



PROFESSIONAL CERTIFICATE IN **General IT**

Certificate Description

This certificate provides high school graduates, professionals with limited experience or out-of-field students and professionals the opportunity to understand significance 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



PROFESSIONAL CERTIFICATE IN **General IT**

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
- 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

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.



PROFESSIONAL CERTIFICATE IN **General IT**

Introduction to Cyber Crime & Digital Investigation—ITDI 372—This course provides students with an introduction to the concepts and systems involved in digital investigations and cyber crime. The course discusses recognized incident response policies and procedures for collecting, preserving, analyzing, and reporting digital evidence, cyber crime history, and current and future threats.

Outcomes:

- Create professional technical reports
- Present report information appropriate for a client presentation or legal testimony
- Demonstrate appropriate use of technical information based on researched client knowledge level

Special Topics in Network Administration—ITNA 359—This course provides an advanced selection of contemporary topics which may include network management, operations and administration, developments in networking technologies, or developments in the business need for networking services.

Outcomes:

- Discuss how to identify and troubleshoot network problems
- Describe troubleshooting tools
- Monitor and optimize system performance and reliability
- Use implementation, management and maintenance skills in network configuration
- Differentiate between methods of connecting to a network
- Discuss emerging topics in network operation and administration

Software Requirements—ITSD 323—In this course, students will learn principles tools and techniques for requirements elicitation, analysis, and specification. Students will explore and become familiar with the role of requirements in the development process, goals of the requirements phase, and the essential difficulties inherent in specifying requirements for real-world systems.

Outcomes:

- Understand the principles of requirements specification and the use of mathematical models in assessing the quality of a requirements specification
- Be able to evaluate and choose appropriate requirements specifications methods and tools for a specific software development
- Demonstrate the ability to write formal software requirements specification
- Understand the context of requirements in the overall development process