COURSE OUTLINE

Course Number NET 102	Course Title Introduction to PC Hardware and Software	Credits **3**
Hours: Lecture/Lab/Other 2/3/0	Co-requisite ENG 101	Implementation Semester & Year Fall 2022

Catalog description:

Students learn to install, configure, diagnose, and troubleshoot microcomputer hardware components and various operating systems. Includes an introduction to local area networks, the identification and installation of memory, preventative maintenance, plus coverage of terminology and concepts that will assist students preparing for the A+ Certification exams.

General Education Category:
Not GenEd

Course coordinator:
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Required texts & Other materials:
TESTOut Web Material ISBN:(978-1-935080-42-8)

Course Student Learning Outcomes (SLO):
  Upon successful completion of this course, the student will be able to:

1. Identify, at a basic level, the names, purposes, and characteristics, of system modules, and recognize the modules by sight or definition (**ILGs 4; PLOs 1, 2**)
2. Identify, at a basic level, the major desktop components and interfaces, and their functions, and differentiate the characteristics of the various desktop operating systems (**ILGs 4, 11; PLOs 2, 5**)
3. Identify, at a basic level, the procedures for adding and removing field- replaceable modules for desktop systems and portable systems and, given a replacement scenario, choose the appropriate sequences (**ILGs 4; PLOs 2**)
4. Demonstrate, at a basic level, the ability to use command line functions and utilities to manage the operating system, including proper syntax and switches (**ILGs 9; PLOs 2, 3**)
5. Identify, at a basic level, the proper procedures for installing and configuring common SATA devices and peripheral devices, and choose the appropriate installation or

configuration sequences in given scenarios, as well as recognize the associated cables (**ILGs 2, 4 ; PLOs 4, 5, 6**)

6. Identify, at a basic level, the steps to perform an operating system upgrades, and given an upgrade scenario, choose the appropriate next steps (**ILGs 11; PLOs 2, 3**)

7. Recognize, at a basic level, common problems associated with each module and their symptoms, identify steps to isolate and troubleshoot the problems, and given a problem situation, interpret the symptoms and infer the most likely cause (**ILGs 2, 4; PLOs 7, 8**)

Course-specific Institutional Learning Goals (ILG):

Institutional Learning Goal 2. Mathematics. Students will use appropriate mathematical and statistical concepts and operations to interpret data and to solve problems.

Institutional Learning Goal 4. Technology. Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals..

Institutional Learning Goal 9. Ethical Reasoning and Action. Students will understand ethical frameworks, issues, and situations.

Institutional Learning Goal 11. Critical Thinking: Students will use critical thinking skills understand, analyze, or apply information or solve problems.

Program Learning Outcomes (PLO):

1. Understand, configure, and install hardware and software, including Internet user software;
2. Understand, describe, and apply network protocols and standards;
3. Explain computing practices and procedures found in most organizations;
4. Use printed and online technical documentation;
5. Describe how the Internet works;
6. Work effectively individually and in workgroups to install and implement information technology;
7. Demonstrate written and oral communication skills.
8. Pass industry certifications, including A+, NET+, Linux+, and Security+; Microsoft's MCTS, MCITP, MCSA, and MCSE; and Cisco's CCNA.

Units of study in detail – Unit Student Learning Outcomes:

Unit I   [Unit I Introduction] [Supports Course SLO # 1]
Learning Objectives
The student will be able to…
- The student will be able to…
- Understand how the course and lab facilities are structured.
- Identify basic principles of electrical and mechanical safety.
- Identify and use pertinent hand tools

Unit II   [Unit II Basic Skills] [Supports Course SLO # 2]
Learning Objectives
The student will be able to…
- Become familiar with the basics of microcomputers.
- Identify various electrical components.
- Remove and insert integrated circuits.
- Identify soldering and disordering techniques.

Unit III   [Unit III   Windows Operating System] [Supports Course SLO # 6]
Learning Objectives
The student will be able to…
- Understand the early days of Windows.
- Understand introductory Windows OS.
- Work with "The Desktop".
- Work with "Windows Explorer".
- Work with "The Control Panel".
- Manage printer software.
- Work with "The Accessories".
- Identify basic Windows networking components.
- Install new software.
- Install new hardware.
- Understand Windows CE.
- Identify other non-Windows network operating systems.

Unit IV   [Unit IV Computer Networks] [Supports Course SLO # 5]
Learning Objectives
The student will be able to…
- Explain what a computer network is.
- Understand various network topologies.
- Identify various networking hardware and protocols.
- Work with network applications.
- Understand the Internet.
- Understand Electronic Mail.
- Work through various network design and troubleshooting scenarios.
- Understand Windows Domains.
- Understand telecommunications.

Unit V   [Unit V Microcomputer Hardware] [Supports Course SLO # 5]
Learning Objectives
The student will be able to…
- Identify the types of computer "environments".
- Teardown and assemble a system.
- Identify and understand power supplies.
- Understand and work with floppy disk drives.
- Understand and work with the motherboard microprocessor and coprocessor.
- Understand and work with the motherboard memory.
- Understand and work with the motherboard expansion slots.
- Identify and understand POST (Power-On Self-Test).
- Understand hard drive fundamentals.
- Understand and implement hard drive backup.
- Replace a hard drive and work with file recovery utilities.
- Identify and work with various types of video monitors and adapters.
- Understand and work with CD-ROMs and soundcards.

Unit VI   [Unit VI Other Selected Topics] [Supports Course SLO # 8]
Learning Objectives
The student will be able to…
- Be familiar with the Intel microprocessor architecture.
- Have a basic understanding of how various computer languages work.
- Identify and understand hardware and software interrupts.
- Be familiar with advanced Intel microprocessors.
- Understand the detail of the system BIOS.
- Be familiar with the Windows internal architecture.
- Understand and work with computer viruses and security.
- Understand and work with various performance and diagnostic software.
- Prepare for certifications exams

Evaluation of student learning: [Evaluates SLOs #1, 2, 3, 4, 7]

Students' achievement of the course objectives will be evaluated through the use of the following:

- TESTOut Lab assignments assessing students' computer hardware comprehension skills related to the unit objectives.
- TESTOut Lab Chapter quizzes assessing students' comprehension of software computer concepts related to the unit objectives.
- Research and Final Research presentation assessing students' comprehension through the use of word, PowerPoint and graphics to demonstrate knowledge,
- Basic programming Labs and Quizzes assignments assessing students' basic comprehension of hardware functions and skills related to the unit objectives.
- Exams and Final Research Presentation assessing students' comprehension of computer concepts and applications related to the unit objectives.

Grade Criteria

Item	Percent	Description
TESTOut Labs	10%	Activity-based lab Assignment in Excel
TESTOut Quizzes	10%	15 Question quiz for each unit of Computer Concepts
Exams	35%	3 Assignment based on your IT Topics leading to the final project
Final Research Presentation	45%	Professional Presentation