

I. **COURSE DESCRIPTION:**

This course provides a comprehensive overview of computer hardware and software fundamentals. Students who complete this course will be able to describe the internal components of a computer, assemble a computer system, install an operating system, and troubleshoot using system tools and diagnostic software. Laptops, portable devices, wireless connectivity, security, safety and environmental concerns will be introduced. They will also be able to connect computers to the Internet and share resources in a networked environment.

This course is one of two courses that prepare the students for CompTIA A+ certification.

II. **LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:**

Upon successful completion of this course, the student will demonstrate the ability to:

1. **Explain the IT industry and certifications required.**

Potential Elements of the Performance:

- Identify and describe the education and certifications required
- Describe the A+ certification
- Describe the EUCIP certification

2. **Identify and describe various personal computer configurations, internal components, safe lab procedures and tool use.**

Potential Elements of the Performance:

- Explain the purpose of safe working conditions and procedures
- Identify tools and software used with PC components
- Implement proper tool use
- Identify and describe the uses of various PC cases and power supplies
- Identify and describe the internal components of a PC
- Identify PC ports and cables
- Identify various input and output devices
- Explain system resources and their purpose
- Demonstrate the ability to assemble a computer
- Describe laptops and various portable devices currently available
- Identify and describe laptop components
- Explain how to configure laptops

3. **Perform preventive maintenance and troubleshooting**

Potential Elements of the Performance:

- Explain the relationship between communication and troubleshooting
- Describe good communication skills and professional behaviour

- Explain ethics and legal aspects of working with computer technology
 - Describe call center environment and technician responsibilities
 - Explain the purpose of preventive maintenance
 - Identify the elements of the troubleshooting process
 - Describe preventive maintenance procedures for operating systems
 - Troubleshoot operating systems
 - Identify common preventative maintenance techniques used for laptops and portable devices
 - Describe how to troubleshoot laptops and portable devices
 - Identify and apply common preventive maintenance techniques for printers and scanners
 - Troubleshoot printers and scanners
 - Describe preventive maintenance procedures for networks
 - Troubleshoot a network
 - Identify common preventative maintenance techniques for security
 - Troubleshoot security
4. **Explain, compare and use various operating systems**
Potential Elements of the Performance:
- Explain the purpose of an operating system
 - Describe and compare operating systems to include purpose, limitations, and compatibilities
 - Install, configure and optimize the operating system
5. **Describe, install and configure printers and scanners**
Potential Elements of the Performance:
- Describe the types of printers and scanners currently available
 - Describe and perform the installation and configuration process for printers and scanners

6. Describe network principles, standards and purposesPotential Elements of the Performance:

- Explain the principles of networking
- Describe the types of networks
- Describe basic networking concepts and technologies
- Describe the physical components of a network
- Describe LAN topologies and architectures
- Identify standards organizations
- Identify Ethernet standards
- Explain OSI and TCP/IP data models
- Explain how to configure a NIC and a modem
- Identify names, purposes, and characteristics of other technologies used to establish connectivity

7. Explain the importance of securityPotential Elements of the Performance:

- Explain why security is important
- Describe security threats

III. TOPICS:

1. Explain the IT industry and certifications required.
2. Identify and describe various personal computer configurations, internal components, safe lab procedures and tool use.
3. Perform preventive maintenance and troubleshooting
4. Explain, compare and use various operating systems
5. Describe, install and configure printers and scanners
6. Describe network principles, standards and purposes
7. Explain the importance of security

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

The curriculum is provided on-line.

V. EVALUATION PROCESS/GRADING SYSTEM:

Theory:

Exams 50%

Lab:

Lab Activities, Assignments and Attendance 50%

(The percentages shown above may have to be adjusted)

Some minor modifications to the above percentages may be necessary. The professor reserves the right to adjust the mark up or down 5% based on attendance, participation, leadership, creativity and whether there is an improving trend.

Late or missed assignments, quizzes, and/or tests are subject to a ZERO grade unless PRIOR consent is granted by the Instructor.

The Instructor reserves the right to apply a grading penalty to late assignments. Penalty amount will be determined by the Instructor.

The following semester grades will be assigned to students:

Grade	<u>Definition</u>	<i>Grade Point Equivalent</i>
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	2.00
C	60 - 69%	1.00
D	50 – 59%	0.00
F (Fail)	49% and below	
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.	
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.	
NR	Grade not reported to Registrar's office.	
W	Student has withdrawn from the course without academic penalty.	

Eligibility for X Grades/Upgrading of Incompletes

When a student's course work is incomplete or final grade is below 50%, there is the possibility of upgrading to a pass when a student meets all of the following criteria:

- The student's attendance has been satisfactory.
- An overall average of at least 40% has been achieved.
- The student has not had a failing grade in all of the theory tests taken.
- The student has made reasonable efforts to participate in class and complete assignments.

Note: **The opportunity for an X grade is usually reserved for those with extenuating circumstances.** The nature of the upgrading requirements will be determined by the instructor and may involve one or more of the following: completion of existing labs and assignments, completion of additional assignments, re-testing on individual parts of the course or a comprehensive test on the entire course.

VI. SPECIAL NOTES:Attendance:

Absenteeism will affect a student's ability to succeed in this course. Absences due to medical or other unavoidable circumstances should be discussed with the professor. Students are required to be in class on time and attendance will be taken within the first five minutes of class. A missed class will result in a penalty in your marks unless you have discussed your absence with the professor as described above. The penalty depends on course hours and will be applied as follows:

Course Hours	Deduction
5 hrs/week (75 hrs)	1% / hr
4 hrs/week (60 hrs)	1.5% /hr
3 hrs/week (45 hrs)	2% /hr
2 hrs/week (30 hrs)	3%/hr

Final penalties will be reviewed by the professor and will be at the discretion of the professor.

VII. COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located on the portal form part of this course outline.