Program Outcomes Guide: 2009
Program Title: Computer Support Specialist
Program Team: Karen Weil-Yates

Expected Learning Outcomes
- Install and troubleshoot Windows operating system
- Build, repair, and upgrade a Windows-based computer system
- Demonstrate skills in customer service
- Execute Linux/Unix programs and Batch files
- Demonstrate understanding of Help Desk organization and management
- Set policies and permissions for application software within a networking environment
- Demonstrate mastery of a minimum of 2 software applications

Assessment (How do students demonstrate achievement of this outcome?)
- Install and troubleshoot Windows operating system:
    Hands-on assignments and exams to establish and promote a good foundation for installing operating systems and troubleshooting associated problems
    Chapter Exams
    Participate in a computer repair clinic
- Build, repair, and upgrade a Windows-based computer system
    Hands-on assignments/labs and exams
    Chapter Exams
    Participate in a computer repair clinic
- Demonstrate excellent customer service skills
    Interview/observe/report on professionals working in the field, participate in and report experience at a computer repair clinic

- Execute Linux/Unix programs and Batch files
    Design and execute script files and batch files based on the principles of programming and practical application
- Demonstrate understanding of Help Desk organization and management
    Complete individual assignments and team projects
    Investigate, design and implement a solution to a problem within the realm of end-user support
- Set policies and permissions for application software within a networking environment
    Complete individual assignments and team projects
- Demonstrate mastery of a minimum of 2 software applications
    Maintain portfolio of assignments from software applications classes
    Complete assignments
    Chapter Exams
    Give a professional presentation on an advanced concept in Windows using presentation software which includes hands-on demonstration and an original handout

Validation (What methods are used to validate your assessment?)
- Proof of students passing the MOS exams (they have that option to take the advanced level exam for IST 105, IST 106 and the basic exam for IST 107) in place of the final exam
- Members of the business/professional community review and evaluate students' presentation in the IST 108 course
- Successful placement and passing of the student's internship in the area of Customer Support Services
- Portfolios of sample applications compiled by the student using guidelines established by the Advisory Committee
- Projects of a problem-solving nature reviewed/approved by the Advisory Committee in the realm of: Help Desk Support, Troubleshooting applications, UNIX and batch files, software policies.
- Confer with other local professionals (Help Desk personnel, technicians, administrative assistants regarding "real-life" applications
- Confer with academic peers in Pennsylvania, Maryland, Virginia when attending conferences
- Maintain professional alliance with CompTIA, IEEE, Microsoft/Redmond for up-to-date information on certifications

Results (What do the data show?)

Assessments for installing software show that 95% of the students can install Windows operating systems successfully (C or better), including dual boot systems (Windows 2000 and XP). The remaining 5% are those that fail the course and/or fail due to not withdrawing (but stop attending class). Troubleshooting exams show that 90% receive a B or better. The number of systems that have been available through the Clinic has dropped; students were not getting enough practice/experience with customer service and troubleshooting.

Assessments for building, repairing, and upgrading Windows-based systems show a 95% success rate. The remaining 5% are those that fail the course and/or fail due to not withdrawing (but stop attending class). Assessment success for identifying parts is low: 20%. Troubleshooting exams show that 80% receive a B or better. The number of systems that have been available through the Clinic has dropped; students were not getting enough practice/experience with customer service and troubleshooting.

Assessments for customer service have changed—fewer sites permit job shadowing. Students are exposed to customers through the Computer Repair clinic and do report on their experience.

Students demonstrate their mastery of Help Desk services through group projects—the most recent year (Spring 2009) was a total disaster for one class in terms of project completion; however, they requested that they be able to report on their progress (such as it was). They turned the ill-fated project into a learning experience and reported on: how they should have managed their time; how they should have divided their labors; what reports and end products they should have produced and guidelines that should have been

created and followed in the first place. Another class (3 people) in the Fall of 2009—worked "tirelessly" to troubleshoot and resolve connection conflicts in learning how to set up and work with Remote Assistance over the Internet—often without my input during on-line meetings (they made their own schedule and guidelines and "stuck" to them).

Setting policies and permissions was one small part of one course—students worked on their own to complete a lab.
Demonstrate mastery of 2 software packages is evidenced by those who have passed any combination of IST 103, IST 105, IST 106, IST 107. It is further demonstrated in IST 203 those individual projects where students are asked to create learning modules for a beginner and a "master" after interviewing individuals who are at that level of learning with a software application (almost all students choose Excel and Word). All students who completed this project received a 90% or better.

The Fall 2009 Advisory CSS Sub-Committee recommended that the Expected Learning Outcomes be updated to better reflect the overall program; they felt that the some of the current outcomes were more course level related.

The sub-committee also recommended other changes in the assessments and for validation. I have included them along with changes that I have implemented for this year in the Follow-up segment below.

Follow-up (How have you used the data to improve student learning?)
- Install, navigate, and troubleshoot Windows and Unix operating systems using both a command-line and GUI environment, utilities and problem-solving skills
- Build, repair, and upgrade a Windows-based computer system, including peripherals and external devices
- Demonstrate excellent customer service skills
- Use critical thinking and problem-solving skills to troubleshoot and resolve hardware, software and networking issues
- Demonstrate understanding of Help Desk organization and management

Assessment changes will include:
- Modification of the presentation on an advanced Windows topic to be reviewed by local professionals to a presentation based on a business-related operating system topic in which students must interview a local business that uses or has solutions or modifications to the operating system. This project was rewritten by an adjunct professor. Examples include:

Shortcuts	Students will find a company that has implemented standard shortcuts as part of their business process. Students will document the circumstances surrounding the implementation, the perceived and actual benefits, and any unexpected

	consequences that may have resulted.
File Compression	Students will find a company that routinely uses Windows or similar file compression. Students will document the applications for this feature along with the perceived and actual benefits.
Optimizing Hard Disks	Students will identify a company that routinely uses hard disk optimization through windows. Students will document the perceived and actual benefits of this feature and provide comments and suggestions on the company's implementation of this feature.

- One course (IST 151) will be modified to include installing Unix/Linux and investigating the GUI interface

- The CPR clinic has been modified to be an on-going event where students on campus are encourage to drop-off their systems for repair (along with the general public)—we seem to have a better "flow" instead of 2 or 3 Saturdays per semester.

- The Advisory Committee recommended:
  - o Students spend 10-15 hours on observing/working with someone on an actual Help Desk; preparing for this by mastering Help Desk software in class
  - o Students have more exposure to working with "customers". Suggestions included interviewing, conducting campus surveys, community service class projects, required field trips to local businesses/IT departments/technology parks.
  - o Keep the group project (referring to the one that failed)—they felt that it was worthwhile—that the students turned it into a learning experience—the process is more important than the product.
  - o Individual project to be added to IST 204: Security at the Help Desk
  - o Use NOCTI testing software for verification of student's skill levels for IST 150/151 (forseeing the state mandate) since NOCTI is inexpensive and results are sent to the instructor. Currently A+ certifications do not show scores and are sent to the individual.

Budget Justification (What resources are necessary to improve student learning?)
- Hardware: 15-20 new systems every other year; with budgeted monies for replacement of current equipment as it fails
- Software: imaging software; data recovery software (purchased for 2009-2010); system utility software (Partition Magic, for example); would like to purchase a non-Microsoft backup utility (2010); need Transcender software updated in January 2010) for A+ prep
- Adding the cost of the NOCTI exams to IST 150/151