



## **Course Syllabus**

### **ITSC 1425 – Personal Computer Hardware**

**Catalog Description:** This course is a study of current personal computer hardware including personal computer assembly and upgrading, setup and configuration, and troubleshooting.

**Lecture hours = 3, Lab hours = 3**

**Prerequisites:** none

**Semester Credit Hours:** 4

**Lecture Hours per Week:** 3

**Lab Hours per Week:** 3

**Contact Hours per Semester:** 96

**State Approval Code:** 47.0104

**Instructional Goals and Purposes:** The purpose of this course is teach students to assemble/setup and upgrade personal computer systems; diagnose and isolate faulty components; optimize system performance; and install/connect peripherals.

#### **Learning Outcomes:**

1. Assemble/setup and upgrade personal computer systems
2. Perform installation, configuration, and upgrading of microcomputer hardware and software.
3. Install/connect associated peripherals.
4. Diagnose and troubleshoot microcomputer systems hardware and software, and other peripheral equipment.

#### **Specific Course Objectives (includes SCANS):**

After studying all materials and resources presented in the course, the student will be able to:

#### **1. Assemble/setup and upgrade personal computer systems.** (1a-i, 1a-ii, 1a-iv, 1b-iv, 1b-v, 2c-i,

2c-ii, 2c-iii, 2c-iv)

- Identify modules that make up a computer system and its operation
- Understand that a computer requires both hardware and software to work.
- Describe the different hardware components inside of and connected to a computer.
- Identify each type of computer bus structure
- Learn about the many different processors used for personal computers and notebook computers

#### **2. Perform installation, configuration, and upgrading of microcomputer hardware and**

**software.** (1a-i, 1a-iv, 1b-iv, 1b-vi, 1c-iv, 2c-i, 2c-ii, 2c-iii, 2c-iv)

- Assemble/setup microcomputer systems, accessory boards
- Learn about the different types of motherboards and how to select one
- Install or replace a motherboard
- Troubleshoot problems with memory

**3. Install/connect associated peripherals.** (1a-i, 1a-iv, 1b-i, 1b-iii, 1b-iv, 1b-vi, 2c-i, 2c-ii, 2c-iii, 2c-iv, 2d-iii)

- Learn how printers and scanners work
- Install printers and scanners and how to share a printer over a local area network.
- Troubleshoot printer and scanner problems.
- Solve hard drive problems

**4. Diagnose and troubleshoot microcomputer systems hardware and software, and other peripheral equipment.** (1a-i, 1a-iv, 1b-iv, 2c-ii, 2c-iv)

- Understand how to approach and solve a PC problem.
- Troubleshoot a failed boot before the OS is loaded.
- Describe the general approaches you need to take when installing and supporting I/O devices
- diagnose and isolate faulty components

**Methods of Instruction/Course Format/Delivery:**

Students in both the traditional class and in the Internet class will have access to this course via WebCT. Students in the traditional class will meet regularly for lecture over the material. Students in the Internet class will only be required to meet with the instructor for testing; however, Internet students are always welcome to attend the traditional class (especially for exam reviews). Resources provided through WebCT include

- A calendar displaying assignments each week (please check often)
- Online assignments
- Chapter notes
- Email (totally contained within WebCT)

All assignments will be submitted through WebCT. After the assignment has been graded, the student will be able to view his or her grade by returning to the assignment and clicking the View Scores button or by clicking the My Grades link in the left banner. All exams will be hands-on application tests and students will not be able to view the answers to the exams online; however,

they will be able to see their grade in My Grades and drop by the office to review their exams. I generally will have your work graded and posted within two days following the deadline. Students in both the traditional and Internet classes should use the Email within WebCT to communicate with the instructor. Using WebCT email gives you access to the instructor and other classmates without having to remember or type email addresses—you just select a name from the list. If you are not able to contact me using email in WebCT, you may use my Panola College email address. I attempt to respond to all email within 24 hours. If you make an appointment with me through email to take an exam, for example, I will reply to your email—if I do not reply, you should send your email to me again or call me. Please always include a subject line and your name in your email.

**Assessment:**

The following items will be assigned during the semester and used to calculate the student's final grade:

- **ASSIGNMENTS**
  - We will work through each of the learning modules which correspond to the chapters in your textbook. At the end of each learning module, you will complete a Labsim project demonstrating
  - Your knowledge of the programming concepts presented in the learning module. Projects will be
  - Submitted to me according to the schedule provided using the online drop box in the Assignments
  - Link of Canvas.
- **PORTFOLIO**
  - The portfolio will be a collection of all Labsim work completed during the semester including a
  - comprehensive presentation project to be completed in the final weeks of the semester.
  - Portfolios are due by the scheduled deadline.
- **EXAMS**
  - There will be two assessments to verify that you have the comprehensive knowledge required to produce your portfolio. You will demonstrate this knowledge by conducting an interactive presentation of a comprehensive project subject to peer and instructor evaluation.

**Course Grade:**

The grading scale for this course is as follows:

- Assignments – 20%
- Portfolio – 50%
- Exams – 30%

**Texts, Materials, and Supplies:**

- TestOut PC Pro Courseware published by TestOut, 2017
  - Students must purchase an access code from college store to access this online courseware.
  - Courseware include e-text, computer hardware troubleshooting and maintenance simulations giving this an excellent virtual hardware lab to test, troubleshoot, and update computers.
  - The simulations allow students to see a large variety of computer interfaces, devices, and scenarios—not possible in a physical lab.
  - The simulation software monitors the actions of the student as they use the virtual workbench to perform learning activities. If a student makes a mistake, the software immediately notifies the student and offers a retry or a solution to the error made.

## 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.