# Foundations of Information Technology Course No. 10001 Credit: 1.0

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| **Student name:**  |  | **Graduation Date:** |  |

Pathways and CIP Codes: **Foundations of Information Technology**

Course Description: **Technical Level:** a course intended to provide students with exposure to various information technology occupations and the information technology pathways available: Network Systems, Information Support and Services, and Programming and Software Development. Students will demonstrate core competencies in safety, electronics and basic digital theory, overview of the internet and operating systems, basic IT terminology and concepts, organization of data and materials, and basic programming. At the conclusion of the course, students should be prepared to make an informed decision about which Information Technology program(s) of study they would like to pursue in conjunction with their IPS.

Directions:The following competencies are required for full approval of this course. Check the appropriate number to indicate the level of competency reached for learner evaluation.

**RATING SCALE:**

4. Exemplary Achievement: Student possesses outstanding knowledge, skills or professional attitude.

3. Proficient Achievement:Student demonstrates good knowledge, skills or professional attitude. Requires limited supervision.

2. Limited Achievement:Student demonstrates fragmented knowledge, skills or professional attitude. Requires close supervision.

1. Inadequate Achievement:Student lacks knowledge, skills or professional attitude.

0. No Instruction/Training:Student has not received instruction or training in this area.

## Benchmark 1: Knowledge of Equipment & lab safety standards.Click or tap here to enter text.

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Accurately read, interpret, and demonstrate adherence to safety rules, including Internet safety, Occupational Safety and Health Administration (OSHA) guidelines, and state and national code requirements. Be able to distinguish between rules and explain why certain rules apply. |  |
| 1.2 | Identify and explain the intended use of safety equipment available in the classroom. Demonstrate how to properly inspect, use, and maintain safe operating procedures with tools and equipment. |  |

## Benchmark 2: Working knowledge of basic computer components and the digital theory behind their operation.

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Demonstrate understanding of electrical circuits and devices, and relate to the physical laws (such as Ohm’s Law and power laws) that govern behaviors of electrical circuits and devices. Accurately apply these physical laws to solve problems. For example, calculate the resistance of a DC circuit with a given DC voltage and current. |  |
| 2.2 | Assemble the required connections of electronic test equipment to properly test the operation of basic electronic circuit behavior and performance, using equipment such as a digital multimeter. For example, demonstrate the proper use of a digital multimeter by measuring resistance of a circuit in a typical computer system; compare this finding by calculating the resistance given the voltage and current. |  |
| 2.3 | Distinguish between the binary and hexadecimal counting systems. Using appropriate units, provide examples of each system and identify specific instances when IT professionals rely on them. |  |
| 2.4 | Explain the functions of gates in logic circuits (e.g., AND, OR, NOT). |  |

## Benchmark 3: Career Awareness in Information Technology

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 3.1 | Research various occupations in information technology industries, such as programmers, web designers, webmasters, networking administrators, computer systems administrators, telecommunications line installers, and informational security analysts. |  |
| 3.2 | Explore various professional societies related to information technology and identify the services and benefits provided by each member. |  |

## Benchmark 4: Understanding of the history behind the internet and operating systems.

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 4.1 | Drawing on multiple sources, research the history of the Internet. Discuss both the benefits and disadvantages of the Internet to society, as well as potential implications for the future. |  |
| 4.2 | Drawing on multiple sources (i.e., internet, textbooks, videos, and journals), research the history and development of operating systems (e.g., Microsoft Windows, Linux, UNIX). |  |

## Benchmark 5: Working knowledge of Information Technology terminology and related concepts.

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 5.1 | Demonstrate an understanding of basic web terminology and concepts. Practice explaining these terminologies and concepts by creating methods to help students learn and remember the information. |  |
| 5.2 | Demonstrate a basic understanding of computer hardware components. Identify these components using pictures or actual models and briefly explain the function of each. Components should include, but are not limited to: a. Hardware used for input and output, b. Hardware inside the computer case, c. Motherboard, d. Processor and the chipset, e. Storage devices (e.g., primary, secondary), f. Expansion cards, and g. Electrical system. |  |
| 5.3 | Demonstrate a basic understanding of computer networking. For example, explain the types of networks and what a client-server environment is. |  |

## Benchmark 6: Understand the importance of proper organization of materials in Information Technology.

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 6.1 | Understand and demonstrate the effective use of file and folder management techniques to maintain directory structure for a web site. Describe the most efficient methods for digital file management, including the use of site root and subfolders for assets (e.g., images, templates, CSS). |  |

## Benchmark 7: Working knowledge of programming languages, their development, and various implementations

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 7.1 | Explore and identify various languages, such as Python, HTML, PHP, C++, Visual Basic, Java, JavaScript, and C #. Explain how programmers use these languages to solve a variety of IT problems, furnishing examples of how they are applied. |  |
| 7.2 | Using various resources, research, identify, and explain the steps involved in the software development life cycle, including but not limited to: planning, designing, coding, testing, deployment, and maintenance. Explain why it is an iterative process and always involves refinement. |  |
| 7.3 | Demonstrate an understanding of how batch files function within a programming environment. Identify common commands to create code for batch files (e.g. title, echo, echo off, pause, CLS, ipconfig, and ping). |  |

I certify that the student has received training in the areas indicated.

Instructor Signature:

For more information, contact:

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