

## Course Descriptions

### Information Technology

#### **ITEC 1113 PC Technician I**

At the completion of this course, the student will be qualified to take the A+ Core industry certification exam for PC Technicians offered by the CompTia organization. The Computing Technology Industry Association (CompTIA) sponsors A+ Certification. Major hardware and software vendors, distributors, resellers, and the Association for Services Management International all back this vendor-and product-neutral exam. A+ Certification is made up of two exams: the A+ Certification Core Module and an A+ Certification Operating System Specialty exam. Attaining A+ Certification indicates that an individual has the knowledge base, skills, and customer-service knowledge to be a successful computer service technician. This course focuses on vendor neutral hardware and software technologies. PC Technician I will focus on the Core section of the A+ exam requirements.

#### **ITEC 1123 PC Technician II-Operating Systems**

At the completion of this course, the student will be qualified to take the A+ Core industry certification exam for PC Technicians offered by the CompTia organization. The Computing Technology Industry Association (CompTIA) sponsors A+ Certification. Major hardware and software vendors, distributors, resellers, and the Association for Services Management International all back this vendor-and product-neutral exam. A+ Certification is made up of two exams: the A+ Certification Core Module and an A+ Certification Operating System Specialty exam. Attaining A+ Certification indicates that an individual has the knowledge base, skills, and customer-service knowledge to be a successful computer service technician. This course focuses on vendor neutral hardware and software technologies. PC Technician II will focus on the Operating Systems section of the A+ exam requirements.

#### **ITEC 1133 Layout & Design Fundamentals**

#### **ITEC 1136 Network Administration**

This course will teach students the knowledge and necessary skills to perform post-installation and day-to-day Windows NT administration tasks in single-domain and multiple domain networks.

#### **ITEC 1143 Digital Photography**

#### **ITEC 1146 Network Operating Systems**

This course will prepare individuals to properly install, configure, manage, and trouble-shoot networking operating systems. Advanced topics, such as network monitoring and security will also be covered.

#### **ITEC 1213 Introduction to Multimedia**

This course covers topics such as bitmap versus vector graphics, image file formats, computer color basics, image optimization, graphics coding and tags, digital imaging, backgrounds, buttons, image maps, rollover effects, graphic tools and applications, animation and copyright infringement.

#### **ITEC 1223 Network Security**

This course is designed to prepare students to an introduction to security and the overall security processes. Students will acquire competencies and an understanding in: how to select appropriate security hardware, software, policies and configurations based on an organization's assessment of its security vulnerabilities in order to provide protection against known security threats. Perform advanced installation, configuration, monitoring, troubleshooting, maintenance and recovery on IOS and firewalls. Configure intrusion detection features on routers and firewalls, install and configure site-to-site VPNs between devices and remote access VPNs devices and clients to ensure privacy and confidentiality.

#### **ITEC 1233 Internet Security**

This course provides students with the knowledge and skills to begin supporting network security within an organization. Students who complete this course will be able to identify security threats and vulnerabilities and help respond to and recover from security incidents.

#### **ITEC 1236 Networking Essentials**

#### **ITEC 1246 Network/Client Operating Systems**

#### **ITEC 1253 Voice, Video and Data Integration**

Upon completion of this course, students will acquire competencies and an understanding of the cabling industry and marketplace as well as the US and International standards and worldwide standards organizations; basic networking concepts and topologies, OSI model and the main functions of each model layer; signal transmission, basics of electricity and optical transmission theory, basic

wireless system theory and the cause and effects of signal degradation; schematics of copper cabling in the form of twisted-pair and shielded twisted-pair, as well as the respective standards and coaxial cable schematics; fiber optics using cabling, different modes of fiber optic and implications of dispersion and attenuation; essential lab safety code of conduct and cabling installation as well as rough-in, trim-out and finish phases.

### **ITEC 1313 Web Design I**

An introduction to web design concepts and Internet technology, this course prepares students to develop web content using HTML, CSS, JavaScript and web authoring tools.

### **ITEC 1323 Web Graphics I**

Learn to create, import, and export web graphics and understand graphic file types.

### **ITEC 1346 HTML and Internet Fundamentals**

This course prepares students to develop for and apply the Internet in business settings using HTML 4.0, FTP, CSS, JavaScript, and XML. Students are prepared to advise business managers on the most effective use of the Internet and to troubleshoot the use of the Internet in day to day business affairs. Students gain experience planning and building customer-facing e-services and secure intranets on the Apache web server.

### **ITEC 1356 Interface Design, Site Architecture & Layout**

This course prepares students to chunk and organize information into logical hierarchies, develop effective user interfaces, and control visual hierarchy. Each student is prepared to work with CSS and XSL for wired Internet presentations as well as WML for wireless media design. Special attention is paid to the psychology of user interaction with web based media and graphics design principles are coupled with industry research to produce a solid strategic approach to interface design for all delivery platforms.

### **ITEC 1403 Multimedia Authoring I**

The prerequisite for this course is ITEC 2573. The student will build on previous skills and software editing to produce a digital media production. The student will demonstrate a variety of multimedia technology to create the project assigned.

### **ITEC 1413 Introduction to Object Oriented Programming**

Java is becoming the programming language of choice for Internet applications. It is gaining that status because of its robust nature, the object-orientation of the language, the depth of its predefined classes, and its "write once, run anywhere" deployment model. These elements are key to providing a rich development environment that enables effective program development and deployment techniques including: code reusability, data encapsulation, dynamically downloadable program units, and architecturally neutral and platform-independent programs. This course teaches participants how to develop Java applications and applets. The course focuses on teaching the Java language, plus practical object-oriented principles. Students will be able to practice and apply skills needed to develop object-oriented systems, employing a use case-based approach. Introduce object-oriented principles such as classes, objects, and relationships. Use unified modeling language for object-oriented analysis and design. Write stand-alone applications with the Java programming language. Develop and deploy Java Applets. Construct a professional resume or application to College.

### **ITEC 1416 Introduction to Object Oriented Programming**

### **ITEC 1423 Multimedia Authoring II**

The prerequisite for this course is ITEC 1413. This course incorporates previous skills learned to produce a creative digital media production effectively using innovative technology in developing a theme.

### **ITEC 1433 Multimedia Authoring III**

This course is the final production which incorporates previous learned skills into a web page and interactive CD designed to showcase the student's portfolio and resume for use in job interviews.

### **ITEC 1443 Web Authoring I**

This course examines effective web sites and teaches students to create a web site with authoring software. The student will learn to maintain and improve on the site.

### **ITEC 1513 Java Programming**

Java Programming Fundamentals is a two course programming curriculum designed to teach the basics of object-oriented programming and the Java programming language. As with other Academy courses, the "soft skill" focused on in this course will be a collection of work from the previous courses that are relevant for each students' interest in possible career paths. Given the unique location of each

Academy site, special interest should be taken in any local area business they may use Oracle or need some of the programming skills that Academy students have to offer. Students will be able to write stand-alone applications with the Java programming language. Develop and deploy Java Applets. Create portfolio of student work for use in college admissions and/or job placement. After completion of this course you will be prepared to sit for the Advanced Placement Computer Science exam.

### **ITEC 1523 Digital Imaging I**

This course covers fundamentals of pre-paring images for multimedia and print. Students will work with various images by scanning, capturing a video image, or importing artwork or previously digitized images in industry standard software application.

### **ITEC 1533 Digital Video I**

This course focuses on the capture of digital video to create a visual communication tool. Audio, text, video, graphics, and animation with the use of transitions will be utilized.

### **ITEC 1543 Graphic Design I**

This course examines basic design principles, story boarding, drawing and cartooning.

### **ITEC 1616 Database Essentials**

### **ITEC 1626 Relational Database Design**

### **ITEC 1633 Database Projects**

### **ITEC 2106 Information Technology Essentials**

This course is designed to give students an introduction to the areas within Information Technology while learning the core skills needed to enter IT fields of study. Information Technology Essentials is a beginning level core course for students who want to obtain basic literacy to understand key computer concepts, applications and the Internet. This course also provides students with a foundation for achieving application-specific computer certifications.

### **ITEC 2116 Networking Fundamentals**

This is the first of four classes designed to provide students with classroom and lab experience in current and emerging networking technology that will empower them to enter employment or further education and training in the computer-networking field. Course content includes safety, networking, networking terminology and protocols, network standards, LANS, WANS, OSI model, cabling, routers, router programming, Ethernet, IP addressing and networking standards. Emphasis is given to the use of decision making and problem solving techniques in applying science, mathematics, communication and social studies concepts to solve networking issues. In addition, instruction and training are provided in the proper care, maintenance and use of networking software, tools and equipment and all local, state and federal safety, building and environmental codes and regulations.

### **ITEC 2126 Router Theory and Configuration**

This is the second of four classes designed to provide students with classroom and lab experience in current and emerging networking technology that will empower them to enter employment or further education and training in the computer-networking field. Course content includes safety, networking, networking terminology and protocols, network standards, LANS, WANS, OSI model, cabling, routers, router programming, Ethernet, IP addressing, and networking standards. Emphasis is given to the use of decision-making and problem-solving techniques in applying science, mathematics, communication, and social studies concepts to solve networking issues. In addition, instruction and training are provided in the proper care, maintenance, and use of networking software, tools, and equipment and all local, state, and federal safety, building and environmental codes and regulations.

### **ITEC 2136 Advanced Routing & Switching Design**

This is the third of four classes designed to provide students with classroom and lab experience in current and emerging networking technology that will empower them to enter employment or further education and training in the computer-networking field. Course content includes safety, networking, networking terminology and protocols, network standards, LANS, WANS, OSI model, cabling, routers, router programming, Ethernet, IP addressing, and networking standards. Emphasis is given to the use of decision-making and problem-solving techniques in applying science, mathematics, communication, and social studies concepts to solve networking issues. In addition, instruction and training are provided in the proper care, maintenance, and use of networking software, tools, and equipment and all local, state, and federal safety, building and environmental codes and regulations.

### **ITEC 2146 Advanced Network Design and Management**

This is the fourth of four classes designed to provide students with classroom and lab experience in current and emerging networking technology that will empower them to enter employment or further

education and training in the computer-networking field. Course content includes safety, networking, networking terminology and protocols, network standards, LANS, WANS, OSI model, cabling, routers, router programming, Ethernet, IP addressing, and networking standards. Emphasis is given to the use of decision-making and problem-solving techniques in applying science, mathematics, communication, and social studies concepts to solve networking issues. In addition, instruction and training are provided in the proper care, maintenance, and use of networking software, tools, and equipment and all local, state, and federal safety, building and environmental codes and regulations.

#### **ITEC 2156 Server Implementation & Support**

The course covers the skills for managing accounts and resources. These tasks include managing user, computer, and group accounts; managing access to network resources; managing printers; managing an organizational unit in a network based on Active Directory® directory service; and implementing Group Policy to manage users and computers.

#### **ITEC 2166 Network Management**

This course covers the skills for network management, such as; implementing, managing, and maintaining Dynamic Host Configuration Protocol (DHCP), Domain Name System (DNS), and Windows Internet Name Service (WINS); securing Internet Protocol (IP) traffic with Internet Protocol security (IPSec) and certificates; implementing a network access infrastructure by configuring the connections for remote access clients; and managing and monitoring network access.

#### **ITEC 2176 Principles of Information Assurance**

This course introduces the student to basic security principles. This will give the student an understanding of the current threats and vulnerabilities of the cyber landscape, plus other topics relating to the information assurance field. Prerequisites: IT Essentials Cisco CCNA courses 1-4 or equivalent industry certifications and work experience.

#### **ITEC 2186 Network Security**

In this course, the student will learn about network communications from a security standpoint, hardware and software security solutions and perform laboratory assignments in securing networks and Operating Systems. Prerequisite: Principles of Assurance.

#### **ITEC 2196 Enterprise Security Management**

This course will enable students to understand the principles of risk management, security architectures, incident handling, disaster recovery and secure systems administration. Prerequisite: Principles of Assurance.

#### **ITEC 2213 Employability Skills**

A daily analysis of industry trends and corporate needs prepares each student to seek employment intelligently. The preparation of a design portfolio and presentation equips each graduate from the program to present themselves and their talents in a thorough and professional manner. The opportunity to participate in Business Professionals of America enhances their involvement with other business professionals and provides each student with an opportunity to refine their presentation skills.

#### **ITEC 2216 Networking Projects**

This course will allow students to obtain challenging project oriented tasks utilizing the skills learned in their course of study.

#### **ITEC 2226 Server-Side Scripting**

Server-side scripting allows web pages to access information stored in databases and render web content using that information. Students in this course will learn how to use server-side scripting languages and databases to create dynamic interactive web pages.

#### **ITEC 2233 Data Modeling**

#### **ITEC 2236 Advanced Routing**

Upon completion of this class, students will be able to perform advanced routing tasks, including: selecting and configuring scalable IP addresses, implementing technologies to redistribute and support multiple, advanced, IP routing protocols such as OSPF, EIGRP and BGP; configuring access lists; designing and testing edge router connectivity into a BGP network.

#### **ITEC 2240 Special Projects**

This course will allow students to obtain challenging project oriented tasks utilizing the skills learned in their course of study.

#### **ITEC 2246 Remote Access**

Upon completion of this class, students will be able to perform advanced remote access tasks, including: configuring Asynchronous connections; Point-to-Point Protocol architecture, protocol, callback and

compression; ISDN architecture, protocol layers, BRI and DDR; configuring X.25, Frame Relay and AAA.

### **ITEC 2256 Multilayer Switching**

### **ITEC 2266 Secure Electronic Commerce**

In this course, the student will learn about the history, present and future of electronic commerce in the world. The student will also learn about the threats, vulnerabilities and policies when dealing with commerce in the electronic age. Prerequisites: Principles of Information Assurance, Network Security, Enterprise Security Management.

### **ITEC 2276 Digital Forensics**

The field of forensics is much like that of pathological forensics. In this section of the course, the student will learn procedures on tracking, analyzing and patching security holes after an incident has occurred. This will include seizure of equipment, analysis of confiscated materials and follow up procedures relating to the incident. Prerequisites: Principles of Information Assurance, Network Security, Enterprise Security Management, Secure Electronic Commerce.

### **ITEC 2303 Database Management**

Students will be introduced to the concepts of relational database design and development using a relational database management system.

### **ITEC 2316 Web Design II**

This course prepares students to create HTML and DHTML sites using the WYSIWYG authoring capabilities of Macromedia Dreamweaver. WAP development and JavaScript capabilities are also implemented with this tool. A comprehensive system for site planning, documentation, and content management is formally presented to each student. On-going security and site performance issues are presented and each student is required to demonstrate their ability to plan and implement several web sites using this system.

### **ITEC 2326 Web Graphics II**

This course prepares students to create engaging motion and static graphics for delivery on desktops, palm PCs, and WAP phones. Each student learns to digitally manipulate photography and illustrations, compress them in appropriate formats (WBMP, JPEG, GIF89a, GIF, PNG), and use them in electronic layouts. Students receive training in the preparation of interfaces for multiple delivery platforms (WebTV/ITV, Mac, PC, WAP Phone, Palm/Pocket PC) and leave the class ready to design information delivery interfaces that perform well across all media delivery channels and formats.

### **ITEC 2336 Web Animation**

This course prepares students to produce engaging, bandwidth appropriate animations for use on the Internet, CD-ROM, and corporate intranet. The planning and production of motion graphics is covered in detail beginning with ideation/thumb nailing and proceeding through storyboarding to prototype development and final release. Special attention is paid to the limitations of a low bandwidth environment. Action Scripting and data driven animations are explained and students are required to build several animations for use in different environments (web, CD-ROM, Kiosk, etc.).

### **ITEC 2346 Imaging, Virtual Reality & Digital Video**

This course prepares students to shoot and prepare images, video, and virtual reality for use on the Internet or CD-ROM/Kiosk. Each student is taught the fundamentals of color, resolution, and presentation in digital imaging. Each student receives instruction on the production of digital video in multiple formats, including capture, encoding, and streaming. Students are required to produce a web-based project that incorporates digital video or audio in both HTTP and intelligent streaming formats using Windows Media or Real technology. Each student is taught to use a scanner effectively for both high and low-resolution work.

### **ITEC 2356 Web Projects/Electives**

Each student will produce real web media for real businesses as a part of our unique live work project. Businesses in the surrounding communities and beyond have the opportunity to partner with our students in the production of web-based media and services. These projects form the bulk of each student's portfolio and gives them invaluable reality based experience that mirrors what is found in professional design firms.

### **ITEC 2366 E-Commerce Concepts & Implementation**

This course covers the use of concepts such as the following: legal issues; copyright, trademarks and licensing; security threats and issues; electronic payment systems; purchasing and electronic data exchange; international business issues; public policy issues; ethics issues; economics issues.

### **ITEC 2373 Server Networking & Security**

This course will acquaint students with basic networking concepts and give them experience with server installation, configuration, security, management and monitoring.

**ITEC 2376 Structured Query Language**

**ITEC 2386 Internet Programming**

Students will be introduced to programming technologies that will allow them to produce complex, interactive web pages.

**ITEC 2396 Web Applications Development**

Students will learn to use high-level programming tools and advanced programming techniques to build a database-driven website.

**ITEC 2426 Web Application Development**

The advanced programming techniques needed to build complex e-commerce systems will be covered in this course. Students will learn about online credit card transactions, shopping carts, order-tracking, subscription-based sites, customizing the shopping experience, and promoting commercial web sites.

**ITEC 2433 Application Design & Development**

Gives the student an opportunity to create a project that utilizes a java program they have written. The student will prepare a project of their choice and present that project to the class.

**ITEC 2440 Special Projects**

This course will allow students to obtain challenging project oriented tasks utilizing the skills learned in their course of study.

**ITEC 2443 Multimedia Portfolio**

Students are required to create an on-line and web-based portfolio displaying graphic and multimedia skills. Students will record the portfolio onto storage media such as a recordable CD.

**ITEC 2523 Digital Imaging II**

This course offers a more advanced study of graphics and the use of computer applications in creating web and digital multimedia communications.

**ITEC 2533 Digital Video II**

This course emphasizes the use of applications for creating sophisticated motion graphics and visual effects of video, film, multimedia and the web.

**ITEC 2543 Graphics Design II**

This course covers fundamentals of industry-standard illustration for print, multimedia, and online graphics.

**ITEC 2553 Multimedia Project**

Students will be required to create an electronic portfolio on the Web as well as an executable CD and printed media demonstrating utilization of various software applications and knowledge of digital video and sound.

**ITEC 2556 Network Troubleshooting**

Upon completion of this class, students will be able to perform network-troubleshooting tasks in the areas such as: OSI layers 1,2, and 3; TCP/IP, LAN switching, VLANs, Frame Relay, ISDN, Appletalk, Novell, EIGRP, OSPF and BGP.

**ITEC 2563 Digital Imaging III**

This course contains the advanced study of graphics preparation such as creating special effects, color management, and optimizing images.

**ITEC 2573 Modeling & Animation**

This course provides instruction in 3D graphics modeling and animation. Students will utilize industry recognized 3D graphics software in Web site creation projects.

**ITEC 2583 Industry Issues**

This course identifies current trends and topics in multimedia fields. Students will cross examine commercial TV, newspaper, magazine, and the Internet as well as relevant conferences and showcases. Students will conduct a job search in connection to findings.

**ITEC 2783 Wireless Technologies**

Upon completion of this class, students will design a logical wireless LAN architecture for mobile wireless users in compliance with IEEE 802.11 standards; demonstrate knowledge of the theory regarding the most common factors that influence WLANs, including EM spectrum, radio wave propagation, modulation techniques, and frequency and channel usage in wireless technologies. Install WLANs, with appropriate antennas that meet mobility and throughput specifications, including the site survey and documentation. Perform hardware setup and software configuration of wireless products including using

WEP, and 802.1x protocols. Upgrade wireless products and troubleshoot performance issues using event logging, command-line utilities, and diagnostic tools.