B.S. Information Technology
Oregon Tech Assessment Report
2019-20

Program Description and History

The Information Technology degree was first offered at Oregon Tech in 1999. Options included Applications Development and Business/Systems Analysis. In 2015 the above options were consolidated into a B.S. in Information Technology. This degree is offered in Klamath Falls, Wilsonville and online. The Information Technology programs were awarded accreditation by the International Assembly of Collegiate Business Educators (IACBE) in 2008, and reaffirmation of accreditation in 2015.

Program Highlights

Program Enrollment, Graduation and Employment Rates

Total enrollment across all campuses is approximately 197 students; 40 at the Klamath Falls campus, 89 in Wilsonville, and 67 online. The program graduated 23 students for 2019. The three-year annual starting salaries averaged $55,000. The program has a 97% success rate (within six months of graduation students are employed or in graduate school).

Industry Relationships

Industry relationships for the Information Technology degree program in the 2018-19 assessment period increased in both depth and breadth. These relationships translate into internships, senior project opportunities, and job offers after graduation. The growing list of industry partners that demonstrate interest in Information Technology students and graduating seniors (Nike, State of Oregon, City of Portland Oregon, Intel, Raytheon, Veterans Administration, Wells Fargo, Amazon, and Adidas to name a few) represents tremendous potential for students to engage with industry now and in the future.

Student Learning Experiences

Oregon Tech and the Business Management department provides many hands-on learning opportunities for students. These are embedded in the courses students take, through internship opportunities, and throughout the year-long senior project. Moreover, the IT curriculum exposes students to technology used by employers. Therefore, graduates of the program leave Oregon Tech with a business and technology toolbox that is relevant in the market with employers. Additionally, the Senior Project Symposium provides students with the opportunity to present their projects in a formal environment to peers, faculty, industry sponsors, and the community at large.

The following are examples of student learning experiences in Information Technology:

- Cyber security solutions integrated into senior project capstone projects
- Oregon's Wild Harvest

  "The sponsoring organization for this project is a privately-owned herbal supplement manufacturing company, based out of Redmond Oregon. This company's name is Oregon's wild harvest. The project proposed by Esteban Quiles is cyber security in nature, and includes a proposal to perform the following:

  - Vulnerability assessment and results analysis.
  - Network penetration test, and results analysis.
  - Cyber risk assessment.
  - Security plan.
  - Cloud migration plan."

- Market Intelligence Report for Liberty Natural Products Inc.

  The “Migrate, Update and Analyze” project will consist of extracting and migrating marketing data from their old database system called Advanced Revelation to a new and supported database system that is much more common: Microsoft SQL Server. After the migration and thorough testing of the new database, the client requested that an analytics project be undertaken so that the business can better understand where they should put their money in terms of marketing and increasing the return on investment in that aspect. This will be done via collected meta data and measurement of the effectiveness of email, social media or other web marketing efforts.

- Asset and Configuration Management for the City of Portland:

  “The City of Portland employs over 5000 employees and with that many employees, there is a great need for technology to work smoothly. To manage all technology needs, the city created the Bureau of Technology Services (BTS). This bureau is responsible for all the design, testing, implementation, purchasing, and support of any city information technology. While this bureau has many teams devoted to all aspects of I.T., this project will focus on the asset and configuration management processes.”

- Improving Surveillance, Wi-fi Coverage and Device Management for Corbett School District

Success Stories

In addition to their 97% success rate, Information Technology students speak highly of the courses they take as evidenced by course evaluations, many students also derive tremendous value from their internships and senior projects. Below are two such experiences shared by students via email over this assessment period.

- Internships at NIKE and Alaska Airlines has moved to a full-time position with a consulting group where his clients are two NW fortune 500 companies.
- "Oregon Tech's Information Technology program has allowed me to take flight in industry (literally!). With a combination of hands-on learning and supportive staff, I feel like I can accomplish anything."

Program Purpose

Bachelor of Science in Information Technology Mission

The Information Technology degree provides students with the foundation necessary to enable them to design and implement business information systems.

Educational Objectives

1. Graduates of the IT Degree can assess and apply their strengths in marketing.
2. Graduates of the IT Degree can distinguish themselves as effective communicators.
3. Graduates of the IT Degree excel in problem solving.
4. Graduates of the IT Degree model ethical and professional behavior.
5. Graduates of the IT Degree are prepared to pursue professional development opportunities and/or graduate education.

Management Department Student Learning Outcomes (SLO)

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

1. Solve business problems though the use of information systems and technology.
2. Design and implement information systems.

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
Solve business problems through the use of information systems and technology	• Senior Project • Systems Design Project	• Senior Exit Survey
Design and implement information systems	• Senior Project • Systems Design Project	• Senior Exit Survey

Demonstrate troubleshooting skills to formulate technical solutions according to best practice standards	• Senior Project • Systems Design Project	• 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 area that need further exploration:
        - **Senior Project Rubric**: The senior project rubric was either not being utilized or being used in an inconsistent way. Based on this discovery, the department brought together 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 SLO to more closely align with the requirements of the 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 include 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 aligns 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.

- **Operational Strategies and Improvements**: Approximately three years ago the department develop 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 include 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 the 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 the 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' project 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

Information Technology			
Program Outcomes	**Minimal Acceptable Performance**	**Assessment** from 2019-20	**Results** from 2019-20
Solve business problems through the use of information systems and technology	80% achieve a rate of 3 or 4	Senior Project N=30	83%
	80% score 4, 5, or 6	Systems Design Project N=3	100%
	80% score 4, 5, or 6	Senior Exit Survey N=32	100%
Design and implement information systems	80% achieve a rate of 3 or 4.	Senior Project N=30	83%
	80% score 4, 5, or 6	Systems Design Project N=3	100%
	80% score 4, 5, or 6	Senior Exit Survey N=32	96%
Demonstrate troubleshooting skills to formulate technical solutions according to best practice standards	80% achieve a rate of 3 or 4	Senior Project N=30	83%
	80% score 4, 5, or 6	Systems Design Project N=3	100%
	80% score 4, 5, or 6	Senior Exit Survey N=32	100%

- **2019-20 Results:** The following summarizes the results:
  Closing the Loop Activities: Faculty reviewed the IT degree structure and curriculum. A proposal was submitted to increase students advanced skillsets by creating focused areas for students. Senior Projects will be aligned with the focus area the student chooses. The team realized that providing a wide array of content did not foster an environment where students would master any specific skillset. 2020-2021 AY will start new students in the degree version with dedicated focus areas.

  Focus areas that can be chosen are Data Architecture, Health Informatics, Business Application Programming, and Networking Data infrastructure.

  MIS 442 Advanced Web Programming: In this course students are evaluated on their ability to create a system scope, design and build a web application as their final project. Students tend to struggle between requirements gathering to design concept. One hurdle for faculty has been students wanting to assume what requirements are needed and jumping straight to creating their solution. While students believe they have all the requirements this leads to systems that do not get completed, typically dropping students scores in this area.

  Sr. project: As identified above, senior project scores are meeting expectation as an average but are dropping annually and were finding more students dropping out of the project process or taking longer to complete. The implementation of focus areas should strengthen a skillset for students to create a more successful project.

- **Action Plans for 2020-21:** Due to the issues noted above, the following actions will continue:

- Increase participation in Assessment activities and submissions by faculty.
- Continue re-work in Sr. Project to introduce Use Case scenarios winter term. Two Professors will work to pilot new concepts for sr. project to increase adoption by students.
    - Cases will be in network infrastructure and cyber security domains to help those students who struggle to identify sponsors with equipment resources.
    - Cases will also be created for Programming and Data Architecture for students who struggle to identify a project.