

# **B.S. Operations Management Oregon Tech Assessment Report 2019-20**

## **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 53 students; 22 at the Klamath Falls campus, 14 in Wilsonville, and 17 online. The program graduated 15 students for 2019. The three-year annual starting salaries averaged \$56,500. The program has a 94% 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 two 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:

1. *Member Retention Improvement, Cascade Health Alliance, 2020*
2. *Skip Defect Reduction, Interfor, Inc., 2020*

Additionally, the senior project symposium 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 continuing pursuit 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 summer internship employer and senior project sponsor led her to accept a manager trainee rotation position in Oregon with the same company. The same student was presented the Operations Management Outstanding Scholar Award.

Additionally, the Operations Management participated in, and won, the national IACBE Business Case Competition. The contest featured Coinsource, an innovative startup in the cryptocurrency industry and the world's leader in Bitcoin ATMs. Coinsource developed a state-of-the-art compliance and service platform to meet this rapidly growing and dynamic industry. The students were challenged with creating and presenting a growth strategy for the company. Oregon Tech competed against 7 other schools in the last round of competition, including Florida Institute of Technology.

Operations Management 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. Two Lean Six Sigma Green Belt certification were awarded this academic year. The first project decreased the percentage of Member dis-enrollment by 12.5% for a local health care insurance provider. The second project reduce the percentage of the quality defects from by nearly 50%, resulting in dollar savings of \$697,000.

## **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"> <li>• Case Study</li> <li>• Senior Project</li> </ul>	<ul style="list-style-type: none"> <li>• Senior Exit Survey</li> </ul>
Describe the legal, social, ethical, and economic environments of business in a global context.	<ul style="list-style-type: none"> <li>• Case Study</li> <li>• Senior Project</li> </ul>	<ul style="list-style-type: none"> <li>• Senior Exit Survey</li> </ul>
Solve organization problems, individually and/or in teams, using quantitative, qualitative, and technology-enhanced approaches.	<ul style="list-style-type: none"> <li>• Case Study</li> <li>• Senior Project</li> </ul>	<ul style="list-style-type: none"> <li>• Senior Exit Survey</li> </ul>
Demonstrate professional communication and behavior.	<ul style="list-style-type: none"> <li>• Case Study</li> <li>• Senior Project</li> </ul>	<ul style="list-style-type: none"> <li>• Senior Exit Survey</li> </ul>
Apply knowledge of business concepts and functions in an integrated manner.	<ul style="list-style-type: none"> <li>• Case Study</li> <li>• Senior Project</li> </ul>	<ul style="list-style-type: none"> <li>• Senior Exit survey</li> </ul>

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"> <li>• Senior Project</li> </ul>	<ul style="list-style-type: none"> <li>• Senior Exit Survey</li> </ul>
Apply knowledge of approaches to operational performance improvement.	<ul style="list-style-type: none"> <li>• Senior Project</li> <li>• Lean Management Assignment</li> </ul>	<ul style="list-style-type: none"> <li>• Senior Exit Survey</li> </ul>

## Evidence of Improvement in Student Learning

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

<b>Management Department</b>			
<b>Program Outcomes</b>	<b>Minimal Acceptable Performance</b>	<b>Assessment from 2019-20</b>	<b>Results from 2019-20</b>
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=74	88%
	80% achieve a rate of 3 or 4	Case Study N=89	88%
	80% score 4, 5, or 6	Senior Exit Survey N=81	85%
Describe the legal, social, ethical, and economic environments of business in a global context.	80% achieve a rate of 3 or 4.	Senior Project	88%
	80% achieve a rate of 3 or 4	Case Study	87%
	80% score 4, 5, or 6	Senior Exit Survey	91%
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	88%
	80% achieve a rate of 3 or 4	Case Study	82%
	80% score 4, 5, or 6	Senior Exit Survey	96%
Demonstrate professional communication and behavior.	80% achieve a rate of 3 or 4.	Senior Project	81%
	80% achieve a rate of 3 or 4	Case Study	87%
	80% score 4, 5, or 6	Senior Exit Survey	98%
Apply knowledge of business concepts and functions in an integrated manner.	80% achieve a rate of 3 or 4	Senior Project	80%
	80% achieve a rate of 3 or 4	Case Study	88%
	80% score 4, 5, or 6	Senior Exit Survey	99%

#### Department Level: SLOs

During the past few years, the Department SLOs and assessment plan was significantly streamlined. During 2017-18 the department assessed SLOs with two direct and one indirect methods - Case Study (BUS478) and Senior Project, and Student Exit Survey. During the 2018-19 academic year, the department focused on reviewing the senior project using a qualitative survey. Based on that review, the senior project group worked together to update the senior project rubric to ensure that it could be applied to projects in all majors. In addition, the department updated the SLOs prior to our self-study. Student learning outcomes through the end of the year 2019-20:

- Communicate the major concepts in them functional areas of accounting, marketing, finance, information technology and management.

- Describe the legal, social, ethical and economic environments of business in an internal/external (global) context.
- Solve organization problems, individually and/or in teams, using quantitative, qualitative, technology-enhanced approaches.
- Demonstrate professional communication and behavior.
- Apply knowledge of business concepts and functions in an integrated manner.

#### New SLOS (starting 2020-21)

- Apply core concepts in a business environment.
- Describe the legal, ethical, social, and economic environments of business in a global context.
- Contribute to the development of a team-oriented and collaborative environment.
- Solve business problems using decision-support tools and/or research skills.
- Demonstrate professional communication and behavior using a variety of delivery methods.
- Analyze business concepts and apply strategic planning skills to effect change in an integrated manner.

**Closing the Loop:** Describe any actions taken and re-assessment done during (2019-20) in direct response to assessment findings from prior academic years.

- **Senior Project:** In the 2018-19 academic year the department conducted a qualitative review of senior projects. That review found that the goals among the different majors in the department were not completely aligned. In 2019-20, the department took steps to address this issue.
  - **Closing the Loop Activities:** During the 2018-19 academic year, the department faculty focused our 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. Based on this discovery, the department brought the senior project faculty together during 2019-20 for a series of meetings to update the rubric used to guide and assess the senior projects. This led to a refocus on common goals among the faculty and an updated rubric that fulfills the goals for all business management majors. This rubric was implemented during the spring of 2020.
    - **Student Learning Outcomes (Department-level):** In addition, the department updated the Student Learning Outcomes for the department in an effort to update the SLOs to more closely align with the requirements of our assessment body, IACBE. In addition, it was determined that the senior project would focus on SLOs 1,3, 4, and 5 as we move into 2020-21.
- **Case Study:** The plan for the 2019-20 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 the senior project refining the approach to this class and assessment may be able to pinpoint 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 includes the assessment in one assignment, the other spreads out the components of the assignment over the term. During the 2019-20 academic year, the case study was discussed as part of the update of student learning outcomes. The decision was made that

moving forward, rather than assessing all SLOS in the case study, the department would only focus in on two - #2 and #6, which more closely align with the course content.

- **Senior Exit Survey:** During the 2019-20 academic year, the faculty determined we will make another adjustment to the senior exit survey. The question asked for student to rate their understanding of the SLOs. Previously we had changed the word proficiency with understanding since this will more accurately focus on the question's intent. During the 2019-20 academic year, there was improvements in the area of finance and accounting, which we believe more accurately reflects the program results.
  - **Closing the Loop Activities:** The results of the exit survey for the 2019-20 year nearly met the 80% threshold for all SLOs which is an improvement from prior years. The word change to understanding did make an impact. The senior exit survey will be updated for the 20-21 year to include the new SLOs. As we move forward with the new SLOs, a comparison with the prior SLOS will be completed.
- **Covid-19-** Faculty did notice that the Covid-19 pandemic did make a significant impact on the students in their senior year. The faculty plan to have further discussions regarding this new normal so we can offer flexibility and resiliency to better support students when uncertainties arise.
- **Operational Strategies and Improvements:** Approximately three years ago the department developed an Action Plan document that is tied to our department's strategic plan. This plan directly supports the mission of Oregon Tech. The Action plan is broken into the following themes:
  - **College of Business:** The department is working to create a separate college at Oregon Tech to better support and highlight our programs. The plans for this area includes the development of a business plan, budget and balanced scorecard, as well as rebuilding our advisory board for college-level, and the development of showcase spaces on the campus.
  - **Enrollment/Outreach/Retention/Marketing:** Work in this area includes the development and expansion of the very successful Jump into Business program. During the 2019-20 year, the program added five new high schools including one of the largest business clubs in the state. Other work in this area includes developing a formal retention program, and extending our marketing efforts.
  - **Quality Programs/Curriculum:** We continue to improve all of our 11 programs through program development, continual improvement, online standards and oversight. In the last two years the department added the Cybersecurity program. The department also expanded our Business Management program to online and is currently waiting for approval to expand Healthcare and Business Management to our Portland Metro campus. Moreover, during the 2019-20 year, the department streamlined course offerings to provide better communication with students. During 2019-20, the department started to develop three masters programs.
  - **Labs/Facilities:** Because many of our programs can be enhanced by quality labs and spaces, during 2019-20 the department developed space plans for the new CEET building.
  - **Increased Reputation/Alumni/Industry Engagement:** During the 2019-20 year, the department recommitted efforts to engage students in national competitions. We also continued to promote our students' projects through social media and press releases. We also took steps to rebuild our advisory board.
  - **Resources:** The department continues to align our resources with our departmental goals and objectives. We developed a model to better align the stipend/release model to focus on these goals, however the administration stalled the program making it challenging to align goals with resources.

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

Operations Management			
Program Outcomes	Minimal Acceptable Performance	Assessment From 2019-20	Results From 2019-20
Apply knowledge of fundamental concepts of operations management	80% achieve a rate of 3 or 4	Senior Project N=11	100%
	80% score 4, 5, or 6	Senior Exit Survey N=8	90%
Apply knowledge of approaches to operational performance improvements	80% achieve a rate of 3 or 4.	Senior Project N=11	100%
	80% achieve a rate of 3 or 4	Lean Management Assignment N=4	75%
	80% score 4, 5, or 6	Senior Exit Survey N=8	90%

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

- **2019-20 Results:** In 2019-20 program-level assessment was completed. The department focused on qualitative and quantitative assessment of senior project with respect to Program Student Learning Outcomes. Results for the operations program and the senior projects in relation to the SLOs and PSLOs include:
  - The Operations Management program level quantitative assessment results are good, albeit very aggregated and somewhat lagging (i.e., senior project). An opportunity exists to acquire more granular and perhaps more leading quantitative assessment information for each of the two program level outcomes.
  - 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. Additionally, 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. The OM curriculum strive to weave these important facets of operations into the OM-specific course offerings where applicable.
  - 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, primarily the aforementioned Enterprise Resource Planning software to build upon this already firm foundation.
  - Beyond the required courses in communication and organization/profession behavior, additional opportunities are afforded to students to communicate orally and in writing across the OM required courses.
  - Operations students complete courses in other business disciplines (marketing, finance, etc.) However, there are additional intra and inter-disciplinary courses that could benefit Operations Management students and their prospective employers. A challenge exists

that the additional courses targeted for the program must be offered in Klamath Falls, Wilsonville (Portland-metro) and online. Staffing the latter two locations to provide additional program depth and breadth has hindered program development.

- **Closing the Look Activities:** Although our department chose to focus on a qualitative and quantitative assessment of senior projects this past year, these assessment metrics were aggregated and a bit lagging in nature (i.e. senior project). This year the Operations Management program will consider collection of assessment data of a more granular nature to provide perhaps a more leading indicator of progress toward meeting program outcomes before senior project occurs in the curriculum.
- **Action Plans for 2020-21:** Actions recommended for this coming assessment period are fourfold:
  - Identify points in the program at which meaningful leading-indicator assessments can occur.
  - Determine appropriate metrics to accurately assess the two Operations Management program learning outcomes with greater granularity.
  - Establish the mechanisms and system requirements to capture these assessment metrics.
  - Implement a pilot to carry out the assessment model.