

Bachelor of Applied Science in Technology and Management

Oregon Tech Assessment Report

2019-20

Program Description and History

The Bachelor of Applied Science in Technology and Management program (BAS) was a new degree program at Oregon Tech in January 2012. The degree was designed specifically for students who completed a technical Associate of Applied Science (AAS) or Associate of Science (AS) degree and are seeking career advancement in management or in their technical career fields. AAS degrees have historically been terminal associate degrees; they typically contain very few general education credits and concentrate heavily on the technical specialty to produce workforce-ready skilled technicians. Today's workplace, however, often demands broad-based general education, business acumen and managerial skills in addition to the depth of technical knowledge found in the AAS. The BAS was designed to build on a core of 60 credits of career and technical education (CTE) courses taken as part of the AAS or AS degree, adding 65 credits of business, management, and information technology courses and 55 credits of broad-based general education courses to enable the BAS graduate to advance in the workplace or continue on to graduate school. The Bachelor of Applied Science in Technology and Management applied for first-time accreditation with the International Accreditation Council for Business Education (IACBE) in 2014. During the 2019-20 academic year, the BAS in Technology and Management articulated with the United States Air Force through the Air University Associate to Baccalaureate Cooperative degree completion program and the Base-to-Bachelors partnership with Kingsley Field (Oregon Air National Guard) and Klamath Community College.

Program Highlights

Program Enrollment, Graduation and Employment Rates

Total enrollment across all campuses is approximately 35 students; 1 at the Klamath Falls campus, 11 in Wilsonville, and 23 online. The program graduated 7 students in 2019. The three-year annual starting salaries averaged \$65,000. The program has an 87% success rate (within six months of graduation students are employed or in graduate school).

Industry Relationships

The program enrolls students in a wide range of industries and occupations that include aviation, building construction management, electronics manufacturing, real estate development, and hydroelectric dam operations. In addition, students serve in a variety of military roles. Students head off to many different types of jobs and careers when they graduate. Some stay in their field and move into positions of greater responsibility. Some change fields entirely. Some start their own businesses. Recent graduates are employed by organizations including the ONECK, Inc., Biotronik, Inc., Eva Airways, Bonneville Power Administration, KeHE Distributors, Intel, Bannock County (Idaho), Stream Global Services, United Health Group, Cerritos College, Lam Research and branches of the US military. Recent graduates have obtained master's degrees at Northwest Christian University, Portland State University, and Western Governors University. In addition, the program has many articulation agreements with community college AAS degree programs.

Student Learning Experiences

Students often have the opportunity to showcase their learning experiences through their senior projects. Recently completed senior projects include: an analysis of the economics of using self-healing concrete for construction projects; an analysis of the economics of building tiny houses in Portland; development of a training app for employees at an Oregon manufacturing facility; optimizing patient scheduling for a dental office; development of a mobile database app to track cat adoptions and foster

care; integration of a new Enterprise Resource Planning (ERP) system for a local manufacturer; an improved safety communication plan for a major research and development/manufacturing firm; and a business plan to launch a construction materials business in southern Oregon.

Success Stories

The following represent a few of the success stories within the program:

- A 2015 graduate became a systems analyst at Intel. She completed her Master's in Engineering and Technology Management in 2017. She is currently a Scrum Master/Technical Project Manager for ADP in Atlanta, GA.
- A 2018 graduate is a Project Manager at IES Communications in Tualatin, OR.
- A 2017 graduate, is pursuing her Master's in Public Administration at Idaho State University part-time while working as the GIS Director for Bannock County, ID.
- A 2015 graduate completed his MS in Management Information Systems at Western Oregon University in 2020 and is a Senior Technical Support Analyst for the Oregon Department of Transportation.
- A 2017 graduate was a Production Supervisor for a medical implant manufacturer until a recent Covid-19 layoff.
- A 2018 graduate is the Manager of the Lincoln County Habit for Humanity while also President of EcoPhyte Consulting in Lincoln City.
- A 2017 graduate completed her MBA at Northwest Christian University in 2018 and is the Nutrition Services Regional Manager for the Eugene School District 4J.
- A 2016 graduate completed an MBA through Western Governors University in 2017 and is a business and management instructor at Cerritos College in California.

Program Purpose

Bachelor of Applied Science in Technology and Management Mission

The Bachelor of Applied Science in Technology and Management prepares students for advancement into supervisory and managerial positions in their technical career field and for admission to graduate study in management, education and law.

Educational Objectives

The Bachelor of Applied Science in Technology and Management degree produces graduates with a strong foundation in:

1. Fundamentals of management and supervision
2. Critical thinking necessary for managerial success
3. Communication and teamwork
4. Project management theory and applications
5. Professional ethics and social responsibility and
6. Technical skills needed to lead organizations in the digital age.

Management Department Student Learning Outcomes (SLO)

The Technology and Management degree consists of the five core Management Department student learning outcomes. Upon completion of this program, Technology and 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.

- Apply knowledge of business concepts and functions in an integrated manner.

Program Student Learning Outcomes (PSLO)

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

- Apply knowledge of approaches to operational performance improvement.

Assessment Cycle

Assessment Schedule

- 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.
- 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

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

Outcomes:	Direct	Indirect
Apply knowledge of approaches to operational performance improvement.	<ul style="list-style-type: none"> Senior Project 	<ul style="list-style-type: none"> 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 2019-20	Results from 2019-20
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

Technology and 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=7	84%
	80% score 4, 5, or 6	Senior Exit Survey N=10	100%

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

- **2019-20 Results:** The assessment results do not differ appreciably from the previous assessment period. The students continue to meet the minimal acceptable performance level for both the direct (senior project) and indirect (senior exit survey) assessments. It is also important to note that this major is based on the core business courses taken by all business management students. Therefore, there is not a specific sequence that is unique to this major. As such, the focus of improvements within this major focus on the business core as well as supporting students learning business coming from a technical field of study and work.
- **Closing the Loop Activities:** As stated in the department level assessment section, the senior project instructors have continued to communicate and share experiences and tools to improve student results in senior project.
 - **Senior Project:** During the prior year, the department did a deep dive into the senior project. One thing that was uncovered was that there were differences on how the instructors were interpreting the rubric. Therefore, over a series of meetings, the rubric was updated to meet the needs of all majors within the department. The new rubric was implemented in the spring term.
 - **Business to Support Technical Fields:** The BAS students are often completing projects with current employers in their specific technical field. This process allows students to showcase their business management knowledge in their technical field. This application of the student project has been successful with these students and is being continued.
 - **Military Partners:** During the 2019-20 academic year, the BAS in Technology and Management articulated with the United States Air Force through the Air University Associate to Baccalaureate Cooperative degree completion program and the Base-to-Bachelors partnership with Kingsley Field (Oregon Air National Guard) and Klamath Community College. As such, the program expects to see more active duty airmen and Air Force veterans enroll over the next few years. Airmen receive in-depth training in management and leadership as part of their Noncommissioned Officers (NCO) Academy education. This is expected to lead to better programmatic outcomes as more students will enter the program with formal management training. Prior BAS students often entered the program with deep technical training but little to no business or management background. Almost one-quarter of current BAS majors have military transcripts on file indicating current or prior service.

- **Action Plans for 2020-21:** The following action plans will continue into the 2020-21 academic year:
 - **Senior Project and updated SLOS:** Senior project faculty will work this year to review the rubric being used to ensure that it meets the needs of all programs and is closely mapped to department and program outcomes. In addition, the updated student learning outcomes will be incorporated into the department-level assessment. The main focus will be on the IACBE self-study for all majors in the department.
 - **Military partners:** The program director will continue to monitor the progress of the new articulation agreements with the military partners to determine students' transition into the program. Significant time will be focused on academic advising to ensure student success.
 - **Covid-19 Impact:** Since the program's inception in 2012, most of the students have been non-traditional. Most are part-time students, combining work and families with their college education. They are generally highly motivated to succeed. Some reluctantly aim to be B/C grade students, however, knowing they have the ability to be A/B students but lack the time. This is not a failure of the degree program but a rational choice made by students who have complicated and demanding lives outside of their courses. The added complexities brought by Covid-19, whether in the form of switching to remote learning, supervising their children's remote learning, changes in employment (including the need to work more or fewer hours, layoffs, or permanent job losses), plus health-related challenges, will make 2020-21 an even more challenging year for many BAS students. Several students who should have graduated in Spring 2020 or Summer 2020 are trying to complete their degrees this year as they have incompletes or had to drop classes. They will likely become future success stories but the data in 2019-20 and 2020-21 might give a different impression. It will take several years to be able to assess the impact of Covid-19, separate from assessing the students' academic accomplishments.