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 recording 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 Total %
Student #1	48	81	43	Y	93.7%
Student #2	22	40	18	Y	78.4%
Student #3	55	62	7	Y	86.3%
Student #4	59	62	3	Y	91.22%
Student #5	51	59	8	Y	86.1%
Student #6	0	0	0	N	7.9%
Student #7	0	0	0	Y	10.4%
Student #8	0	0	0	N	72.7%
Student #9	61	62	1	Y	90.0%
Student #10	0	0	0	N	0.7%
Student #11	48	0	0	N	18.2%
Student #12	0	0	0	N	6.5%
Student #13	54	73	19	Y	90.8%
Student #14	54	62	8	Y	91.3%
Student #15	39	72	33	Y	88.7%
Student #16	46	67	21	Y	88.3%
Student #17	62	79	17	Y	94.9%
Student #18	0	0	0	N	1.8%
Student #19	66	0	0	N	46.1%

Student #20	0	0	0	N	11.4%
Average	33	36	9		57.8%
Average for those who did not take/pass the course	50	65	16		89.1%

Note: Of the 9 that failed, only one person stayed through the entire course and failed (did not complete all course requirements); the others were "walkaways".

Hands-On Exams and Project A:

Students must complete 5 hours in the Computer Repair Clinic run by the ITA for the "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	89	92	96
Student #2	67	87	85
Student #3	81	87	99
Student #4	89	93	99
Student #5	79	87	100
Student #6	0	0	0
Student #7	0	0	0
Student #8	90	87	94
Student #9	83	100	100
Student #10	0	0	0
Student #11	0	0	0
Student #12	89	92	96
Student #13	0	0	0
Student #14	88	100	99
Student #15	79	100	100
Student #16	73	95	98
Student #17	90	95	100
Student #18	93	100	100
Student #19	0	0	0

Student #20	83	100	0
Average	59	66	63
Average for those remained in the course (one failed—for not submitting/meeting all course requirements)	84	94	90

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

This is the fifth semester for students taking the Self-Test as their final "written" exam. There is a distinct improvement in the second Self-Test Exam and in the overall point values increase. Each year students take this more seriously. Each receives 50 points just for taking the first exam; the second test scores are increasing. I plan to get students to not to wait until the last week of class to make their first attempt for their 2nd exam (they are permitted unlimited attempts).

	Self-Test #1	Self- Test #2	Increase/Decrease in points		Course Total %
Average FA 2013	52.0	57.5	5.5		79.2%
Average FA 2014	50	65	18		81.9%

The hands-on Exam 1 has been my greatest concern for this course. I originally started with a 20% pass rate. Over the years, I have made modifications in timing (later in the semester) and preparation—more in class reviews; never in content—it is more difficult and comprehensive if anything. I also adopted a new textbook that includes interactive software which drills students in parts and component identification. This adoption, I feel has helped to improve scores.

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