

B.S. Operations Management Oregon Tech Assessment Report 2017-18

Program Description and History

The Operations Management degree at Oregon Tech has undergone several iterations in recent decades. Oregon Tech originally offered an Industrial Management degree; this degree evolved in the mid-1990s into an Industrial Engineering degree which was accredited by ABET. Oregon Tech hoped to increase enrollment with these changes. Enrollment, however, dropped dramatically as students were not interested in an engineering emphasis. In 2002 the curriculum was revised, the ABET accreditation was dropped, and the degree name was changed to Operations Management. Today, the Operations Management program is transfer- friendly, preparing students for leadership positions in the production and service industries. Curriculum enhancements developed in 2014-2015 were rolled out in 2015-2016 and include a new course sequence that offers courses in Materials Management, Logistics Management and Quality Management. This sequence brings additional depth to the Operations Management degree program. This degree option is offered in Klamath Falls and Wilsonville as well as online. The Operations Management degree program was awarded accreditation by the International Assembly of Collegiate Business Educators (IACBE) in 2008 and reaffirmed in 2015.

Program Highlights

Program Enrollment, Graduation and Employment Rates

Total enrollment across all campuses is approximately 71 students; 21 at the Klamath Falls campus, 18 in Wilsonville, and 32 online. The program graduated 24 students for 2018. The three-year annual starting salaries averaged \$59,000. The program has a 98% success rate (within six months of graduation students are employed or in graduate school).

Industry Relationships

Industry relationships for the Operations Management degree program in the 2017-18 assessment period increased in both depth and breadth. These relationships are manifest primarily in internships, senior project opportunities, and job offers after graduation. The growing list of industry partners that demonstrate interest in Operations Management students and graduating seniors (Jeld-Wen, Cascade Health Alliance, Timber Forest Products, Interfor, Rosewood Forest Products and Johnson Controls to name a few) represents tremendous potential for students to engage with industry presently and going forward.

Student Learning Experiences

Of the many hands-on learning opportunities afforded Operations Management students in their coursework over this past assessment period, debatably the largest stand-out for Operations Management students is the number of Lean Six Sigma Green Belt (LSSGB) certifications awarded. The number of certificates awarded in this assessment period met a record number at eleven certificates. Lean Six Sigma is a cataloged emphasis offered at Oregon Tech and culminates in an industry-recognized LSSGB certification demonstrating competency in business problem solving. Each project requires an industry-sponsored project and meets the evidence-based criteria for certification which include appropriate coursework and documented evidence of a completed project using the Define, Measure, Analyze, Improve, Control methodology.

Coupled with the certification projects, another tremendous learning experience is the Senior Project Symposium in May. Students are given the opportunity to present their projects in a formal environment to peers, faculty, industry sponsors, and the community at large.

Success Stories

Operations Management students speak highly of the courses they take as evidenced by course evaluations, but many students also derive and comment on the tremendous learning experiences from the internships and senior projects. Below are two such experiences shared by students via email over this assessment period.

“As you may remember I have had a project manager internship with JELD-WEN Research and Development here in Klamath Falls. This internship has taught me a lot of valuable experience about working with a team, managing resources, maintaining project schedules and many other project management related skills...I was able to work on a great senior project with JW as well”

“After graduation, I ended up taking the Quality Engineer position with Johnson Controls in Canby, Oregon and have been here a little over two months now. It’s a great career and the tasks are really starting to pile up. I can’t even begin to explain how closely related my role as a Quality Engineer is to the courses you taught at OIT so thank you for that!”

Program Purpose

Bachelor of Science in Operations Management Mission

The Operations Management degree prepares students for leadership positions in the production and service industries.

Educational Objectives

1. The Operations Management degree program prepares students for graduate school programs such as the MBA or the MIM.
2. The Operations Management degree program prepares students for supervisory positions in organizations, including for-profit organizations, non-profit organizations, and government organizations.
3. The Operations Management degree program prepares students for M.A.T. programs and future careers in high school education.
4. The Operations Management degree program develops skills in problem solving, project management, communication, and managing effectively in team-based work environments, and prepares students for employment within a wide variety of service and product industries.

Management Department Student Learning Outcomes (SLO)

The Operations Management degree consists of the five core Management Department student learning outcomes. Upon completion of this program, Operations Management graduates will be able to:

1. Communicate the major concepts in the functional areas of accounting, marketing, finance, information technology, and management.
2. Describe the legal, social, ethical, and economic environments of business in a global context.
3. Solve organization problems, individually and/or in teams, using quantitative, qualitative, and technology-enhanced approaches.
4. Demonstrate professional communication and behavior.
5. Apply knowledge of business concepts and functions in an integrated manner.

Program Student Learning Outcomes (PSLO)

Upon completion of this program, Operations Management graduates will be able to:

1. Apply knowledge of fundamental concepts of operations management

2. Apply knowledge of approaches to operational performance improvement

Assessment Cycle

Assessment Schedule

1. **Oregon Tech's Essential Student Learning Outcomes:** ESLOs are assessed on a six-year cycle. The ESLO assessment schedule may be found on the Oregon Tech website under Essential Student Learning Outcomes.
2. **Department Level Student Learning Outcomes:** IACBE requires all accredited institutions to complete a Public Disclosure of Student Achievement on an annual basis. In addition, all outcomes are assessed annually, with the full self-study for IACBE core student learning outcomes (Core SLOs 1-5) completed every seven years.

Outcomes:	Direct	Indirect
Communicate the major concepts in the functional areas of accounting, marketing, finance, information technology, and management.	<ul style="list-style-type: none"> • Case Study • Senior Project 	<ul style="list-style-type: none"> • Senior Exit Survey
Describe the legal, social, ethical, and economic environments of business in a global context.	<ul style="list-style-type: none"> • Case Study • Senior Project 	<ul style="list-style-type: none"> • Senior Exit Survey
Solve organization problems, individually and/or in teams, using quantitative, qualitative, and technology-enhanced approaches.	<ul style="list-style-type: none"> • Case Study • Senior Project 	<ul style="list-style-type: none"> • Senior Exit Survey
Demonstrate professional communication and behavior.	<ul style="list-style-type: none"> • Case Study • Senior Project 	<ul style="list-style-type: none"> • Senior Exit Survey
Apply knowledge of business concepts and functions in an integrated manner.	<ul style="list-style-type: none"> • Case Study • Senior Project 	<ul style="list-style-type: none"> • Senior Exit survey

3. **Program Student Learning Outcomes:** Program Based Annual Assessment Schedule and Activity

Outcomes:	Direct	Indirect
Apply knowledge of fundamental concepts of operations management.	<ul style="list-style-type: none"> • Senior Project 	<ul style="list-style-type: none"> • Senior Exit Survey
Apply knowledge of approaches to operational performance improvement.	<ul style="list-style-type: none"> • Senior Project • Lean Management Assignment 	<ul style="list-style-type: none"> • Senior Exit Survey

Evidence of Improvement in Student Learning

Department Level Student Learning Outcomes, Activities and Results

Management Department			
Program Outcomes	Minimal Acceptable Performance	Assessment	Results
Communicate the major concepts in the functional areas of accounting, marketing, finance, information technology, and management.	80% achieve a rate of 3 or 4	Senior Project N=64	86%
	80% achieve a rate of 3 or 4	Case Study N=82	86.5%
	80% score 4, 5, or 6	Senior Exit Survey N=93	75%
Describe the legal, social, ethical, and economic environments of business in a global context.	80% achieve a rate of 3 or 4.	Senior Project	86%
	80% achieve a rate of 3 or 4	Case Study	90%
	80% score 4, 5, or 6	Senior Exit Survey	90%
Solve organization problems, individually and/or in teams, using quantitative, qualitative, and technology-enhanced approaches.	80% achieve a rate of 3 or 4.	Senior Project	86%
	80% achieve a rate of 3 or 4	Case Study	81%
	80% score 4, 5, or 6	Senior Exit Survey	98%
Demonstrate professional communication and behavior.	80% achieve a rate of 3 or 4.	Senior Project	86%
	80% achieve a rate of 3 or 4	Case Study	97%
	80% score 4, 5, or 6	Senior Exit Survey	100%
Apply knowledge of business concepts and functions in an integrated manner.	80% achieve a rate of 3 or 4	Senior Project	86%
	80% achieve a rate of 3 or 4	Case Study	84%
	80% score 4, 5, or 6	Senior Exit Survey	100%

- **How did past results compare with this year's results?**

Senior Project: The department has seen ongoing improvement over the last several years with this assessment. During the 2014-15 assessment cycle, the department did not meet any of our learning objectives. Each year this has been slowly improved. This was the first year we have met all the minimal acceptable performance levels for all outcomes.

Case Study: The results from the case study assignment have improved over prior years as well. Similar to senior project, during prior years many areas did not meet the targeted performance levels. This year, all student learning objectives were met at 80% and above.

Senior Exit Survey: The results of this year are similar to past years. Areas of concern for student learning are accounting, marketing, finance and information technology. All other

areas connected to the student learning outcomes continue to perform well meeting minimal acceptable performance levels.

- **Can you say the data supports improvements based on the action plan? (i.e. closing the loop).**

Senior Project: The data supports the strategies that we have been employing. Strategies that have been used over the last years have been for faculty teaching senior project to communicate best practices and standards on a regular basis. Faculty have also shared and developed materials that have been shared across the department. Moreover, all faculty, apart from those teaching senior project, are actively working with students to mentor them through the process. For example, Professor Schaeffer mentors students through the greenbelt process while Professor Yates offers feedback on writing.

Case Study: This past year a more unified approach was planned and implemented by faculty teaching the course related to this assignment. Specifically, two years ago we developed a case study assignment that was related to the business simulation used in the Strategic Management course. This assignment not only requires students to apply the knowledge within the business simulation, but also incorporates prior knowledge from their other program course work. This past year the professors utilized this same approach rather than creating assignments individually. Like senior project, the interactions of faculty helped to develop a more cohesive approach that focused on the student learning outcomes.

Senior Exit Survey: In the prior year the department adjusted the survey questions to focus on student learning rather than a series of questions focused on the student's perception of faculty. After making this change, there was no significant changes. Discussion among the faculty showed a concern that the correct wording in the question was still not quite right. Specifically, the question asked students to rate their proficiency in the various student outcomes (i.e. accounting, marketing). Advice from an IACBE representative is that our results are unusual so we want to get the root of this issue.

- **Data-driven Action Plans: Changes Resulting from Assessment**

Senior Project: The faculty would like to find a way to have more than one senior project professor assess the student work. This will allow all faculty to review senior projects and provide feedback for improvement. This will likely be done using a small sample of the projects to discover areas of improvement as well as feedback for faculty teaching senior project courses. These discussions will be conducted in the winter or spring terms within small groups or during a department retreat.

Case Study: The plan for this next year is for the course faculty to continue to discuss their approaches and share ideas for the Strategic Management course and the assignment. As with the senior project refining the approach to this class and assessment may be able to pinpoint areas of improvement.

Senior Exit Survey: Following discussion, the group determined we will make another adjustment to the senior exit survey. Specifically, the word proficiency should be replaced with the word understanding since this will more accurately focus on the question's intent. The goal of this plan is for at least 80% of students being able to rate their understanding of each of the functional areas of business at a high level (4-6). If this does not work this year, the department will need to drill into these courses to determine specific student concerns.

Program Student Learning Outcomes, Activities and Results

Operations Management			N= 20
Program Outcomes	Minimal Acceptable Performance	Assessment	Results
Apply knowledge of fundamental concepts of operations management	80% achieve a rate of 3 or 4	Senior Project	100%
	80% score 4, 5, or 6	Senior Exit Survey	100%
Apply knowledge of approaches to operational performance improvements	80% achieve a rate of 3 or 4.	Senior Project	100%
	80% achieve a rate of 3 or 4	Lean Management Assignment	60%
	80% score 4, 5, or 6	Senior Exit Survey	100%

- **How did past results compare with this year's results?**
 This year's assessment results do not differ appreciably from the previous assessment period. The Operations Management program continues to feel the impact of transition as the department evolves its assessment approaches and learning outcomes at the institution, department and program levels. Regardless, the Operations Management program continues to experience some growth, and student success (in terms of graduation and job placement rates) and reputation of the program within industry have positive trajectories.
- **Can you say the data supports improvements based on the action plan? (i.e. closing the loop).**
 Of primary concern from the previous assessment period was the assessment process itself as it evolves. It remains challenging to achieve consistent year-to-year comparisons and trends. The department must continue to work toward standardized assessment processes and tools for PSLO assessment and reporting. Added value of assessment at the program level could be improved as it relates to promotion of effective and efficient change without adding complication to the assessment process. A more robust closed loop approach to monitor and control program assessments should still be considered for future assessment cycles.
- **Data-driven Action Plans: Changes Resulting from Assessment**
 Assessment processes and tools to achieve a robust closed loop approach to monitor and control the program should still be considered for future assessment cycles. Details of such an approach must be closely coordinated with institutional direction concerning assessment.

Beyond assessment the Operations Management faculty can investigate continued opportunities for collaboration with other departments on campus. Such opportunities include cross-listing courses in Project Management (MGT 335/ENGR 445) Design of Experiments (ENGR 407/MGT 407) and Materials Management (MGT 422/MFG 407). Further opportunities may include involvement with the Oregon Tech Racing Baja club, application of Lean 5s with shops on campus and ongoing creation of additional collaborative learning.

Continued industry learning opportunities are planned for this assessment period in the form of field trips to, and/or interviews with, local businesses.