



## EXPERIENCED PROFESSIONAL CERTIFICATE IN **General IT**

### Certificate Description

**This certificate provides professionals the opportunity to enhance general technical and commercial skills in the IT profession.**

**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

**Digital Investigations I—ITDI 375**—This course will examine digital investigation tools, threats, and techniques. Topics may include procedures, steganography, operating systems, tool validation plans, and open source software.

**Outcomes:**

- Explain digital evidence collection procedures
- Demonstrate how to acquire digital evidence without causing alteration or damage to original data
- Analyze evidence from formatted media, deleted files, and unallocated space
- Develop reports for forensic evidence



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**Digital Investigations II—ITDI 379**—During this course, students will examine digital investigation techniques for applications running for network operating systems.

**Outcomes:**

- Explain procedures for collection of digital evidence on networked systems
- Use advanced tools to analyze events in real-time
- Discuss issues related to live digital investigations

**Routing and Switching—ITNA 353**—This course provides an overview of routing and switching in network operations. Topics to be covered may include the role of switches and routers in network topologies and architectures, collisions and network congestion, the role of routers and switches in minimizing collisions, switching protocols and interswitch communications, switching and routing processes, switch operating systems, and switch management issues.

**Outcomes:**

- Implement Layer 2 network segmentation using switch configurations
- Explain the purpose of Layer 2 segmentation
- Explain the functions of bridges and switches
- Explain the purpose and function of the Spanning Tree Protocol
- Implement trunking between switches

**Network Hardware: Physical Layer—ITNA 354**—This course covers network hardware at Layer 1 of the OSI model. Topics covered may include wire cabling and cabling standards, wired layer 1 transmission methods, optical fiber cable, structured cabling systems, terminators and jacks, wireless layer 1 transmission methods, network cards and network interfaces.

**Outcomes:**

- List and explain hardware channel capacity standards
- Describe the bandwidth characteristics of several types of physical communication media
- Explain the benefits of structured cabling
- Identify and explain the use of the major types of wired and wireless terminators



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**Object Oriented Application Development—ITSD 322**—This course introduces the application development methodology using contemporary, industry-grade development environments. Students will learn to use programming techniques such as Try Catch blocks, If blocks, looping and arrays, etc. Furthermore students will learn about debugging, printing, message Boxes etc.

**Outcomes:**

- Explain the various components of an integrated development environment
- Create a simple application that will respond to user input
- Understand objects in the real world and in software
- Discuss the roles of encapsulation, inheritance, and polymorphism
- Set up a project in an integrated development environment

**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