro Welding	PHY 222	Gen Phy II w/calculus	ENGR 326	Elec Pwr Systems	PHIL 331	Ethics in Professions
	SPE 111	Public Speaking			MECH 360	Engr Materials II	MECH Elective	Engr/Mech 407 / other
	Hum or Soc Sci	Elective			SPE 321	Small Grp/ Team Comm		
Spr	MATH 251	Diff Calc	ENGR 213	Engr Mech Strengths	MATH 451	Numerical Mthds I	ENGR 493	MMET Sen Proj III
	MFG 120	Machine Process	ENGR 236	Fund of Elect Circuits	MECH 313	Thermo – Dynamics II	MECH 436	Class Ctrl Systems
	MET 241	CAD I	ENGR 266	Engr Computation	MECH 316	Machine Design II	MECH Elective	Engr/Mech 407 / other
	ECON 201/201	Econ Elective	MATH 321	Appl. Diff. Equations	MECH Elective	Engr/Mech 407 / other	MGT 345	Engr Economy
			PHY 223	Gen Phy III w/calculus	HUM 125	Intro Tech, Soc, Value	Hum or Soc Sci	Elective

MMET - Mechanical Engineering - SLO-Curriculum Map

EAC SLO 5: An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives

I = Introduced R = Reinforced E = Emphasized

	Freshman		Sophomore		Junior		Senior	
Fall	MATH if needed	Algebra/ Trig.	MATH 252	Integral Calc	MATH 341	Linear Algebra	ENGR 491	MMET Sen Proj I
	ENGR 111	Orient I	MECH 260	Engr Materials I	MECH 318	Fluid Mechanics	MECH 323	Heat Transfer I
	WRI 121	Eng Comp	MET 242	CAD II	MECH 363	Engr Instrument	MECH 351	Fin Elem Anal
	CHE 201	Gen. Chem I	PHY 221	Gen Phy I w/calculus	MET 375	Solid Modeling	MECH Elective	Engr/Mech 407 / other
	CHE 204	Chem Lab I	WRI 122 /227	Arg or Tech Report Wri	MATH Statistics	Statistics Requiremnt	Fluid Mech II	Fluids II
	Hum or Soc Sci	Elective					WRI 327	Adv Tech Wr
Win	MATH if needed	Algebra/ Trig.	ENGR 211	Engr Mech Statics	ENGR 212	Engr Mech Dynamics	ENGR 492	MMET Sen Proj II
	CHE 202	Gen Chem II	Math 254	Vector Calc I	ENGR 355	Thermo – Dynamics I	MECH 437	Heat Transfer II
	CHE 205	Chem Lab	MFG 314	Geom Dim & Tolerance	MECH 315	Machine Design I	MECH 480	Mechanical Vibrations
	MFG 103	Intro Welding	PHY 222	Gen Phy II w/calculus	ENGR 326	Elec Pwr Systems	PHIL 331	Ethics in Professions
	SPE 111	Public Speaking			MECH 360	Engr Materials II	MECH Elective	Engr/Mech 407 / other
	Hum or Soc Sci	Elective			SPE 321	Small Grp/ Team Comm		
Spr	MATH 251	Diff Calc	ENGR 213	Engr Mech Strengths	MATH 451	Numerical Mthds I	ENGR 493	MMET Sen Proj III
	MFG 120	Machine Process	ENGR 236	Fund of Elect Circuits	MECH 313	Thermo – Dynamics II	MECH 436	Class Ctrl Systems
	MET 241	CAD I	ENGR 266	Engr Computation	MECH 316	Machine Design II	MECH Elective	Engr/Mech 407 / other
	ECON 201/201	Econ Elective	MATH 321	Appl. Diff. Equations	MECH Elective	Engr/Mech 407 / other	MGT 345	Engr Economy
			PHY 223	Gen Phy III w/calculus	HUM 125	Intro Tech, Soc, Value	Hum or Soc Sci	Elective

MMET - Mechanical Engineering - SLO-Curriculum Map

EAC SLO 6: An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions

I = Introduced R = Reinforced E = Emphasized

	Freshman		Sophomore		Junior		Senior	
Fall	MATH if needed	Algebra/ Trig.	MATH 252	Integral Calc	MATH 341	Linear Algebra	ENGR 491	MMET Sen Proj I
	ENGR 111	Orient I	MECH 260	Engr Materials I	MECH 318	Fluid Mechanics	MECH 323	Heat Transfer I
	WRI 121	Eng Comp	MET 242	CAD II	MECH 363	Engr Instrument	MECH 351	Fin Elem Anal
	CHE 201	Gen. Chem I	PHY 221	Gen Phy I w/calculus	MET 375	Solid Modeling	MECH Elective	Engr/Mech 407 / other
	CHE 204	Chem Lab I	WRI 122 /227	Arg or Tech Report Wri	MATH Statistics	Statistics Requiremnt	Fluid Mech II	Fluids II
	Hum or Soc Sci	Elective					WRI 327	Adv Tech Wr
Win	MATH if needed	Algebra/ Trig.	ENGR 211	Engr Mech Statics	ENGR 212	Engr Mech Dynamics	ENGR 492	MMET Sen Proj II
	CHE 202	Gen Chem II	Math 254	Vector Calc I	ENGR 355	Thermo – Dynamics I	MECH 437	Heat Transfer II
	CHE 205	Chem Lab	MFG 314	Geom Dim & Tolerance	MECH 315	Machine Design I	MECH 480	Mechanical Vibrations
	MFG 103	Intro Welding	PHY 222	Gen Phy II w/calculus	ENGR 326	Elec Pwr Systems	PHIL 331	Ethics in Professions
	SPE 111	Public Speaking			MECH 360	Engr Materials II	MECH Elective	Engr/Mech 407 / other
	Hum or Soc Sci	Elective			SPE 321	Small Grp/ Team Comm		
Spr	MATH 251	Diff Calc	ENGR 213	Engr Mech Strengths	MATH 451	Numerical Mthds I	ENGR 493	MMET Sen Proj III
	MFG 120	Machine Process	ENGR 236	Fund of Elect Circuits	MECH 313	Thermo – Dynamics II	MECH 436	Class Ctrl Systems
	MET 241	CAD I	ENGR 266	Engr Computation	MECH 316	Machine Design II	MECH Elective	Engr/Mech 407 / other
	ECON 201/201	Econ Elective	MATH 321	Appl. Diff. Equations	MECH Elective	Engr/Mech 407 / other	MGT 345	Engr Economy
			PHY 223	Gen Phy III w/calculus	HUM 125	Intro Tech, Soc, Value	Hum or Soc Sci	Elective

MMET - Mechanical Engineering - SLO-Curriculum Map

EAC SLO 7: An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

I = Introduced R = Reinforced E = Emphasized

	Freshman		Sophomore		Junior		Senior	
Fall	MATH if needed	Algebra/ Trig.	MATH 252	Integral Calc	MATH 341	Linear Algebra	ENGR 491	MMET Sen Proj I
	ENGR 111	Orient I	MECH 260	Engr Materials I	MECH 318	Fluid Mechanics	MECH 323	Heat Transfer I
	WRI 121	Eng Comp	MET 242	CAD II	MECH 363	Engr Instrument	MECH 351	Fin Elem Anal
	CHE 201	Gen. Chem I	PHY 221	Gen Phy I w/calculus	MET 375	Solid Modeling	MECH Elective	Engr/Mech 407 / other
	CHE 204	Chem Lab I	WRI 122 /227	Arg or Tech Report Wri	MATH Statistics	Statistics Requiremnt	Fluid Mech II	Fluids II
	Hum or Soc Sci	Elective					WRI 327	Adv Tech Wr
Win	MATH if needed	Algebra/ Trig.	ENGR 211	Engr Mech Statics	ENGR 212	Engr Mech Dynamics	ENGR 492	MMET Sen Proj II
	CHE 202	Gen Chem II	Math 254	Vector Calc I	ENGR 355	Thermo – Dynamics I	MECH 437	Heat Transfer II
	CHE 205	Chem Lab	MFG 314	Geom Dim & Tolerance	MECH 315	Machine Design I	MECH 480	Mechanical Vibrations
	MFG 103	Intro Welding	PHY 222	Gen Phy II w/calculus	ENGR 326	Elec Pwr Systems	PHIL 331	Ethics in Professions
	SPE 111	Public Speaking			MECH 360	Engr Materials II	MECH Elective	Engr/Mech 407 / other
	Hum or Soc Sci	Elective			SPE 321	Small Grp/ Team Comm		
Spr	MATH 251	Diff Calc	ENGR 213	Engr Mech Strengths	MATH 451	Numerical Mthds I	ENGR 493	MMET Sen Proj III
	MFG 120	Machine Process	ENGR 236	Fund of Elect Circuits	MECH 313	Thermo – Dynamics II	MECH 436	Class Ctrl Systems
	MET 241	CAD I	ENGR 266	Engr Computation	MECH 316	Machine Design II	MECH Elective	Engr/Mech 407 / other
	ECON 201/201	Econ Elective	MATH 321	Appl. Diff. Equations	MECH Elective	Engr/Mech 407 / other	MGT 345	Engr Economy
			PHY 223	Gen Phy III w/calculus	HUM 125	Intro Tech, Soc, Value	Hum or Soc Sci	Elective

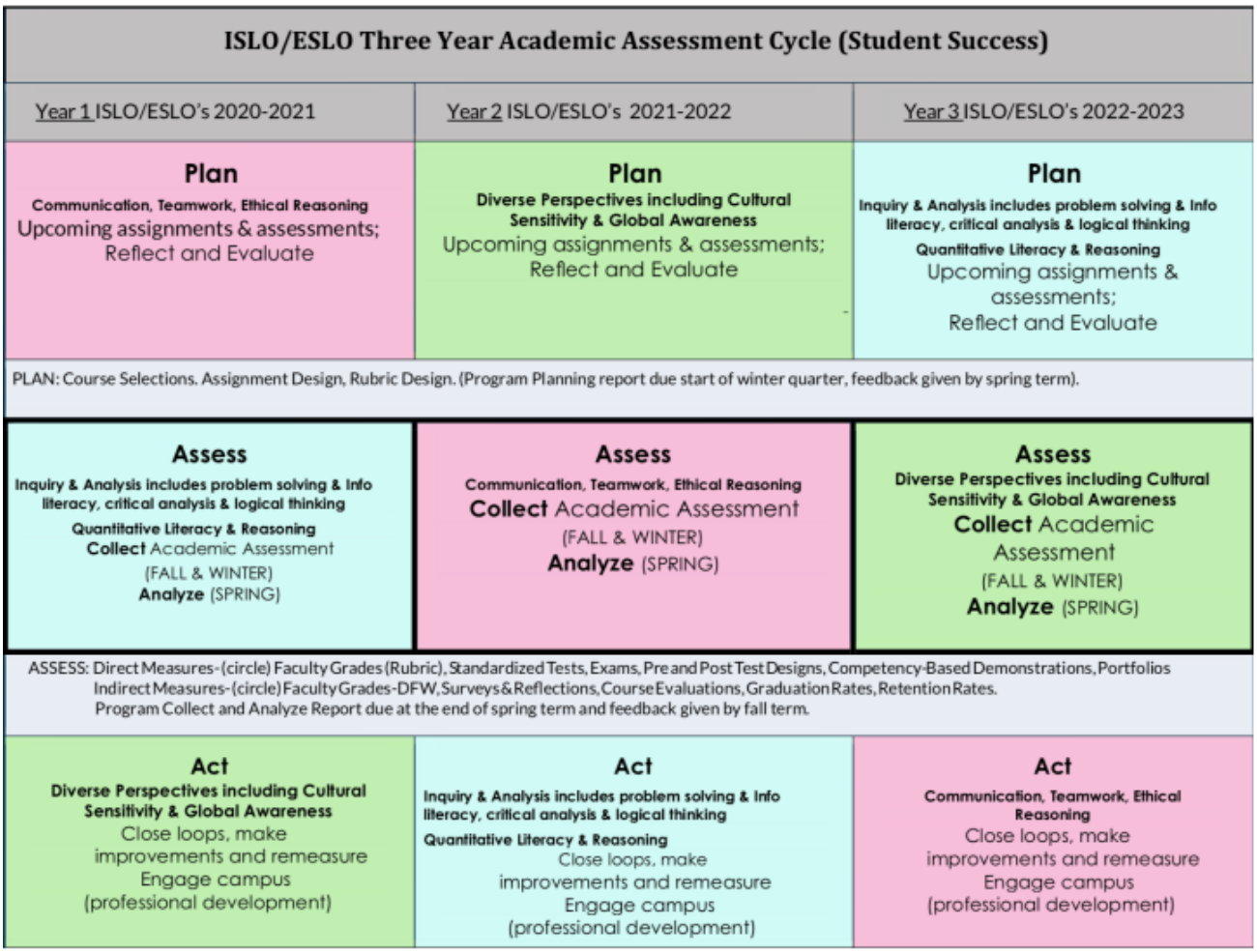
5. Three-Year Cycle for Assessment of Student Learning Outcomes

The BSME program is using a three-year assessment cycle for its SLOs, with the assessment cycle being the same for all three campuses (Table 2). The 2020/21 academic year is the last year of this cycle, and the 2021/22 assessment items will be the same as those for 2018/19.

Assessment Criteria	18/19	19/20	20/21
1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.			✓
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.			✓
3. an ability to communicate effectively with a range of audiences.		✓	
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.	✓		
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.	✓		
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.		✓	
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.		✓	

Table 5: Three-year PLSO assessment cycle timetable

The Oregon Tech ESLO three year Academic Assessment Cycle is shown below.



ISLO/ESLO Three Year Academic Assessment Cycle (Student Success)		
Year 1 ISLO/ESLO's 2020-2021	Year 2 ISLO/ESLO's 2021-2022	Year 3 ISLO/ESLO's 2022-2023
Plan **Communication, Teamwork, Ethical Reasoning** Upcoming assignments & assessments; Reflect and Evaluate	**Plan** **Diverse Perspectives including Cultural Sensitivity & Global Awareness** Upcoming assignments & assessments; Reflect and Evaluate	**Plan** **Inquiry & Analysis includes problem solving & Info literacy, critical analysis & logical thinking** **Quantitative Literacy & Reasoning** Upcoming assignments & assessments; Reflect and Evaluate
PLAN: Course Selections. Assignment Design, Rubric Design. (Program Planning report due start of winter quarter, feedback given by spring term).		
Assess **Inquiry & Analysis includes problem solving & Info literacy, critical analysis & logical thinking** **Quantitative Literacy & Reasoning** **Collect** Academic Assessment (FALL & WINTER) **Analyze** (SPRING)	**Assess** **Communication, Teamwork, Ethical Reasoning** **Collect** Academic Assessment (FALL & WINTER) **Analyze** (SPRING)	**Assess** **Diverse Perspectives including Cultural Sensitivity & Global Awareness** **Collect** Academic Assessment (FALL & WINTER) **Analyze** (SPRING)
ASSESS: Direct Measures-(circle) Faculty Grades (Rubric), Standardized Tests, Exams, Pre and Post Test Designs, Competency-Based Demonstrations, Portfolios Indirect Measures-(circle) Faculty Grades-DFW, Surveys & Reflections, Course Evaluations, Graduation Rates, Retention Rates. Program Collect and Analyze Report due at the end of spring term and feedback given by fall term.		
Act **Diverse Perspectives including Cultural Sensitivity & Global Awareness** Close loops, make improvements and remeasure Engage campus (professional development)	**Act** **Inquiry & Analysis includes problem solving & Info literacy, critical analysis & logical thinking** **Quantitative Literacy & Reasoning** Close loops, make improvements and remeasure Engage campus (professional development)	**Act** **Communication, Teamwork, Ethical Reasoning** Close loops, make improvements and remeasure Engage campus (professional development)

Table 6 Oregon Tech ESLO 3-Year Cycle

6. Assessment Activities Undertaken 2020/21

The MMET department conducted assessments of two PSLOs (#1 and #2) during the 2020-2021 academic year, and two ESLO's (ESLO#2 Inquiry & Analysis, and ESLO#5 Quantitative Literacy & Reasoning).

The results for these assessments for the three campuses are shown below. The MMET Assessment Plan calls for 2 direct assessments, and one indirect assessment for each outcome. The two direct assessments should be done for each outcome at each of the three campuses where the BSME degree is offered.

This indirect assessment was done via an "Exit Survey" sent out by the office of Assessment. Data for this survey was not broken down by campus, so the indirect assessments are shown

for the BSME Program as a whole. It is recommended that in the future the indirect assessment data should be separated by campus.

A total of 29 students gave responses to this survey. Also, the BSME Program's goal is to have 80% of our students score at a 3 or 4 level on a 1-4 scale. Unfortunately the scale used for this exit survey was 1-5. For purposes of this report we have set the goal of 80 % of the students scoring at a 4 or a 5; plus ½ of the students scoring at a 3.

PSLO #1 an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

Indirect Assessment (combined all campuses):

The exit survey showed that out of the 29 responses, the students rated themselves as follows on a 1-5 scale (with 1 being the lowest and 5 the highest), see Table 7 below:

BSME PSLO #1	Number of Students	%
1	0	0%
2	1	3.45%
3	5	17.24%
4	14	48.28%
5	9	31.03%
Total	29	100%

Table 7 PSLO #1 Indirect Assessment Results

There were 23 students scoring at a 4 or 5 level; and adding in ½ of the students scoring at a 3 level gives 25.5 out of 29 students, which is 87.9%. This is above the 80% level set by the BSME Program, and indicates that from a student's perspective there is no action required at this point of time.

Direct Assessments

The Performance Criteria to consider in assessing this outcome are:

- Identifies an engineering problem
- Formulate a plan with will lead to a solution, including making appropriate assumptions
- Identify the engineering principles that govern the performance of a given process or system, and use these to analyze the problem (utilizing appropriate hardware and software technology tools).
- Apply scientific principles that govern the performance of a given process or system in engineering problem(s)
- Apply math principles to obtain analytical or numerical solution(s) to an

engineering problem.

Klamath Falls Campus Assessments:

Direct Assessment #1 Klamath Campus

The faculty assessed this outcome in MECH 437 Heat Transfer II during the winter term 2021, using a project scored with a rubric. There were 25 mechanical engineering students involved in the assessment; the results are shown below in Table 8.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	Results
Identify an engineering problem	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	N/A
Formulate a Plan	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	N/A
Identify the engineering principles	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	88%
Apply scientific principles that govern the performance	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	92%
Apply math principles to obtain analytical or numerical solution(s)	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	88%

Table 8. BSME Assessment Results for PSLO #1, Winter 2021, Klamath Campus

Strengths: The students performed very well in applying scientific principles to their project.

Weaknesses: No weaknesses were identified.

Actions: The assessment was assigned after the students already finished their work. The project was assigned as a hybrid individual/group project. Some of the assessment criteria were performed as a group, so these were not evaluated. The groups gave an oral presentation, a couple of sample presentations are included with the student work. It is recommended that assessment assignments be given out before the start of the academic term.

Direct Assessment #2 Klamath Campus

The faculty assessed this outcome in MECH 318 Fluid Mechanics I during the fall term 2020, using a lab experiment scored with a rubric. There were 22 mechanical engineering students involved in the assessment (students from other majors are shown in the archived evaluation of this assignment, but only results from BSME students are included in the table below); the results are shown below in Table 9.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	Results
Identify an engineering problem	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	90.9%
Formulate a Plan	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	95.5%
Identify the engineering principles	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	81.8%
Apply scientific principles that govern the performance	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	72.7%
Apply math principles to obtain analytical or numerical solution(s)	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	77.3%

Table 9. BSME Assessment Results for PSLO #1, Fall 2020, Klamath Campus

Strengths: The students performed very well identifying an engineering problem and formulating a plan.

Weaknesses: Students scored below the 80% performance criteria in both applying scientific principles and applying math principles.

Actions: The assessment was assigned after the students already finished their work. It is recommended that assessment assignments be given out before the start of the academic term. It is also recommended that only BSME student results be shown by the course instructor, and any observations be held to just the BSME students.

Portland-Metro Campus

No direct student assessments were done at the Portland-Metro Campus for this PSLO.

Seattle Campus

Direct Assessment #1 Seattle Campus

The faculty assessed this outcome in ENGR 212 Dynamics during the fall term 2020, using the course final scored with a rubric. There were 5 mechanical engineering students involved in the assessment; the results are shown below in Table 10.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	Results
Identify an engineering problem	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	80%
Formulate a Plan	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	80%
Identify the engineering principles	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	80%
Apply scientific principles that govern the performance	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	100%
Apply math principles to obtain analytical or numerical solution(s)	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	100%

Table 10. BSME Assessment Results for PSLO #1, Fall 2020, Seattle Campus

Strengths: All students performed well.

Weaknesses: No weaknesses were identified.

Actions: The assessment was assigned after the students already finished their work. It is recommended that assessment assignments be given out before the start of the academic term.

Summary Recommendations for PSLO #1:

The results shown above indicate that the students may have a problem in applying both scientific principles and math to solve engineering problems at the Klamath Falls campus. Closer observations should be made the next time this PSLO is evaluated.

It is recommended that the assessments should be assigned before the start of the academic term. It is also recommended that only BSME student results be shown by the course instructor, and any observations be held to just the BSME students.

PSLO #2 an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.

Indirect Assessment (combined all campuses):

The exit survey showed that out of the 29 responses, the students rated themselves as follows on a 1-5 scale (with 1 being the lowest and 5 the highest), shown in Table 11 below:

BSME PSLO #2	Number of Students	%
1	0	0%
2	2	6.90%
3	4	13.79%
4	12	41.38%
5	11	37.93%
Total	29	100%

Table 11 PSLO #2 Indirect Assessment Results

There were 23 students scoring at a 4 or 5 level; and adding in ½ of the students scoring at a 3 level gives 25 out of 29 students, which is 86.2%. This is above the 80% level set by the BSME Program, and indicates that from a student's perspective there is no action required at this point of time.

Direct Assessments

The Performance Criteria to consider in assessing this outcome are:

- Identify an appropriate set of realistic constraints and performance criteria with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
- Create a detailed design/solution within realistic constraints
- Generate one or more creative solutions to meet the criteria and constraints
- Plan and manage a small technical project

Klamath Falls Campus Assessments:

Direct Assessment #1 Klamath Campus

The faculty assessed this outcome in MECH 437 Heat Transfer II during the winter term 2021, using a project scored with a rubric. There were 25 mechanical engineering students involved in the assessment; the results are shown below in Table 12.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	Results
Identify an appropriate set of realistic constraints and performance criteria	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	N/A
Create a detailed design/solution within realistic constraints	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	92%
Generate one or more creative solutions to meet the criteria and constraints	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	N/A
Plan and manage a small technical project	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	N/A

Table 12. ME Assessment Results for PSLO #2, Winter 2021, Klamath Campus

Strengths: The students performed well in creating a detailed design/solution within realistic constraints.

Weaknesses: No weaknesses were identified.

Actions: The assessment was assigned after the students already finished their work. The project was assigned as a hybrid individual/group project. Some of the assessment criteria were performed as a group, so these were not evaluated. The groups gave an oral presentation, a couple of sample presentations are included with the student work. It is recommended that assessment assignments be given out before the start of the academic term.

Direct Assessment #2 Klamath Campus

The faculty assessed this outcome in ENGR 213 Strength of Materials during the winter term 2021, using a design project scored with a rubric. There were 9 mechanical engineering students involved in the assessment; the results are shown below in Table 13.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	Results
Identify an appropriate set of realistic constraints and performance criteria	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	88.9%

Create a detailed design/solution within realistic constraints	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	88.9%
Generate one or more creative solutions to meet the criteria and constraints	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	88.9%
Plan and manage a small technical project	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	88.9%

Table 13. ME Assessment Results for PSLO #2, Winter 2021, Klamath Campus

Strengths: Eventually students were able to learn some of the iteration tools in Microsoft Excel such as GoalSeek, What-If analysis, and Solver.

Weaknesses: Some students were not enthusiastic about this project as the course instructor hoped they would be.

Actions: The assessment was assigned after the students already finished their work. It is recommended that assessment assignments be given out before the start of the academic term. Perhaps an inclusion of different analytical tools (Matlab and SPSS) might be helpful for students to brainstorm the design problems in the context of statistical variations.

Portland-Metro Campus

No direct student assessments were done at the Portland-Metro Campus for this PSLO.

Seattle Campus

Direct Assessment #1 Seattle Campus

The faculty assessed this outcome in MECH 437 Heat Transfer II during the spring term 2021, using a design project scored with a rubric. There were 4 mechanical engineering students involved in the assessment; the results are shown below in Table 14.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	Results
Identify an appropriate set of realistic constraints and performance criteria	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	N/A
Create a detailed design/solution within realistic constraints	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	75%

Generate one or more creative solutions to meet the criteria and constraints	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	75%
Plan and manage a small technical project	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	75%

Table 14. ME Assessment Results for PSLO #2, Winter 2021, Seattle Campus

Strengths: The students performed generally well and followed the design process.

Weaknesses: Students did not present their work in the format requested.

Actions: The assessment was assigned after the students already finished their work. It is recommended that assessment assignments be given out before the start of the academic term. This would allow for the project submission guidelines to be discussed thoroughly.

Summary Recommendations for PSLO #2:

The results shown above indicate that the BSME students do not have any issues with this Outcome, but more data should be collected the next time this is assessed.

It is recommended that the assessments should be assigned before the start of the academic term. It is also recommended that only BSME student results be shown by the course instructor, and any observations be held to just the BSME students.

ESLO #2 Inquiry & Analysis

Indirect Assessment (combined all campuses):

Unfortunately, the reported responses to this question was a combined score for the entire university, for every major. The BSME-specific responses could not be sorted out from the university-wide response. It is recommended that in the future, that this survey be set up to provide Program-specific reported data. Also, another indirect method to assess the Oregon Tech ESLO should be looked into.

Direct Assessments

The Performance Criteria to consider in assessing this outcome are:

- IDENTIFY: Identifies an engineering problem.
- INVESTIGATE: states, describes, and synthesizes information from relevant sources representing approaches and points of view.
- SUPPORT: elements of the methodology or theoretical framework may be developed or synthesized from across disciplines.

- EVALUATE: Organizes and synthesizes evidence to reveal patterns, differences, or similarities related to subject focus.
- CONCLUDE: States a conclusion that is a logical extrapolation of the inquiry, reflecting the student's informed evaluation and ability to place evidence and perspectives in order.

Klamath Falls Campus Assessments:

Direct Assessment #1 Klamath Campus

The faculty assessed this outcome in MECH 363 Instrumentation during the fall term 2020, using a laboratory report scored with a rubric. There were 25 mechanical engineering students involved in the assessment; the results are shown below in Table 15.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	Results
Identifies an engineering problem	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	88%
States, describes, and synthesizes information from relevant sources representing approaches and points of view	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	100%
Elements of the methodology or theoretical framework may be developed or synthesized from across disciplines	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	88%
Organizes and synthesizes evidence to reveal patterns, differences, or similarities related to subject focus	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	92%
States a conclusion that is a logical extrapolation of the inquiry	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	100%

Table 15. ME Assessment Results for ESLO #2, Fall 2020, Klamath Campus

Strengths: Applying theoretical aspects to real experiments with a variety of sensors.

Weaknesses: No weaknesses were identified.

Actions: The assessment was assigned after the students already finished their work. It is recommended that assessment assignments be given out before the start of the academic term. It is also recommended that only BSME student results be shown by the course instructor, and any observations be held to just the BSME students. Also, having better and/or advanced laboratory equipment would yield better performance.

Direct Assessment #2 Klamath Campus

The faculty assessed this outcome in MECH 407 Computational Fluid Dynamics (BSME Elective course) during the winter term 2022 (using 2022 data due to the cancellation of this course in 2021), using a CFD problem scored with a rubric. There were 15 mechanical engineering students involved in the assessment; the results are shown below in Table 16.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	Results
Identifies an engineering problem	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	93.3%
States, describes, and synthesizes information from relevant sources representing approaches and points of view	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	100%
Elements of the methodology or theoretical framework may be developed or synthesized from across disciplines	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	93.3%
Organizes and synthesizes evidence to reveal patterns, differences, or similarities related to subject focus	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	93.3%
States a conclusion that is a logical extrapolation of the inquiry	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	93.3%

Table 16. ME Assessment Results for ESLO #2, Fall 2020, Klamath Campus

Strengths: Students CAD background was good once a model was created. Students were not afraid to attempt doctoral level CFD (Xients, heat transfer, etc).

Weaknesses: Students CAD ability was limited in finding existing CAD models and manipulating others work.

Actions: The assessment was assigned after the students already finished their work. It is recommended that assessment assignments be given out before the start of the academic term. More memory capability for the computers; 0.5 terabyte RAM workstation is on order.

Portland-Metro Campus

No direct student assessments were done at the Portland-Metro Campus for this PSLO.

Seattle Campus

Direct Assessment #1 Seattle Campus

The faculty assessed this outcome in ENGR 355 Thermodynamics during the fall term 2020, using a midterm scored with a rubric. There were 12 mechanical engineering students involved in the assessment; the results are shown below in Table 17.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	Results
Identifies an engineering problem	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	91.7%
States, describes, and synthesizes information from relevant sources representing approaches and points of view	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	91.7%
Elements of the methodology or theoretical framework may be developed or synthesized from across disciplines	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	88.3%
Organizes and synthesizes evidence to reveal patterns, differences, or similarities related to subject focus	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	100%
States a conclusion that is a logical extrapolation of the inquiry	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	83.3%

Table 17. ME Assessment Results for ESLO #2, Fall 2020, Seattle Campus

Strengths: Students performed relatively well.

Weaknesses: No weaknesses were identified.

Actions: The assessment was assigned after the students already finished their work. It is recommended that assessment assignments be given out before the start of the academic term.

Summary Recommendations for ESLO #2:

The results shown above indicate that the BSME students did not have any issues with this Outcome.

It is recommended that assessment assignments be given out before the start of the academic term.

ESLO #5 Quantitative Literacy

Indirect Assessment (combined all campuses):

Unfortunately, the reported responses to this question was a combined score for the entire university, for every major. The BSME-specific responses could not be sorted out from the university-wide response. It is recommended that in the future, that this survey be set up to provide Program-specific reported data. Also, another method of indirect assessment for the Oregon Tech ESLOs should be looked into.

Direct Assessments

The Performance Criteria to consider in assessing this outcome are:

- Calculate: Perform single computations with tools provided.
- Interpret: identify some parts of equations or expressions, interpret data points on graphs, and interpret results of computations literally.
- Construct Representation: Construct graphical models of statistical information in response to instructor prompting.
- Apply in Context: Solve problems using given formulas or frameworks.
- Communicate: Integrate Quantitative evidence (data, etc.) into basic arguments in response to prompts. Quantitative evidence is conveyed and explained in such a way that a competent non-expert reader can follow along.

Klamath Falls Campus Assessments:

Direct Assessment #1 Klamath Campus

The faculty assessed this outcome in MECH 363 Instrumentation during the fall term 2020, using a laboratory report scored with a rubric. There were 24 mechanical

engineering students involved in the assessment; the results are shown below in Table 18.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	Results
Calculate: Perform single computations with tools provided.	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	91.7%
Interpret: identify some parts of equations or expressions, interpret data points on graphs, and interpret results of computations literally.	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	95.8%
Construct Representation: Construct graphical models of statistical information in response to instructor prompting	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	N/A
Apply in Context: Solve problems using given formulas or frameworks.	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	95.8%
Communicate: Integrate Quantitative evidence (data, etc.) into basic arguments in response to prompts.	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	100%

Table 18. ME Assessment Results for ESLO #5, Fall 2020, Klamath Campus

Strengths: Applying theoretical aspects to calculate, interpret, solve problems and communicate each other to the experiments to experience multiple thermal sensors.

Weaknesses: No weaknesses were identified.

Actions: The assessment was assigned after the students already finished their work. It is recommended that assessment assignments be given out before the start of the academic term. It is also recommended that only BSME student results be shown by the course instructor, and any observations be held to just the BSME students.

Direct Assessment #2 Klamath Campus

The faculty assessed this outcome in ENGR 212 Dynamics during the winter term 2021, using the final course exam, scored with a rubric. There were 17 mechanical engineering students involved in the assessment; the results are shown below in Table 19.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	Results
Calculate: Perform single computations with tools provided.	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	82.4%
Interpret: identify some parts of equations or expressions, interpret data points on graphs, and interpret results of computations literally.	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	88.2%
Construct Representation: Construct graphical models of statistical information in response to instructor prompting	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	82.4%
Apply in Context: Solve problems using given formulas or frameworks.	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	82.4%
Communicate: Integrate Quantitative evidence (data, etc.) into basic arguments in response to prompts.	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	88.2%

Table 19. ME Assessment Results for ESLO #5, Fall 2020, Klamath Campus

Strengths: Students were able to participate in class more actively once the relationship between theory and application was established.

Weaknesses: Students struggled with the integral limits. They know how to solve the integral but setting the upper and lower limit was a bit challenging for some.

Actions: The assessment was assigned after the students already finished their work. It is recommended that assessment assignments be given out before the start of the academic term.

Portland-Metro Campus

No direct student assessments were done at the Portland-Metro Campus for this PSLO.

Seattle Campus

Direct Assessment #1 Seattle Campus

The faculty assessed this outcome in MECH 417 Fluid Mechanics II during the spring term 2021, using a midterm test scored with a rubric. There were 5 mechanical engineering students involved in the assessment; the results are shown below in Table 20.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	Results
Calculate: Perform single computations with tools provided.	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	80%
Interpret: identify some parts of equations or expressions, interpret data points on graphs, and interpret results of computations literally.	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	80%
Construct Representation: Construct graphical models of statistical information in response to instructor prompting	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	80%
Apply in Context: Solve problems using given formulas or frameworks.	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	80%%
Communicate: Integrate Quantitative evidence (data, etc.) into basic arguments in response to prompts.	Rubric-scored project	1-4 proficiency scale	80% score 3 or 4	80%%

Table 20. ME Assessment Results for ESLO #5, Fall 2020, Seattle Campus

Strengths: Students scored well and within expectations

Weaknesses: No weaknesses were identified.

Actions: The assessment was assigned after the students already finished their work. It is recommended that assessment assignments be given out before the start of the academic term.

Summary Recommendations for ESLO #5:

The results shown above indicate that the BSME students did not have any issues with this Outcome.

It is recommended that assessment assignments be given out before the start of the academic term. It is also recommended that only BSME student results be shown by the course instructor, and any observations be held to just the BSME students.

7. Data-driven Action Plans: Changes Resulting from Assessment

No changes resulting from assessment were made during the 2020 – 2021 Academic year.

8. Closing the Loop: Evidence of Improvement in Student Learning

No closing the loop activities were performed during the 2020 – 2021 Academic year.