

Donnelly College
Information Technology and Information Systems
Annual Program Assessment Report
Academic Year 2014

Program:

I. Goals

A. *What are the overall goals for this program as identified in the Program Assessment Matrix?(Please recall, at least one goal must be related to student learning)*

The assessment matrix was used to identify the criteria required to analyze the Information Technology and Information Systems Program. Previously the project-based assessment method was used as a means to properly assess student learning. The Information Systems Program began fall of 2014 to with the assessment methods put into place.

Currently each course has projects are assigned to students in order to combine knowledge and real-life application. The benefits of using a project-based assessment is primarily so students can put to good use information being learned in class. Case studies and projects encourage students to conduct further research outside of the class. In some courses students will work in groups to complete project to increase their knowledge of problem solving with others.

Information Technology/Information Systems Goals:

Goal # 1:

Students will gain the knowledge and skills to be prepared for employment and advancement in the field of Information Technology.

- 1. Technical knowledge (IT 111 Microcomputer Essential, IT 104 Operation Systems, IT 130 Inside the PC, and IS 303 - Essentials of Management Information Systems)**
 - 1.1. Select appropriate components required to build, repair, and/or troubleshoot systems incorporating correct computer system standards.
 - 1.2. Apply mastery of hardware functionality to specify systems and components to support individuals and business.
 - 1.3. Install new hardware and/or replacement components.
 - 1.4. Investigate, identify and implement solutions for hardware and software issues.
 - 1.5. Install operating systems, drivers, applications, and updates.
 - 1.6. Implement systems to identify, remove, and prevent viruses, Trojans, worms, and spyware using available software.
 - 1.7. Demonstrate suitable customer service and computer user support skills.

- 2. Networking knowledge (IT 210 Network & Communication, IT 216 – Unix Operating Systems, IS 310 – Advanced Network and Telecommunications, and IS 417 – Server Virtualization)**
 - 2.1. Employ hardware and software installation, configuration, and file maintenance methods in stand-alone and networked environments.
 - 2.2. IT Essentials, Cisco Networking, Technology Essentials
 - 2.3. Describe local area networks and their application in business. IT Essentials, Cisco Networking, Technology Essentials
 - 2.4. Create and maintain a web site. Beginning Web Page Development, Web Development.
 - 2.5. Investigate, identify and implement solutions for technology related issues. Cisco Networking.
 - 2.6. Recognize and apply basic project management methods utilized in an IT work environment.
 - 2.7. Fundamental Project Management, Networking LANs and WANs, Customer User Support.
 - 2.8. Conduct a presentation of skills, work product, and ability to compete in a global market.

- 3. Programming knowledge (IT 123 - Fundamental of Programing, IT 217 – Mobile OS Programming, IT 218 – Mobile OS Programming II, IS 315 - Object-Oriented Programming)**
 - 3.1. Apply general computer programming logic.
 - 3.2. Write an application program using an industry accepted programming language
 - 3.3. Recognize business systems & methods of analysis.
 - 3.4. Identify, select, and employ the correct software applications to solve business information problems
 - 3.5. Troubleshoot programming code to create and complete programs.

- 4. Database knowledge (IT 125 - Fundamentals of Database Systems and IS 325 – Advanced Database)**
 - 4.1. Produce concise and understandable testing reports.
 - 4.2. Use database software to input, organize, and track bug reports.
 - 4.3. Apply basic programming design
 - 4.4. Apply basic database design

- 5. Graphic Communication knowledge (IT 140 - Graphic Design and IT 115 – Web Page Design)**
 - 5.1. Convert a simple idea into print-ready computer-based graphics.
 - 5.2. Produce professional-quality designs using industry-standard software and methods.
 - 5.3. Create two-dimensional designs that follow established art standards.
 - 5.4. Design visually-pleasing graphics that both inform and persuade.
 - 5.5. Generate two-dimensional animations.
 - 5.6. Capture and manipulate digital images using cameras, scanners and other appropriate equipment.
 - 5.7. Investigate, identify and implement solutions to real business problems.
 - 5.8. Collect and document the marketing needs of real businesses.

5.9. Work as an individual and as part of a development team and document their best work in an electronic portfolio.

6. Practical Application knowledge (IT 181 – Cooperative Education Practicum, IS – 405 Senior Integrative Experience I and IS 406 – Senior Integrative Experience II)

Goal # 2:

Students will develop the essential professional, social, and ethical values required in Information Technology fields.

1. Demonstrate obligations to employers, management, fellow workers, and society to:

- 1.1 Protect the privacy and confidentiality of all information entrusted to them.
- 1.2 Support, respect, and abide by the appropriate local, state, provincial, and federal laws.
- 1.3 Share knowledge of ethical and legal use of hardware, software, and information when interacting with others.

B. For each goal, identify how it is being measured and assessed? (If not using a commercially available instrument, please also explain how validity and reliability have been addressed)

The IT and IS programs are implementing two ways to assess and measure the goals.

- 1. Moodle Assessment tool.
- 2. Pre-Test/Post-Test
- 3. Surveys
- 4. Rubrics
- 5. Journals
- 6. Classroom Research
- 7. Projects
- 8. Internships
- 9. Moodle Portfolios

- 1) The main tool used to measure and assess the students was using an adaptive computer generated test implemented into Moodle to measure and assess the students' progress. Moodle can generate an online computer-adaptive testing program delivered over the Internet. Internet delivery means that our institution can generate quality assessments to many students simultaneously at an affordable price, but without the attendant difficulties of installing and upgrading software (especially in networked environments). This manner of computer-adaptive placement tests is used extensively by others colleges, four-year colleges, technical schools, and high schools. This system provides us virtually immediate the best kind of feedback for the test taker.
- 2) Pre and Post testing. Assessing the students when they first enter a program can establish a firm benchmark against which to measure growth or value-added. IT 111 - Microcomputer Essentials and IS 303 - Essentials of Management Information Systems classes are both required for the program. Both are the main source to trial the Pre-Test/Post-Test.

Advantages

- a. Pre-testing is especially helpful for measuring student knowledge, or cognitive learning, and skills, though somewhat less so for measuring values.
- b. Pre- and post-testing may work best with traditional four-year undergraduates rather than the more common situation now where students enter, stop-out, transfer, return, and take six years or more to graduate.
- c. Pre- and post-testing can be easily scored.
- d. Pre- and post-testing can be relatively easily analyzed using statistical procedures.

Disadvantages:

- a. Pre-and post-testing offers little useful information if the students know little or nothing about the subject of the program when they first enter it.
 - b. Deciding how to develop meaningfully comparable pre- and post-assessments is difficult, since the pre-test may have to be so basic that any additional learning could be seen as “growth” or value-added.
 - c. If the assessment is not based upon a highly structured curriculum where the objectives are taught toward and adhered to across all courses in a systematic, it may be difficult to demonstrate the causes of the value-added or to correlate the results of the post-test with the specific courses within the curriculum.
- 3) A survey is one of the best-known and most popular methods of assessing a program’s strengths and weaknesses. Using the Course evaluation in every IT/IS class into Moodle, help to improve the quality of the courses and are used as part of tenure and promotion decisions for faculty. Despite the idea that easy instructors who are nice might get better ratings, research tells us that student evaluations are in fact valid and reliable way to assess the quality of education. While the instructor personality and the ease of the course may influence some of the students’ perception of the teaching, information gathered through evaluations can be informative of the way the Information Technology classes are teach.

C. If there has been any major changes in either the goals or measures used this academic year as compared to last year, please describe what changed and why.

The major change for measuring student learning was the Pre and Post test assessment. The instructors assess their class in the beginning of the semester and collect the data, to analyzed and compare it assessing the student ant the end of the semester.

This year the pre and post-test assessment help us to:

1. Determine the specific broad learning objectives for the Information Technology and Information Systems academic program;
2. List the specific knowledge, skills, and/or values that need to be measured through a value-added process;
3. Decide upon the type of pre- and post-assessment that we will use;
4. Determine which faculty will create the pre- and post-assessment or review examples of already available tests for this purpose;
5. Decide when and where the pre- and post-assessments will occur;
6. Decide how the assessments will be evaluated and analyzed;
7. If the pre-assessment is given when students first enter the program, inform those incoming students that they will be given a pre-assessment, especially if it is to be given outside of a particular class.

II. Data Collection

For each goal, provide results for the past academic year. If available, also include data from prior years for comparison. Finally, if comparable external data is available (state pass rates on a particular exam, national norms, etc) please provide this data.

QUALITATIVE AND QUANTITATIVE METHODS were used to measure and assess the Information Technology program.

Method 1: PRE/POST-TEST EVALUATION (Qualitative)

Pre-test/post-test evaluations is an effective way to collect information on students when they enter and leave the Information Technology program or certification and provide the necessary assessment data over FALL and SPRING semesters. Pre-test and post-test evaluations sample student knowledge quickly and allow comparisons between different students courses or the same group in due course.

The type of student work used as an embedded pre- and post-assessment will be one of the above. But we could also embed a common assessment, such as a test item or a project task, in a set of courses across of the IT and IS program. The IS program in the fall of 2014 courses began the piloting phase relating to the pre-test evaluation.

Pre and Post test assessment is a Faculty driven assessment that is used to assess the student's learning within the classroom environment, using curriculum course goals, objectives and content to measure the extent of the learning that is taking place. This method helps us to generate information about what and how students are learning within the program and classroom environment, using existing information that instructors routinely collect (test performance, short answer performance, quizzes, essays, etc.). This method of assessment is often effective and easy to use because it builds on the curricular structure of the course and does not require additional time for data collection since the data comes from existing assignments and course requirements.

Program Learning Goal: This program will help the students develop the information technology skills they need to succeed in today's professional environment. Our program prepares them with the general education, applied knowledge, and technical skills required for a wide range of entry-level positions. Courses in this degree program provide students with skills in help-desk operations, systems hardware configuration, networking, application software, telecommunications, purchasing, decision making, Internet programming, Internet network administration and interpersonal skills.

Method 2: Moodle Assessment is an adaptive computer method. This means that the questions to assess are chosen for the instructor on the basis of evaluate the results of the assessment matrix. This technique selects just the right questions for their ability level. Because the test works this way, the student must answer every question when it is first given. Each test is untimed so they can give each question as much thought as they wish.

This method also is apply to the **Projects** the students work on it to be able to assess the progress and critical thinking of the students, and ultimate if the results pre-defined into the curriculum of the class has been met.

Moodle Assessment System:

- Ability to reduce assessment costs.
- Allows assessment using direct writing with scores available immediately.
- Helps save technical support.
- Provides means to deliver the right tests to the right student (individual customization).
- Enables to test in remote locations.
- Permits facilitation of institutional research through customized reports.
- Will help increase retention through correct course placement.

Method 3: SURVEYS AND INTERVIEWS (Advisors Online Classes Consent Form) (**Qualitative**) The “Advisors Online Classes Consent Form” is a series of technical questions that help us determine the placement of the students into the Information Technology program. Students interested in the Information Technology program specially those who want to take Online classes have to take a survey provided by their advisors that helps to determine if the student has the necessary computer-technical skills and if there are other skills that the student need to acquire in the program. This assessment method provides us with information to implement in the curriculums, programs and student outcomes that other methods cannot.

Method 4: TRANSCRIPT ANALYSIS (PowerCAMPUS Software) (**Quantitative**) Transcript analysis involves using data from the students’ records using POWERCAMPUS “Transcript Module” to explore course-taking or grade patterns of students. This method gives us a picture of the students at a certain point in their academic careers, shows us what classes students took and in what order, identify patterns in student grades, and giving the advisors the student’s curricular experiences. Transcript analysis though POWERCAMPUS is an unobtrusive method for data collection using the existing student database. This information can be linked to other variables such as demographic, sex or major, or used to measure outcomes.

III. Analysis

For each goal, provide a brief analysis of the results.

IT Requirement Courses Mapped example

Course Number	Course Description	Credits	a) Knowledge of Math, Science and Engineering	b) Ability to Analyze a problem	f) Ability to Communicate
IT 111	Microcomputer Essentials	3	NO	YES	YES
IT 123	Fundamentals of Programming	3	Projects, homework, and assignments require students to apply course concepts to specific applications In class case studies, quizzes, demonstrate competency in Using programming functions to troubleshoot and create real-life programs.	YES	YES
IT 181	Cooperative Education Practicum I	3	NO	Extensive lab Program where students work in the company in the technology industry. Students are required to analyze and discuss their work.	YES

To tie program outcomes to the IT assessment, IT courses, and indicators an example table was created. This shows an example of the program outcome. As data is collected, it is added to the worksheet until enough information is present to perform an assessment of the level of achievement of the program outcome.

This diagram shows how a worksheet for each of program outcome makes it easy to show the data that has been collected, the impact of the data, and what actions have been taken. The idea is not to produce volumes of data, but to summarize data in a way that is applicable and concise. The results of the data collection, and actions taken, show a progression of how the IT program moves through the assessment process.

IS Requirement Courses Mapped example

Course Number	Course Description	Credits	a) Knowledge of Math, Science and Engineering	b) Ability to Analyze a problem	f) Ability to Communicate
IS 303	Essentials of Management Information Systems	3	NO	YES	YES
IS 315	Object Oriented Programming	3	Case studies, projects, and assignments. Students are required to problem solve and apply course concepts to specific applications. Case study simulations are completed synchronously with the instructor with quizzes and troubleshooting assignments weekly.	YES	YES
IS 405/IS 406	Senior Integrative Practicum I and II	3	NO	Students will work primarily independently on projects to demonstrate program outcomes and synthesis of program learning objectives. Students are required to analyze and discuss research approaches. In phase I students will and develop steps for implementation. In phase II students will implement their final project.	

This example table was created to reflect an example of how the program outcomes correlate with the IS assessment, IS courses, and program outcomes. The data that will be collected will be added to the worksheet until all information is gathered to perform an assessment at the level of achievement.

Data taken in this method can be used to analyze the data and determine if actions has been taken. The idea in this area is similar to the other area in which it will not be used to produce volumes of data, but to summarize data in a way that is applicable and concise.

Table for Evaluate Learning Outcomes

Program Outcome	Course	Assessment Methods	Maps to IT Curriculum
User Interaction Design	IT111	Website Project, Course Summary	Human Computer Interaction
	IT123	Project, Course Summary	Human Factors
	IT125	Exam Question, Course Summary	Aspects of App. Domains
	IT135	Design Project	Human Centered Evaluation
	IT104	Website Project	Dev. Effective Interfaces
	IT119	Web-portal Project, Course Summary	Accessibility
	IT217	Project, Exam, Course Summary	Emerging Technologies
	IT218	Design Project, Course Summary	Human Centered Software
	IT210		
	IT230		System Integration and Architecture
	IT181		Requirements
	IS 303		Acquisition/Sourcing
	IS310		Integration
	IS315		Project Management
	IS325		Testing and QA
	IS 405		Organizational Context

Table for Results of Learning Outcomes

SP/2014: IT111 Essentials of Microcomputers Project: proficiency
FA/2014: IT111 Essentials of Microcomputers Project: 58% proficiency
SP/2014: IT123 Fundamentals of Programming: proficiency.
FA 2014: IT123 Fundamentals of Programming: 100% proficiency.
FA/2014: IT 135 C++ design project: 100% proficiency
SP/2014 IT 181 Internship Outcomes Assessment – Currently we are meeting the outcomes based on the series of designs our students progress through their program of instruction. The work in IT181 gives our students to work with outside agencies in developing their IT skills. Their experience has demonstrated during projects 100% proficiency.
FA/2014: IT 315 Object-Oriented Project: 100% proficiency
FA/2014: IT 325 Advanced Database: – 100% proficiency

IV. Reflection

Describe the process used to share results with professional colleagues. Who received findings?

This paper provided commentary about outcomes assessment from several accredited IT and IS programs as well as offered information on the development of learning outcomes, the conduction of curriculum alignment, and the identification of existing assessments for schools in the beginning stages of the accreditation process. With over 302 IT/IS programs offered in the United States, and with the growing popularity of program accreditation, the number of schools seeking accreditation is posed to increase dramatically in coming years. While many curriculum areas such as education and business have been engaged in assessment and accreditation for some time, IT/IS is an area new to the process. As a result, the programs under consideration have fairly young assessment programs that have not yet matured to the point that they have collected, analyzed, and made changes based upon student learning outcomes assessment data. Continued research needs to be done in this area in order to better inform the IT/IS education community.

Assessment data collected at the institutional and program levels should be made available to the relevant members of the campus community. Data at the course level should be shared when it is appropriate to do so, such as when faculty members are collaborating to develop or revise a course, or rare team-teaching a course. When assessment data are collected but not shared with those who would be responsible for implementing change, the data are useless for practical purposes. Similarly, perceived lack of faculty interest in assessment could be caused by the belief that assessment initiatives yield little or no meaningful information.

The first problem, when data are collected but not shared with those responsible for implementing change, can occur when one area or program collects data that are relevant to another area but fails to make the data available. For instance, Information Technology faculty assesses their students' research performance via a required common paper, presentation, or capstone course. Assessments might reveal that students are not achieving desired.

How will these assessment findings be used to help your students and/or improve your program? (For example, have you revised your goals, curriculum, teaching strategies, or assessment strategies or otherwise tried to improve student learning?) Keep in mind, the results should clearly inform and justify the changes being implemented.

In the Kansas City area and in the United States, the amount of courses offered on-line and in an 8-week model appears to be ideal. Students need programs that are convenient and industry compatible. Faculty in the area of IT and IS has been trained to teach in an online and face-to-face platform through faculty development and training opportunities.

Professional development opportunities related to hybrid and online education varies and continual research is done to combine andragogy and pedagogy into the classroom. Although the area of IT/IS offers many courses online, to be successful other areas of the college will need to move towards an online and/or hybrid platform for the program to continue in its success.

Recent faculty training development has focused on an increased need for online and hybrid courses. Training and continued emphasis will need to be placed on incorporating courses into the learning management system in order for the comfort level of instructors to increase

acceptance.

V. Incorporation of Findings – Continuous Improvement

Based on the findings, are there any suggestions for changing the process, the data points, instruments used, etc. for next year?

Based in the finding we were able to identify the different criteria that the IT /IS discipline and the general education need to address:

1. An ability to apply knowledge of computing and mathematics appropriate to the discipline.
2. An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.
3. An ability to design, implements, and evaluate a computer-based system, process, component, or program to meet desired needs.
4. An ability to function effectively on teams to accomplish a common goal.
5. An understanding of professional, ethical, legal, security and social issues and responsibilities
6. An ability to communicate effectively with a range of audiences.
7. An ability to analyze the local and global impact of computing on individuals, organizations, and society.
8. Recognition of the need for and an ability to engage in continuing professional development.
9. An ability to use current techniques, skills, and tools necessary for computing practice.

In the future we need to implement the assessment to how many faculties teach as they were taught, in traditional classrooms with teacher-centered strategies dominated by lecture and discussion. The way faculty teaches is also shaped by their own learning preferences. In the online environment faculty members learning outcomes still comes from their conventional, face-to-face environment, although that will probably change in the next semesters as new instructors with online learning histories join the faculty position.

How might the changes already implemented or those proposed above, be assessed in the future?

The implementation plan needs to find ways to engender the all areas of academia to embrace the similarities between the online environment and the traditional classroom. Professional development opportunities and application of curriculum related to the IT/IS programs will allow growth and progress for the future.

Technology development is the driving force to change and the technology department has been encourage to continue with student-centered teaching. The values and experiences in a face-to-face classroom are similar to the online environment with the right tools. The use of videos, live teaching sessions, and meeting with students individually will help support the move to an online environment.

As new staff is hired, an emphasis should be placed on comfort of teaching both online and in class to seamlessly transition courses to online. Faculty needs training and support to teach

online, and the necessary assessment tools to identify if the purpose and objectives of the IT/IS program has been fulfilled.

VI. Future Assessment Plans

Given what you have learned, should there be changes to your program’s assessment plan? If so, please describe the changes to be implemented.

“What future trends do we see for the IT program accreditation?” and two sample responses follow.

1. Continuous improvement is important for research on the method, system, and execution is ongoing. The goal is to figure out what to analyze, document it, how to measure it, and actively work to improve all aspects of the process: the plan, measures, and curriculum with the teaching.
2. The area of Information Technology and Information Systems is no longer reliant on specialization. Organizations are looking to hire individuals with multiple skills and experience. The IS/IT program encompasses Computer Programming, Networking, and Information Security result in students with various levels of knowledge. Employers and students will be drawn to this area because they are in high demand.
3. CISCO networking and Information Security components were added to the IS program at the end of 2014. These two components for students will allow them to have more job opportunities. Partnerships and advisory board engagement needs to be increased to ensure success of the program goals and objectives. Course and program offering need to be well known throughout the community, state, and region levels.
4. At each level of the assessment continual revision and discussion of objectives should occur. The director and full time staff, at the program level, are responsible for ensuring that change occurs. At the institutional level, approval is made before changing the curriculum. The Office of Institutional Research is responsible for collecting the data, and other offices or departments may be charged with effecting change.
5. Currently IT/IS is the only area in the college with an 8 week rotation schedule for courses allowing students to take required courses followed by an elective course based. For example the first eight weeks students take IT 123 – Fundamentals of Programming upon successful completion continue on the next eight weeks to a higher-level technology course. This has allowed more students to have an opportunity to take IT courses earlier in academic program.

VII. Institution Wide Assessment – Values

The Donnelly College Assessment System recognizes that assessment of student learning begins with values.

Describe specific activities this year that investigated and explored your program’s relationship to this academic year’s emphasis on our value of “hospitality.”

Information Technology and Information systems are vital elements of the learning, teaching, research, and business in higher education today. Donnelly College students, faculty, and staff have driven and adopted the use of technology on our campuses just as they have in their personal lives. The expansion of the College's use of technology and its global footprint increases the demand for advanced technological services.

Describe any other activities this year that emphasized other Donnelly College values that were not part of your regular assessment plan.

A MAC lab was created to meet the needs of the students having access to Apple computers. The lab will allow students and the College Community to gain working knowledge of how to use new technology. Students will have a competitive advantage when entering a workplace that primarily use Apple computers.

This year we introduced a new minor; Information Security, will allow students to be prepared with the knowledge they need to administer a security plan for their organization. The minor aligns with promotion of higher educational standards related to Donnelly College. The information Systems with a minor information security is the only degree offered in Wyandotte County that will provide knowledge to students who may not have access to obtaining this type of degree.

The approval of the CISCO networking academy is another area that emphasizes Donnelly College values by providing advanced networking courses. The partnership with St. Louis Community College and Johnson County community college will allow us to be known regionally for our growth efforts in Technology.

Our department has supported many of the student organizations on campus to encourage awareness of many cultures within the College. Donations and support was given in various forms of activities for all student groups. Support was given to individual faculty and students during times of bereavement.

Make your recommendations for a value that you would like the College to focus on next academic year.

Based on discussions, a number of critical technology and administrative related needs emerged:

- Identify and promote technology best practices to ensure quality delivery of technology services and continuation of a robust and inclusive strategic planning process.
- Create opportunities for new hybrid and online courses through ongoing training and recognition of the industry options of educational programs.
- Identify general degree required courses that can be modified to fit and 8 week and online education tract. Thereby, increasing the number of 8 week and online courses available to students across all disciplines.

- Continue to focus on innovative ways to attract and retain students interested in the area of technology.
- Stay up-to-date on technologies that can facilitate change and continuous improvement in the teaching, learning, research, and administration of Donnelly. Provide technology that addresses the College's expanding global footprint.
- Design and develop funding models for information Technology and Information Systems that relate to the STEM fields. Research methods to attract students specifically interested in STEM areas.
- Enhances policies currently in place relating the use of technology and its impact on the College community.

The Information Technology and Information Systems program will continue to review the quality of data to properly program research and assesses the outcomes. Implement assessment of data using clear and defined information from previous reports.

In conclusion the Information Technology program will need:

1. A clear and detailed budget to use each year to support the desired activities and plans of the Department of Information Systems and Technology.
2. Continued support of faculty and students to gain support for the program, and the involvement of the staff and administrators across the College for credibility and market of the program.
3. Dedicated Information Technology and Information Systems faculty, focused on curriculum and program goals using the expertise of the IT faculty.
4. Additional resources for the automated collection of qualitative and quantitative evaluation tools that can be embedded in the Moodle System specifically for IT courses.