



PROFESSIONAL CERTIFICATE IN **IT Foundation**

Certificate Description

This certificate provides high school graduates, professionals with limited experience or out-of-field students and professionals the opportunity to understand basics of IT in today's business environment.

Introduction to Computer and Network Hardware—ITCO 103 (required)—This course provides the student with the knowledge about microcomputers and basic network hardware. Topics may include desktop and portable systems, printers, input devices, and fundamental networking components and concepts.

Outcomes:

- Describe various computing infrastructure components
- Configure computer and network resources
- Explain the operation of computers
- Discuss installation, maintenance, and configuration of computer and network hardware
- Explain the operation of key network hardware
- Explain the structure and function of the OSI model

Fundamentals of Programming and Logic—ITCO 221 (required)—In this course, students are introduced to the programming concepts of control structures, arrays, and modular program design. Students will also develop, debug, and execute simple applications.

Outcomes:

- Identify inputs and outputs for a program to meet user needs and/or business requirements
- Apply problem solving techniques and tools to design, implement, test, and debug a simple software application
- Implement modular program design
- Utilize methods, control structures, and arrays to develop simple applications
- Integrate appropriate user centered design methodologies into the development of an application



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Introduction to Databases—ITCO 231 (required)—In this course, students will review the fundamental concepts of database systems, leading to the rationale for today's dominance of the relational database model. In addition, the course will focus on designing and implementing a database, entering data, normalizing tables, and performing queries.

Outcomes:

- Explain the fundamental concepts of data organizational architecture
- Create a simple database with multiple tables
- Demonstrate the basic concepts of data normalization and referential integrity
- Utilize structured query language to create simple queries

Network Infrastructure Basics—ITCO 251 (required)—This course provides students with a conceptual overview of network infrastructure. Topics may include network configurations, network operations, segmentation through subnetting, and wireless developments.

Outcomes:

- Explain structure of the principal network architecture models and their corresponding communication protocols.
- Explain networking concepts and principles
- Describe the different IP addressing techniques
- Describe subnetting concepts and techniques
- Describe wireless developments in networking

Introduction to Operating Systems—ITCO 211—In this introduction to operating systems, students are exposed to contemporary desktop and mobile operating systems. Topics may include operating system support, functions, network requirements, virtualization, and basic maintenance.

Outcomes:

- Define the necessary components and functions of an operating system
- Explain steps to install a computer/network operating system
- Use command line utilities and scripting techniques for automating operating system tasks, including enterprise deployment
- Describe aspects of file systems for various operating systems
- Describe the benefits of integrating diverse operating systems within organizations
- Define the necessary components and functions of an operating system
- Explain steps to install a computer/network operating system
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Computer Networks and Security—ITCO 361—This survey course covers information security concepts and mechanisms. Information security concepts reviewed may include data protection techniques, software security, information assurance process, enterprise network security, and attack types/countermeasures.

Outcomes:

- Explain the fundamental concepts of information assurance and security.
- Discuss how operational issues such as software security and access management are addressed.
- Describe mechanisms for enterprise and Internet security.
- Discuss security management processes.
- Explain selected common security threats, vulnerabilities, and their countermeasures.

Introduction to Web Systems & Media—ITCO 381—This course introduces students to the notion of the Web as an information architecture based on technologies and systems integration aimed at delivering digital content.

Outcomes:

- Design and develop a Web site using images, tables, forms, and other elements
- Discuss the specifications, history, guidelines, and tools applicable to the Web standards
- Code, test, and validate Web pages
- Deploy audio and video assets on a Web page using current interactive Web technologies
- Describe technologies used to integrate databases into Web applications
- Describe various critical web development issues such as cross-browser compatibility, user accessibility, international standards, and common Web application vulnerabilities

Human/Computer Interfaces and Interactions—ITCO 391—The course examines human factors and performance in relation to technology applications, components of technology, and methods and techniques used in the design and evaluation of system and application interfaces.

Outcomes:

- Design simple, functional, and effective interfaces
- Gather requirements and translate them to deliverable aspects in interface design
- Evaluate usability of interfaces and propose improvements
- Describe examples of localization and globalization that would influence user interface design
- Explain the characteristics of human-centered design methods
- Describe techniques for developing prototypes of user interfaces