Course Title: IST 150: PC Tech/Troubleshooting and Repair

Course Leader: Karen Weil-Yates

Expected Learning Outcomes for Course

- ***Students will be able to assemble, setup, and upgrade personal computer systems and mobiles devices including netbooks and tablets***
- ***Students will be able to diagnose, isolate faulty components.***
- ***Students will demonstrate customer service, troubleshooting and preventative maintenance skills***
- ***Students will be able to prepare for certification***

Assessment
(How do students demonstrate achievement of these outcomes?)

Students are required to

- complete hands-on labs and answer questions that promote Internet Research of diagnostic solutions, setups, and upgrades; customer service and critical thinking.
- take two hands-on exams: one, where they identify parts and their characteristics; two, where they diagnose and repair a faulty system
- take the Kaplan Self-Test Essentials Exam Prep for A+ (currently the leading prep exam for certification)
- Students also participate in a computer repair clinic where they can develop and improve their diagnostic and customer service skills.

Validation
(What methods are used to validate your assessment?)

All instructors who teach this course must be A+ certified. The textbook is an approved CompTIA A+ text and is published by an industry leader in the information technology field.

This course's assessments were validated at the by advisory committee members as needed. Course content is mapped to A+ 802 (2013) Certification Exam objectives (additional objectives are also included. Students are required to take a nationally approved certification preparation exam for A+. They take the exam at least twice in the semester: The first time is to give the instructor an idea of the student's "starting point"—much like a pre-test. The second exam is the only other "written exam" that is given; it replaces all other multiple choice exams that were associated with the course (there were 4). The student may take this exam as many times as they like throughout the semester, with the instructor recoding the highest score. They have access to the answers in the form of taking the exams in a study mode or by borrowing printouts in a notebook to review the answers and rationale behind those answers (there are over 250 questions). The intentions behind this strategy are to:

- Get them used to the type of questions and the speed/pace at which they make take a true certification exam
- Get students into the habit of preparing for an exam—repetitions help with memory retention
- Get students to set goals and achieve those goals (I am going to get a __% on this exam)
- Give students the initiative and encouragement to take the actual certification—the prep that is used sets a higher bar than the actual certification—this if students pass this prep that can pass the certification.

The repair clinic was presented to my cohorts at the 2006 CompTIA breakaway during informal discussions where we were to share ideas and pedagogy. I was asked to share how our clinic worked and outline procedures. Many of the participants asked if they could take my repair clinic idea and incorporate it into their programs. I also prepared a presentation for AFACCT on the repair clinic and its role in this class.

Results

(What does the data show?)

Self-Test Practical Essentials Exam results are as follows:

	Self Test #1	Self Test #2	Increase	Pass *	Course Pass Rate
Student #1	53	54	1		80.4%
Student #2	47	60	13		85.8%
Student #3	66	61	-5		84.7%
Student #4	60	65	5		78.1%
Student #5	0	0	0		48.9%
Student #6	75	76	1		92.2%
Student #7	40	86	46	Pass	80.6%
Student #8	48	47	-1		74.6%
Student #9	68	71	3		85.8%
Student #10	0	0	0		25.0%
Student #11	38	40	2		56.7%
Student #12	68	15	-53		57.8%
Student #13	50	69	19		90.8%
Student #14	39	28	-11		73.8%
Student #15	52	58	6		76.4%
Student #16	12	80	68	Pass	72.5%
Student #17	66	65	-1		85.0%
Student #18	49	51	2		85.7%
Student #19	0	0	0		1.7%
Student #20	53	52	-1		85.3%
Average	44.2	48.9	4.7		71.1%

Hands-On Exams and Project A:

Students must complete 5 hours in the Computer Repair Clinic run by the ITA for real world, hands-on experience for Project A. There they are assigned a computer and partner to work with as they learn to troubleshoot and diagnose computer repair problems. The clinic repairs approximately 60 computers per semester with a wide range of problems, issues and needs. Students must the write a 500 word report on their experience.

	Hands-on Exam 1	Hands-on Exam 2	Project B
Student #1	49	70	98
Student #2	79	87	100
Student #3	86	91	97
Student #4	90	92	20
Student #5	54	74	20
Student #6	95	97	100
Student #7	65	70	80
Student #8	60	85	100
Student #9	91	90	98
Student #10	71	0	0
Student #11	49	70	20
Student #12	39	79	80
Student #13	89	97	100
Student #14	78	84	90
Student #15	79	90	100
Student #16	46	82	100
Student #17	77	97	100
Student #18	71	90	99
Student #19	0	0	0
Student #20	63	100	100
Average	67	77	75

Follow-up

(How have you used the data to improve student learning?)

This is the third semester for students taking the Self-Test as their final "written" exam. While the Average rate for the 2nd exam and the Average Increase does not seem to have improved over the first semester, removing the results for the 3 students who did not take the either exam (and did not pass the course) the Averages are improve. The scores may be low as we had a delay in getting the software installed and activated:

Average	52.0	57.5	5.5		79.2%

The hands-on Exam 1 pass rate is stable at 70% average:

Average	70%	81	79

I have continued to give it later in the semester when students have become more comfortable with parts identification. Students are encouraged to come in during their free time to review parts. The hands-on Exam 2 pass rate is good—students have practiced for this all semester. Every time before they begin work on their HOPs, they have been trained to check their systems to see if they are working; and most times they do not—they have been "sabotaged" by the student aides to simulate real problems and to develop troubleshooting skills. What I do is emphasize good technical skills (use of work area, safety, methodical review of a system) as they are working. I would like to further develop a checklist of good habits and techniques and/or place some posters around the lab as reminders. The class averages for these exams are great (well within acceptable limits).

Budget Justification

(What resources are necessary to improve student learning?) 10-seat site license for A+ Self-Test Certification software; 10 systems per class; safety equipment (anti-static mats and wrist straps); test equipment (multimeters, power supply testers, etc); peripherals; I/O devices; old laptops; demo equipment; sleeve of CDs; networking equipment (NICs, switches, cables); wireless adapters