Course Syllabus

ITSC 1425 – Personal Computer Hardware

Catalog Description: Current personal computer hardware including assembly, upgrading, setup, configuration, and troubleshooting.

Prerequisites: None

Semester Credit Hours: 4
Lecture Hours per Week: 3
Lab Hours per Week: 3
Extended hours: 0
Contact Hours per Semester: 96

State Approval Code: 47.0104

Class section meeting time:

Instructional Goals and Purposes: The purpose of this course is to teach students hardware concepts. They will be asked to identify hardware components, know the purpose of each component, and how to test, evaluate and replace hardware components. The students will also be asked to optimize the computer system's performance by upgrading the configuration and troubleshooting any problems that faulty components can cause.

Learning Outcomes:
1. Assemble/setup and upgrade personal computer systems
2. Diagnose and isolate faulty components
3. Optimize system performance
4. Install/connect peripherals

Specific Course Objectives (includes SCANS):
After studying all materials and resources presented in the course, the student will be able to:

1. **Computing Overview** (1a-i, 1a-ii, 2c-i, 2d-i)
    a. Explain Hardware Basics
    b. Identify Windows Basics
    c. Detect Linux Basics
    d. Recognize macOS Basics
2. **PC Technician Responsibilities** (1a-i, 1b-ii,1b-iii, 2c-i, 2c-iii, 2d-i, 2d-ii, 2d-iii, 2e-i, 2e-ii-2e-iii)
    a. Implement disaster prevention and recovery methods
    b. Install surge protection and a UPS
3. **System Components** (1b-ii, 1b-iii, 2c-i, 2d-i, 2d-ii, 2d-iii, 3e-i, 3e-ii, 3e-iii)
    a. Install and connect a power supply
    b. Install and connect a motherboard
    c. Troubleshoot system power
    d. Install a CPU and CPU fan
    e. Troubleshoot CPU installation

  f. Install memory modules
  g. Troubleshoot system memory
  h. Configure BIOS/UEFI settings
  i. Select and install expansion cards
  j. Manage audio device settings
4. **Peripheral Devices** (1b-ii, 1b-iii, 2c-i, 2d-i, 2d-ii, 2d-iii, 3e-i, 3e-ii, 3e-iii)
  a. Install internal and external storage devices
  b. Configure and optimize video adapter settings
  c. Manage device drivers
5. **Storage** (1b-ii, 1b-iii, 2c-i, 2d-i, 2d-ii, 2d-iii, 3e-i, 3e-ii, 3e-iii)
  a. Install internal and external storage devices
  b. Implement a RAID solution
  c. Configure and manage storage
  d. Perform disk maintenance
  e. Troubleshoot storage devices
6. **Networking** (1b-ii, 1b-iii, 2c-i, 2d-i, 2d-ii, 2d-iii, 3e-i, 3e-ii, 3e-iii)
  a. Install and configure wired and wireless adapters and cables
  b. Configure client IP addressing, DNS, and DHCP
  c. Install and configure internet connection devices
  d. Use network utilities
  e. Use networking utilities to view, test, and troubleshoot network configuration, communication, and connectivity issues
  f. Troubleshoot a network connection
7. **Wireless Networking** (1b-ii, 1b-iii, 2c-i, 2d-i, 2d-ii, 2d-iii, 3e-i, 3e-ii, 3e-iii)
  a. Install and configure wired and wireless network adapters and cables
  b. Install and configure internet connection devices
  c. Configure wired and wireless networking for a SOHO
8. **Printing** (1b-ii, 1b-iii, 2c-i, 2d-i, 2d-ii, 2d-iii, 3e-i, 3e-ii, 3e-iii)
  a. Select and install a printer
  b. Configure printer properties
  c. Manage printing
  d. Configure network printing
  e. Troubleshoot printer issues
9. **Mobile Devices** (1b-ii, 1b-iii, 2c-i, 2d-i, 2d-ii, 2d-iii, 3e-i, 3e-ii, 3e-iii)
  a. Install basic hardware components on laptop computers
  b. Configure power options and settings
  c. Use core macOS and iOS features
  d. Configure mobile device connectivity
  e. Use common mobile device features
  f. Implement access control and authentication
  g. Implement device encryption
  h. Implement device location
  i. Troubleshoot mobile devices

Course Content:
A general description of lecture/discussion topics included in this course are listed in the Learning Outcomes / Specific Course Objectives sections of this syllabus.

Students in all sections of this course will be required to do the following:
1. Students will submit lab simulation assignments each week. They will also have access to tutorial videos, fact sheets, and practice questions in the TestOut environment.
2. Students must complete the Mid-Term and Final exams in the presence of an official testing proctor.

Methods of Instruction/Course Format/Delivery:

This course is offered as an Internet class via the Canvas Learning Management System and the TestOut Lab Simulation environment. The online learners will not meet as a traditional class but will have access to the eText, tutorial videos, lab simulation exercises, and practice questions in the TestOut learning content. Each chapter has PowerPoint slide presentations and Lesson Notes provided inside the Canvas course. All assignments should be completed by going through the assignment link in Canvas. This will ensure that the grade will be recorded in the Canvas Gradebook which is the official grade location.

The students will have access to the instructor via the Canvas Message system, posted office hours, or by scheduled appointments. If a Canvas message is not answered within 24 hours the student can email the instructor using their Panola College email address. Students can also contact the instructor via their office phone or in person during posted office hours or scheduled appointments. Students should check Canvas Announcements and Canvas Messages each day for possible updated information from the instructor.

Major Assignments / Assessments:
The following items will be assigned and assessed during the semester and used to calculate the student's final grade.

Assignments

1. Students will access the TestOut environment from their Canvas course. Each week they will submit Lab Simulation activities demonstrating mastery of the chapter concepts and skills for chapters 1-9

Assessment(s):

1. Mid-Term Exam – chapters 1-5
2. Final Exam – chapters 6-9

Course Grade:
The grading scale for this course is as follows:

- Assignments – 60%
- Exams – 40%

Attendance: Chapter lab simulations should be submitted each week according to the course schedule posted inside Canvas. Weekly submissions will demonstrate that the student is actively participating in the course and will be used as proof of online attendance.

Plagiarism: All submitted work should be completed by the enrolled student. If the instructor finds that the work has not been completed by the individual student submitting the activity, a grade of "0" will be assigned for that submission. Upon a second offense of plagiarism, the student will fail the course.

Testing: All exams must be taken in the presence of a testing proctor. This can take the form of one of our official Panola testing Centers or through an approved remote testing proctor. Please see the Testing Services site for available testing times/dates and to access the Request for Remote Testing form.

Texts, Materials, and Supplies:
- The students are required to purchase a TestOut PC PRO A+ LAB SIM ACCESS CODE, ISBN: 978-1-935080-42-8.
- Access to a computer with a strong Internet connection

Required Readings:
- TestOut PC Pro eText, chapters 1-9

Recommended Readings:
- None

Other:
- For current texts and materials, use the following link to access bookstore listings: https://www.panolacollegestore.com
- For testing services, use the following link: https://www.panola.edu/elearning/testing.html
- If any student in this class has special classroom or testing needs because of a physical learning or emotional condition, please contact the ADA Student Coordinator in Support Services located in the Charles C. Matthews Student Center or go to https://www.panola.edu/student-success/disability-support-services/ for more information.
- Withdrawing from a course is the student's responsibility. Students who do not attend class and who do not withdraw will receive the grade earned for the course.
- Student Handbook, *The Pathfinder:* https://www.panola.edu/student-success/documents/pathfinder.pdf

SCANS CRITERIA

1) **Foundation skills are defined in three areas: basic skills, thinking skills, and personal qualities.**

   a) **Basic Skills**: A worker must read, write, perform arithmetic and mathematical operations, listen, and speak effectively. These skills include:
      i) Reading: locate, understand, and interpret written information in prose and in documents such as manuals, graphs, and schedules.
      ii) Writing: communicate thoughts, ideas, information, and messages in writing, and create documents such as letters, directions, manuals, reports, graphs, and flow charts.
      iii) Arithmetic and Mathematical Operations: perform basic computations and approach practical problems by choosing appropriately from a variety of mathematical techniques.
      iv) Listening: receive, attend to, interpret, and respond to verbal messages and other cues.
      v) Speaking: Organize ideas and communicate orally.

   b) **Thinking Skills**: A worker must think creatively, make decisions, solve problems, visualize, know how to learn, and reason effectively. These skills include:
      i) Creative Thinking: generate new ideas.
      ii) Decision Making: specify goals and constraints, generate alternatives, consider risks, and evaluate and choose the best alternative.
      iii) Problem Solving: recognize problems and devise and implement plan of action.
      iv) Visualize ("Seeing Things in the Mind's Eye"): organize and process symbols, pictures, graphs, objects, and other information.
      v) Knowing How to Learn: use efficient learning techniques to acquire and apply new knowledge and skills.
      vi) Reasoning: discover a rule or principle underlying the relationship between two or more objects and apply it when solving a problem.

   c) **Personal Qualities**: A worker must display responsibility, self-esteem, sociability, self-management, integrity, and honesty.
      i) Responsibility: exert a high level of effort and persevere toward goal attainment.
      ii) Self-Esteem: believe in one's own self-worth and maintain a positive view of oneself.
      iii) Sociability: demonstrate understanding, friendliness, adaptability, empathy, and politeness in group settings.
      iv) Self-Management: assess oneself accurately, set personal goals, monitor progress, and exhibit self-control.
      v) Integrity and Honesty: choose ethical courses of action.

2) **Workplace competencies are defined in five areas: resources, interpersonal skills, information, systems, and technology.**

   a) **Resources**: A worker must identify, organize, plan, and allocate resources effectively.
      i) Time: select goal-relevant activities, rank them, allocate time, and prepare and follow schedules.
      ii) Money: Use or prepare budgets, make forecasts, keep records, and make adjustments to meet objectives.
      iii) Material and Facilities: Acquire, store, allocate, and use materials or space efficiently.
      Examples: construct a decision time line chart; use computer software to plan a project; prepare a budget; conduct a cost/benefits analysis; design an RFP process; write a job description; develop a staffing plan.

   b) **Interpersonal Skills**: A worker must work with others effectively.
      i) Participate as a Member of a Team: contribute to group effort.
      ii) Teach Others New Skills.
      iii) Serve Clients/Customers: work to satisfy customer's expectations.

iv) Exercise Leadership: communicate ideas to justify position, persuade and convince others, responsibly challenge existing procedures and policies.

v) Negotiate: work toward agreements involving exchange of resources, resolve divergent interests.

vi) Work with Diversity: work well with men and women from diverse backgrounds.

Examples: collaborate with a group member to solve a problem; work through a group conflict situation, train a colleague; deal with a dissatisfied customer in person; select and use appropriate leadership styles; use effective delegation techniques; conduct an individual or team negotiation; demonstrate an understanding of how people from different cultural backgrounds might behave in various situations.

c) **Information**: A worker must be able to acquire and use information.
   i) Acquire and Evaluate Information.
   ii) Organize and Maintain Information.
   iii) Interpret and Communicate Information.
   iv) Use Computers to Process Information.

Examples: research and collect data from various sources; develop a form to collect data; develop an inventory record-keeping system; produce a report using graphics; make an oral presentation using various media; use on-line computer data bases to research a report; use a computer spreadsheet to develop a budget.

d) **Systems**: A worker must understand complex interrelationships.
   i) Understand Systems: know how social, organizational, and technological systems work and operate effectively with them.
   ii) Monitor and Correct Performance: distinguish trends, predict impacts on system operations, diagnose deviations in systems' performance and correct malfunctions.
   iii) Improve or Design Systems: suggest modifications to existing systems and develop new or alternative systems to improve performance.

Examples: draw and interpret an organizational chart; develop a monitoring process; choose a situation needing improvement, break it down, examine it, propose an improvement, and implement it.

e) **Technology**: A worker must be able to work with a variety of technologies.
   i) Select Technology: choose procedures, tools or equipment including computers and related technologies.
   ii) Apply Technologies to Task: understand overall intent and proper procedures for setup and operation of equipment.
   iii) Maintain and Troubleshoot Equipment: Prevent, identify, or solve problems with equipment, including computers and other technologies.

Examples: read equipment descriptions and technical specifications to select equipment to meet needs; set up and assemble appropriate equipment from instructions; read and follow directions for troubleshooting and repairing equipment.