

## STUDENT LEARNING ASSESSMENT REPORT

**PROGRAM:** MS Information Technology

**SUBMITTED BY:** Diane Murphy

**DATE:** September 30, 2020

### Executive Summary: Description of Assessment Process

List *all* of the program's learning outcomes, as of the assessment year's catalog: (regardless of whether or not they are being assessed this year)

Learning Outcome	Year of Last Assessment	Assessed This Year (Y=Yes)	Year of Next Planned Assessment
Analyze complex problems in business and society to identify effective solutions utilizing contemporary digital technologies and methodologies	2017-2018		*
<b>Design, develop, and manage enterprise-wide digital systems that adhere to industry-wide standards with strong ethical principles</b>	2016-2017	Yes	*
Design and conduct evidence-based research on advanced digital technology and its implementation			*
Demonstrate knowledge, skills, and abilities in the range of digital technology domains, including applications, enterprise infrastructures, database and storage technology, and cybersecurity			*
Optimize the effectiveness of IT in an organization through effective IT decision making, governance, strategy, and policy development			*
Communicate effectively with other technology professionals, end users, and managers	2017-2018		*
<b>Work successfully in a cross-disciplinary team on a time-critical project, both as a team leader and as a team participant</b>	2016-2017	Yes	*
<b>Engage in continuing professional development and lifelong learning to adapt to an ever-changing global technology and business environment</b>	2016-2017	Yes	*
Specialize in a specific area of technology such as software engineering, project management, health care informatics, cybersecurity, data science, or digital transformation			*

- *Learning outcomes have been revised and all outcomes will be assessed each year going forward in compliance with AACSB requirements.*

Provide a **brief** description of the assessment process used including how results are shared and discussed and strengths, challenges, and planned improvements to the **process**, providing evidence of a culture of continuous improvement based on assessment. If there is something that is impeding your ability to implement improvements, please comment on those issues (generally not more than two paragraphs, may use bullet points):

The IT program faculty discusses assessment in its monthly faculty team meetings. In the October meeting, we began looking at the impact of AACSB on the program and identified the need to streamline the learning outcomes for each program. A small group worked on changes for each program and these were approved in February 2020.

Last year's assessment results, particularly the action plan, we discussed in the November department meeting. The data was used to plan improvements and new approaches within courses and across the curriculum.

The MS, IT program will participate in the College of Business, Ideation, Leadership and Technology (BILT)'s expanded assessment process to be launched in AY 20-21. The BILT will establish an Assessment Committee to support the continuous improvement of student learning outcomes. The Assessment Committee will assist directors and program champions in refining learning outcomes and will focus on documenting progress on the improvement measures established by the faculty. This approach will strengthen further the College's mission and vision.

**Closing the Loop: Progress on Planned Improvements from Prior Year**

**Describe how the program implemented its planned improvements from last year:**

<b>Outcome</b>	<b>Planned Improvement</b>	<b>Update</b>
Identify and solve complex problems in business and society using information technology, including the application and management of complex systems of hardware, software, networks, databases, and computer security.	No major changes are planned based on this assessment although more emphasis will be placed on ethics in the problem-solving process.	Faculty and students were encouraged to attend the Ethics Week events in February and Dr. Schaefer organized a department event in ethics week which was well attended by our students.
Use specialized knowledge and skills to obtain skills and, if applicable, certifications in areas such as software development, database and storage technology, computer security, IT governance, and project management.	Students will be given more feedback and given the opportunity to retake a mock exam.	Certifications still remain a major recruiting initiative in the IT workplace and we are seeing more alums report reporting certification success through their LinkedIn account. We had planned to hold a certification bootcamp for cloud computing certifications in March/April 2020 but this was cancelled because of Covid-19. We did arrange for students to have free accounts to the Coursera course library for summer 2020 and this enabled them to self-learn for recognized certifications. To date our students have enrolled in 159 courses.
Communicate effectively with others, including technologists and managers in the IT field and users and managers in the business context.	The instructor will instigate a more formal draft and review process for the requirements process to enable students to more fully participate in the deliverable review process.	Modifications were made to IT510 to enable peer and industry reviews of major deliverables.

**Provide a response to last year's University Assessment Committee review of the program's learning assessment report:**

Comment:

Consider revising your second outcome. Certification can be an indirect measure of achievement of program learning outcomes but is problematic as a learning outcome in itself.

Response:

All outcomes have been revised for academic year 20-21 and have been reviewed by both PIE and Dr. Joe Provencano. The revised outcomes are included in the 2020 catalog as follows:

Upon successful completion of the information technology program, students will be able to

- analyze complex problems in business and society to identify effective solutions utilizing contemporary digital technologies and methodologies;

- design, develop, and manage enterprise-wide digital systems that adhere to industry-wide standards with strong ethical principles;
- design and conduct evidence-based research on advanced digital technology and its implementation;
- demonstrate knowledge, skills, and abilities in the range of digital technology domains, including applications, enterprise infrastructures, database and storage technology, and cybersecurity;
- optimize the effectiveness of IT in an organization through effective IT decision making, governance, strategy, and policy development;
- communicate effectively with other technology professionals, end users, and managers;
- work successfully in a cross-disciplinary team on a time-critical project, both as a team leader and as a team participant;
- engage in continuing professional development and lifelong learning to adapt to an ever-changing global technology and business environment; and
- specialize in a specific area of technology such as software engineering, project management, health care informatics, cybersecurity, data science, or digital transformation.

### Outcomes Assessment 2019-2020

#### Learning Outcome 1: Design, develop, and manage enterprise-wide digital systems that adhere to industry-wide standards with strong ethical principles

<p style="text-align: center;"><b>Outcome Measures</b></p> <p style="text-align: center;"><i>Explain how student learning will be measured and indicate whether it is direct or indirect.</i></p>	<p style="text-align: center;"><b>Performance Standard</b></p> <p style="text-align: center;"><i>Define the acceptable level of student performance.</i></p>	<p style="text-align: center;"><b>Data Collection</b></p> <p style="text-align: center;"><i>Discuss the process for collecting this data: who conducted the assessment, when, and how?</i></p>	<p style="text-align: center;"><b>Result</b></p> <p style="text-align: center;"><i>Did you meet your target? What was the result?</i></p>
<p><i>Direct:</i> Students in IT510, Requirements Analysis, performed well in the five analytical assignments throughout the semester, evaluated in accordance with rubric 1 (see attachment).</p>	<p>85% of students in IT510, Requirements Analysis, receive a total value of 80 out of 100 for the five analytical assignments, evaluated in accordance with rubric 1 (see attachment).</p>	<p>51 students were enrolled in IT510 in academic year 2019-20. The assignment responses were retrieved from Canvas by the department chair without information on the grades assigned by the professor. She read each assignment response and analyzed them using a pre-defined rubric, specifically looking for evidence of business, industry standards, ethical decision-making, and effective communication. (see Rubric 1).</p> <p>While there are many elements in the rubric, they combine together to indicate the quality of the technology proposed, how it can be managed</p>	<p>The reviews were made on a semester basis.</p> <p>35 students were registered in Fall 2019 and 10 in Spring 2020.</p> <p>25 students were in the face-to-face class in fall 2019. 2 students did not complete all 5 assignments, and 17 (68%) received 80% or more.</p> <p>10 students were in an online class: 1 student did not complete all 5 assignments, 6 (67%) received 80% or more on the rubric.</p> <p>16 students were in the class in Spring 2020. 2 students did not complete all 5 assignments, and 13 (93%) received 80% on the rubric.</p>

<p><b>Outcome Measures</b> <i>Explain how student learning will be measured and indicate whether it is direct or indirect.</i></p>	<p><b>Performance Standard</b> <i>Define the acceptable level of student performance.</i></p>	<p><b>Data Collection</b> <i>Discuss the process for collecting this data: who conducted the assessment, when, and how?</i></p>	<p><b>Result</b> <i>Did you meet your target? What was the result?</i></p>
		<p>and communicated, and its ethical basis. The maximum score was 100 and 80 or more is considered a good rating.</p>	<p>The most significant difference in the spring class was on the ethical component of the rubric and reflects our action plan from last semester to increase the ethics content in the early classes.</p> <p>Of the 46 students who completed the 5 assignments for IT510 in 2019-20, 36 students (78 %) received a score of 20 or more.</p> <p>The standard for the outcome of a good rating was NOT met.</p>
<p><i>Indirect:</i> From the 2019 Alumni Data from PIE: responses to 3 related questions</p> <ol style="list-style-type: none"> <li>1. Determine the most ethically appropriate response to a situation</li> <li>2. Apply knowledge and skills to new situation</li> <li>3. Solve problems in your field using your knowledge and skills</li> </ol>	<p>80% of alums from 2008-9 to 2017-18, feel confident in their ability to design, develop, and manage enterprise-wide digital systems that adhere to industry-wide standards with strong ethical principles.</p>	<p>The data is taken from the alumni survey conducted by PIE each year. This was the last report received from PIE</p>	<p>Responses were as follows: 80% Determine the most ethically appropriate response to a situation 86.7% Apply knowledge and skills to new situation 80% Solve problems in your field using your knowledge and skills</p> <p>The standard was met.</p>

**Interpretation of Results**

**Analysis and Implications:**

Previous assessments and the alumni results show that we have previously been meeting this goal, and we did so in Spring 2020. Why was Fall 2019 such an anomaly? Were there too many students in the face-to-face class minimizing individual attention? Was the online class not effective? Was the profile of students in this class different, such as including more career changes with a limited background knowledge of enterprise-level information technology? Did the action item on ethical materials improve the responses in Spring 2020? The instructor was the same for all three courses so this was not a variable.

Further research points to the changing profile of students in the IT program. In fall 2019, we did see an influx of career changers, many with a more limited IT background and many more international students. The instructor did realize this and introduced a technology review session in the Spring semester. In addition, several students decided not to take IT510 in their first semester, showing the decline in enrollment in Spring 2020.

**Discuss planned curricular or program improvements for this year based on assessment of outcome:**

We will conduct a specific survey of career-changers to determine additional content that needs to be covered for them to be successful in IT510 in their first semester. Based on this survey, we will provide:

1. Pre-course reading material
2. An initial review session in the course.

We had previously done something similar with IT520 and have a Canvas site created.

**Learning Outcome 2: Work successfully in a cross-disciplinary team on a time-critical project, both as a team leader and as a team participant**

Outcome Measures	Performance Standard	Data Collection	Result
<i>Direct:</i> Evaluation of communication activities in the team project in IT610, IT Governance and Strategy, which is the first group project in the course and has a short deadline.	In teams of 3, students propose an enterprise IT investment construct & pitch a project against it. 85% of teams receive a 12 out of 15 (80%) according to the teamwork rubric 2 (see attached)	The chair attended the four presentations and discussed the project with the students, in the role of a potential investor. The professor completed a questionnaire on the teamwork activities of each team.	The reviews were made on a semester basis.  15 students were registered in Fall 2019 and 10 in Spring 2020. Students were very diverse in terms of gender and ethnic minorities.  12 out of 15 (80%) of students in Fall 2019 received 12 or more on the rubric. Two students did not meet the deadlines set. One student did not participate in the presentation.  9 out of 10 (99%) of students in Spring 2020 received 12 or more on the rubric. 1 student failed to meet the team requirements on timeliness.  <i>The standard was met (92% of all students).</i>
<i>Indirect:</i> From the 2019 Alumni Data from PIE: responses to the question: 1. Work collaboratively with people from diverse backgrounds	80% of alums from 2008-9 to 2017-18, feel confident in their ability to work in teams.	The data is taken from the alumni survey conducted by PIE each year. This was the last report received from PIE	Responses were as follows: 80% to "Work collaboratively with people from diverse backgrounds"  <i>The standard was met.</i>

**Interpretation of Results**

**Analysis and Implications:** Teamwork is an important soft skill in the IT world today so it is important that students leave the program with these important skills, understanding the dimensions of quality, collaboration, and timeliness. The diversity of our student population is an essentially component of this experience. Students.

**Discuss planned curricular or program improvements for this year based on assessment of outcome:**

We will continue to engage students in teams in all our classes, both in the classroom and increasingly in the virtual world.

**Learning Outcome 3: Engage in continuing professional development and lifelong learning to adapt to an ever-changing global technology and business environment**

Outcome Measures	Performance Standard	Data Collection	Result
<i>Direct:</i> From the IT680, IT Masters Project, ability of students to perform an effective literature review in the IT field.	80% of students received a 12 or more on the rubric evaluation for the literature review and the project retrospective (see rubric 3)	Data was collected from the Canvas for IT680 for each semester. The literature draft was submitted, reviewed by the professor, and a final literature review submitted. The department chair downloaded each of the literature reviews and applied the rubric 3.	48 students registered for the class in Fall 2019, Spring 2020, and Summer 2020. 45 students completed the assignment, of these, 38 students (84%) scored 12 or more.  The standard for the outcome was met.
<i>Indirect:</i> From the 2019 Alumni Data from PIE: responses to the question: Work collaboratively with people from diverse backgrounds	80% of alums from 2008-9 to 2017-18, feel confident in their ability to work in teams.	The data is taken from the alumni survey conducted by PIE each year. This was the last report received from PIE	Responses were as follows: 80% to "Work collaboratively with people from diverse backgrounds"  <i>The standard was met</i>

**Interpretation of Results**

**Analysis and Implications:** Information literacy is an important part of the programs and 80% of all the courses in the program involve some form of literature search. The final project is designed to transition the student to the workplace by having them select a topic of their own choice and develop the proposal, literature review, report and presentation much the same way they would expect them in their future. A few students publish their work, with the help of faculty, and we will be encouraging more student publications in the future.

**Discuss planned curricular or program improvements for this year based on assessment of outcome:**

IT680. the IT Project is an important culminating experience for the students and we will continue to work with all students, one-on-one, to ensure they generate quality, publication-quality research.

**Appendices**

*Rubric 1: Evaluation of Technology Analysis Assignments in IT510, Requirements Analysis*

<i>Attribute</i>	<i>Measure</i>	<i>Scoring</i>	<i>Student Scores (5 and total)</i>
Rate the depth of coverage of the analysis	Evaluate and score as follows: extensive coverage, good coverage, adequate coverage, limited coverage, poor coverage, and no coverage.	5, 4, 3, 2,1, and 0	
Evaluate the language used in the response and its ability to be understood by its audience, a non-technical person	Evaluate and score as follows: well written (no jargon or jargon explained), adequately written (jargon mainly explained), includes some jargon, and full of jargon, and no submission.	5, 4, 3, 2,1, and 0	
Evaluate the consideration of ethics in the analysis	Examine the handling of ethical considerations in the analysis and proposed solution and rate: full considerations of ethics, a reasonable ethics discussion, a small amount of ethics, limited discussion of ethics, and no ethical considerations.	5, 4, 3, 2, 1, and 0	
Evaluate the adherence to industry standards in the solutions	Validate the solution, and associated citations, with current standards and approaches in the field: full compliance, reasonable compliance, some compliance, little compliance, or no compliance.	5, 4, 3, 2, 1, and 0	
Total score	Calculate score	Scores from 0 through 20 X 5	

*Rubric 2: Evaluation of Group Work for the Group Presentation for IT610 IT Governance and Strategy*

<i>Attribute</i>	<i>Measure</i>	<i>Scoring</i>	<i>Student Score</i>
Review the form and format of the presentation to ensure the quality of the work as prepared by the group of students, working in a team	Evaluate and score as follows: well organized, organized, or poorly organized	3, 2, 1	
Evaluate the language used in the presentation and its ability to be understood by its audience, the business manager and the contribution to the presentation from individual team members	Evaluate and score as follows: well written (no jargon or jargon explained), adequately written (jargon mainly explained), includes some jargon, and full of jargon Evidence of group work needs to be present for the score of 4 and 3	4,3,2,1	
Evaluate the quality of the group work and its impact on the final presentation	Evaluate and score as follows: well developed group activities with activities by all, good group work with activities by most, satisfactorily group work as	4.3.2.1, 0	

	shown by results but group activities not particularly good, or inadequate group work leading to inferior product.		
Rate the engagement and performance of each team member, including the extent of non-participation	Determine engagement and performance as the average of the group as advanced, good, basic, or poor	4,3,2,1	
Total score	Calculate score	Scores from 3 through 15	

*Rubric 3: Evaluation of Final Literature Review in IT 680, The Master's Project*

<i>Attribute</i>	<i>Measure</i>	<i>Scoring</i>	<i>Student Score</i>
Review the project summary to examine the scope of the project	Grade it as complex, medium, or simple	Factor a, values 3, 2 or 1	
Review the documents in the literature review for the scope of the review and the relevance of the search to the problem	Mark as fully relevant to a professional project, partly relevant, or does not meet requirements	Factor b, values 2, 1, 0	
Review citations to ensure they are in APA format and from authoritative sources	Mark as well-developed themes, satisfactorily developed themes, or inadequate	Factor c, values 2, 1, or 0	
Assess the writing including spelling, grammar, and organization in the literature review	Mark as adequate, minor issues, poorly crafted, or needs to be rewritten	Factor d, values 2,1, or 0	
Total score	Calculate score	a(b + c + d + e) with students receiving a score of 0 through 18	