B.S. Operations Management
Oregon Tech Assessment Report
2018-19

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 Accreditation Council for Business Education (IACBE) in 2008 and reaffirmation of accreditation in 2015.

Program Highlights

Program Enrollment, Graduation and Employment Rates

Total enrollment across all campuses is approximately 72 students; 28 at the Klamath Falls campus, 18 in Wilsonville, and 26 online. The program graduated 10 students for 2018. The three-year annual starting salaries averaged $56,500. The program has a 93% success rate (within six months of graduation students are employed or in graduate school).

Industry Relationships

Building relationships with industry continues to be a priority for the Operations Management degree program and somewhat of a challenge given the Klamath Falls campus location and the number of potentially meaningful industry relationships in the immediate area. Despite that, students are finding internships and senior projects with industry sponsors including Interfor, Cascade Health Alliance, Sky Lakes Medical Center, Columbia Forest Products, Dutch Bros and Jeld-Wen to name a few. The trend toward industry diversity for student opportunities is a positive one.

Student Learning Experiences

This past year six Operations Management students were awarded the Lean Six Sigma Green Belt certificate which is an industry-recognized certification for competency in business problem solving. Certification projects from this assessment period include:

- *Customer Grievance Resolution*, Cascade Health Alliance, 2019
- *Customer Wait Time Reduction*, Dutch Bros, 2019
- *Missed Project Deadline Reduction*, Jeld-Wen, 2019
- *Duplicate Data Reduction*, Oregon Institute of Technology, 2019
- *Revenue Cycle Reduction*, Sky Lakes Hospital, 2019
- *Manufacturing Equipment Change-over Time Reduction*, Carestream Inc., 2019

Additionally, the senior project symposium was, and continues to be, a showcase to the institution and community that clearly and successfully highlights student learning experiences. The Operations Management program continues to focus on creating additional hands-on learning experiences within

the classroom. To this end, faculty are evaluating the adoption of enterprise resource planning software to enhance student learning experiences.

Success Stories
Once again graduates from the Operations Management degree program enjoyed near 100% job placement or continuation to graduate programs.   One student's part-time employer and senior project sponsor led her to accept a program manager position in North Carolina with the same company.

There was a small downward fluctuation of 5% in the three-year student success measure this year. Despite that, Operations students continue to be sought after by a number of companies in manufacturing and industry. In particular, the Six Sigma certification has become an increasingly popular certification among students that helps them successfully secure professional positions after graduation.

Here is what some students are saying are the best things about the Operations Management degree program at Oregon Tech: "*The hands-on real world projects, the analytical problem-solving skills and the small class sizes*", another students comments, "…the real life experience the professors bring to each class and how what we are learning relates to the real world."

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.	• Case Study • Senior Project	• Senior Exit Survey
Describe the legal, social, ethical, and economic environments of business in a global context.	• Case Study • Senior Project	• Senior Exit Survey
Solve organization problems, individually and/or in teams, using quantitative, qualitative, and technology-enhanced approaches.	• Case Study • Senior Project	• Senior Exit Survey
Demonstrate professional communication and behavior.	• Case Study • Senior Project	• Senior Exit Survey
Apply knowledge of business concepts and functions in an integrated manner.	• Case Study • Senior Project	• 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.	• Senior Project	• Senior Exit Survey
Apply knowledge of approaches to operational performance improvement.	• Senior Project • Lean Management Assignment	• Senior Exit Survey

Evidence of Improvement in Student Learning

1. **Department Level Student Learning Outcomes, Activities and Results**

Management Department			
Program Outcomes	**Minimal Acceptable Performance**	**Assessment** from 2017-18	**Results** from 2017-18
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%

Qualitative Assessment of Senior Project during 2018-19

During 2017-18 the department assessed SLOs using two direct and one indirect method - Case Study (BUS478) and Senior Project, and Student Exit Survey. The results from the qualitative assessment had shown increasing improvements. In 2018-19, all three methods showed that we met our objectives, therefore during the 2018-19 academic year, the department focused on reviewing the senior project using a qualitative survey. The key themes that came from the assessment included:

- A need to review departmental outcome - *Communicate the major concepts in the functional areas of accounting, marketing, finance, information technology, and management*.
- A need to review the senior project rubric to ensure that it meets the needs of all programs and is closely tied to our learning outcomes.

Department-Level Review: Results, Closing the Loop of Prior Action Plans, and Action Plans for this academic year:

- **Senior Project**: The plan for the 2018-19 academic year was to find a way to have more than one senior project professor assess student work, allowing all faculty to review senior projects and provide feedback for improvement.
  - **Closing the Loop Activities**: During the 2018-19 academic year, the department faculty focused its assessment efforts on a qualitative review of senior projects. A small sample of projects from each major was compiled. Each faculty reviewed multiple projects and completed a qualitative survey tool that was tied to department outcomes and the senior project rubric. The result of this assessment uncovered two areas that need further exploration:
    - **Senior Project Rubric**: The senior project rubric was either not being utilized or was being used in an inconsistent way. For example, the rubric notes that a literature review will be assessed as part of the senior project. There was some confusion that not all majors were required to complete a literature review. As such, the department agreed that a team of faculty would review and update the senior project rubric to ensure that it was a scoring tool that could be used across the department. Moreover, all faculty teaching senior project will be trained on the rubric so that they can design their courses to meet the requirements. Lastly, the senior project rubric will be re-mapped to the department's learning outcomes.
    - **Student Learning Outcomes** (Department-level): As part of the senior project review and mapping to the SLOs, the department agreed to also review the SLOs. While a full update is not needed, this is a good opportunity to ensure that the SLOs remain relevant. Since our accreditation body has updated and simplified requirements, this may be an opportunity to map SLOs to IACBE requirements.
  - **Action Plans for 2019-20:** During this academic year, the department will review the department's student learning outcomes and the senior project rubric. These will be prepared to be implemented in 2020-21. A full quantitative assessment using the current rubric will be completed during the 2019-20 year.
- **Case Study**: The plan for the 2018-19 year was for the course faculty to continue to discuss their approaches and share ideas for the Strategic Management course and the assignment. As with senior project, refining the approach to this class and assessment may be useful in identifying areas of improvement.
  - **Closing the Loop Activities**: The two faculty that teach the Strategic Management class did engage in discussions regarding approaches to the case study assignment. While one faculty incorporates the assessment into one assignment, the other spreads out the components of the assignment over the term. During the 2018-19 academic year, there was no formal assessment of the case study, therefore, there is no data to report regarding the effectiveness of these approaches.
  - **Action Plans for 2019-20**: In the 2019-20 academic year, a quantitative assessment will be conducted using the new assessment software. This new software may allow for multiple assessors to review the work.
- **Senior Exit Survey**: During the 2018-19 academic year, the faculty determined we will make another adjustment to the senior exit survey. Specifically, the plan was for the word proficiency to be replaced with the word understanding since this will more accurately focus on the question's intent. The goal is that a minimum of 80% of students rate their understanding of each of the functional areas of business at a high level (4-6).

- **Closing the Loop Activities**: The results of the exit survey for the 2018-19 year did meet the 80% threshold for all SLOs with the exception of accounting and finance, which is an improvement from prior years. However, although the word change for the exit survey was reported to the assessment office it was not made in the exit survey, therefore the department was not able to test out this change.
- **Action Plan for 2019-20**: This change will be requested again for the 2019-20 assessment year.

2. **Program Student Learning Outcomes, Activities and Results**

Operations Management			N= 20
Program Outcomes	**Minimal Acceptable Performance**	**Assessment** From 2017-18	**Results** From 2017-18
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%

Program Level Review: Results, Closing the Loop of Prior Action Plans, and Action Plans for this academic year:

- **2018-19 Results:** In 2018-19 program-level assessment was not completed primarily due to the lack of administrative support to move to the new assessment software. Rather, the department focused on a qualitative assessment of senior project. Qualitative results for the operations program and the senior projects in relation to the SLOs and PSLOs include:
    o Students in the Operations Management (OM) degree program continue to be exposed to the depth and breadth of the functional areas of business including accounting, marketing, finance, IT and management.   Additionally, since the OM degree program includes a good number of program electives, students will be advised toward courses in these disciplines depending upon their interests and career objectives.
    o Students in the Operations Management (OM) degree program continue to be exposed to the depth and breadth of the legal, social, ethical and economic environments of business in an internal/external (global) context.   Additionally, the OM curriculum will weave these important facets of operations into the OM-specific course offerings as applicable.
    o Students in the Operations Management (OM) degree program receive good depth and breadth exposure to solving organizational problems using quantitative, qualitative, and technology approached.   An opportunity exists to offer additional technological tools (i.e., ERP software, additional hands-on problems solving cases) to build on this already firm foundation.
    o Beyond the required courses in communication and organization/profession behavior, additional opportunities will be afforded to students to communicate orally and in writing across the OM required courses.

- o   While the Operations Management degree is already quite functionally integrated, further opportunity exists to take on projects and assignments with other disciplines. Operations students take course in other business disciplines (marketing, finance, etc.), but other disciplines tend to steer away from operations courses. This is a gap in our program.
- **Closing the Look Activities:** Although our department chose to focus on a quantitative assessment of senior project this past year, we were not able to collect quantitative assessment data due to the move to a new assessment software. This year the department will be implementing the software to collect assessment data which will require custom reporting due to the complexity of our department's needs. We are hopeful that the university understands the long-term need to support a consistent approach to assessment data collection so that we can have meaningful review of results over time.

- **Action Plans for 2019-20:** Actions recommended for this coming assessment period are twofold:
    - o   Ensure senior projects capture elements of operations (capacity planning, inventory management, logistics, etc.) in the project charter, at the outset of the project.
    - o   Ensure students receive different and unique data for their course projects. In the past, all students used the same course project data, perhaps resulting in over-collaboration.
    - o   Migrate to the new assessment software to collect quantitative results.

Changes to address these changes at the program level were instituted primarily through the senior project experience. There is data suggesting improvements in both areas, most particularly in PSLO #2.