

## **INFORMATION SYSTEMS ANALYSIS (TECHNICAL AND INDUSTRIAL DIVISION)**

**ISATI-101 INTRODUCTION TO NETWORKING (5 cr.)** An introductory course encompassing basic networking terminology, topologies, transmission media, communication protocols and network devices.

**ISATI-103 INTRO TO INFORMATION SYSTEMS ANALYSIS (5 cr.)** Introductory course to computer hardware, operating systems, software, multimedia technology, communications, networking, security, viruses, and disaster recovery. Student will have studied the fundamentals of a stand-alone computer and applications in the world of Windows 2000, Windows XP, Windows Vista, and Windows 7. This can lead to a CompTIA A+ Essentials certification. This course will prepare you for technical understanding of computer technology, networking and security, as well as the communication skills and professionalism now required of all entry-level IT professionals. This is a "hands-on" course with reference to hardware.

**ISATI-104 FUNDAMENTALS OF MICROCOMPUTERS (5 cr.)** Introductory course to computer hardware, operating systems, software, multimedia technology, communications, networking, security, viruses, and disaster recovery. Student will have studied the fundamentals of a stand-alone computer and applications in the world of Windows 2000, Windows XP, Windows Vista, and Windows 7. This can lead to a CompTIA A+ Practical Application certification. This course will prepare you for technical understanding of computer technology, networking and security, as well as the communication skills and professionalism now required of all entry-level IT professionals. This is more of a "hand-on" orientation focused on scenarios in which troubleshooting and tools must be applied to resolve problems.

**ISATI-121 COMPTIA SECURITY + (5 cr.)** This course is primarily targeted at individuals with limited exposure to security concepts. Students after taking this class will have knowledge and skills required to identify risk and participate in risk mitigation activities, provide infrastructure, application, operational and availability and availability, identify appropriate technologies and problems, and operate with an awareness of applicable policies, laws and regulations.

**ISATI-202 NOVELL/LINUX OPERATING SYSTEMS (5 cr.)** The purpose of this course to introduce the student to the usage and administration of the Linux operating system. Novell SLES is the Linux distribution used in the course.

**ISATI-204 CCNA 1:NETWORKING BASICS (4 cr.)** An understanding of the "layered" approach to networks will be gained and the OSI and TCP/IP layers will be examined in detail to understand their functions and services. Familiarity with the various network devices, network addressing schemes and, finally, the types of media used to carry data across the network will be required. Additionally, configuration of Cisco 1800 and 2800 series routers is required. Students will configure, install and maintain the hardware and cable links that make up a typical LAN configuration. Construction and testing of cabling using the appropriate EIA specifications will be required. The student will perform full systems analysis of Local Area Networks in various hardware configurations, topologies, protocols, and operating system environments. They will install, maintain, and operate all hardware and software which is required to support intranet and Internet connectivity. Integration of the various hardware and software components into operational systems will be required. The learner will demonstrate the proper use of networking utilities and tools, such as Packet Tracer and Wireshark®, to explore networking protocols and concepts. The

students will be required to construct and maintain a special "model Internet" to provide a test environment where a wide range of network services and data can be observed and analyzed. The student will be required to display a working proficiency of Data communications using TCP/IP protocol. The learner will use Windows Vista Operating system to support the network protocols utilized by the clients.

**ISATI-205 CCNA 2:ROUTER BASICS (4 cr.)** Utilizing advanced IP addressing schemes including CIDR and VLSM, the students will perform full systems analysis which will include the interconnection of Local Area Networks in various hardware configuration, topologies, protocols, and operating systems environments. Installation, maintenance, and operation of all hardware and software will be required is an integral part of this course. Students will demonstrate the integration of the various hardware and software components into operational systems will be required. The learner will configure, verify, and troubleshoot the routing operations which are utilized in common network designs. All commonly employed routing solutions will be configured and tested using Cisco routers. Students will demonstrate a basic understanding of the implementation and configuration of RIPv1, RIPv2, EIGRP, and OSPF routing protocols. Students may be asked to accept a cooperative education workstation if one becomes available. As these positions are limited, all students not assigned a co-op position will be required to troubleshoot and repair all assigned systems that will be supplied by the instructor on a regular basis.

**ISATI-207 CCNA 3: SWITCHING BASICS AND INTERMEDIATE ROUTING (4 cr.)** Upon completion of this course, the learner will be able to perform an initial switch configuration which will insure that the network is secure, has password protection and uses SSH to mitigate common security attacks will be required. Configuration, verification, and troubleshooting VLANs, trunks, and VTP using the Cisco IOS CLI will be required. Students must demonstrate the ability to configure both the original implementation of STP as well as the newer IEEE 802.1w implementation of spanning tree. Students will demonstrate the ability to implement inter-VLAN routing in the router-on-a-stick topology, where a trunk link connects a Layer 2 switch to a router configured with logical subinterfaces paired in a one-to-one fashion with VLANs. The learner will be required to configure a wireless LAN ensuring that all devices have the latest firmware so that they can support the most stringent security options. Complex design, analysis and troubleshooting of routed and switched solutions using appropriate protocol implementations is required. Students will display a working proficiency of advanced router and switching configurations and solutions in specified operational situations.

**ISATI-208 CCNA 4:WAN TECHNOLOGIES (4 cr.)** Cisco demands a certain level of proficiency when dealing with both LAN and WAN systems. In addition to the skills required for understanding and applying introductory CCNA topics, this course enhances the learner's level of knowledge for applying networking concepts to industry environments. Given specific circuit design requirements, the learner is required to scale IP addresses in LAN and WAN networks. Commonly employed WAN protocols such as Frame Relay, PPP, broadband are assessed in multiple network configurations. Configuring various aspects of PPP is required including securing PPP using either Password Authentication Protocol (PAP) or the more effective Challenge Handshake Authentication Protocol (CHAP). Frame Relay implementations for use between LANs over a WAN is required. The learner will be required to create firewalls using standard and extended ACLs as well as demonstrating the ability to apply advanced ACL features including dynamic, reflexive and timed ACLs. you will learn about cable, DSL, and wireless broadband options. The student will also demonstrate how VPNs are utilized to secure broadband connections. The skills required will include installing, configuring, and troubleshooting complex routed WAN. The labs and Packet Tracer activities used in this course are designed to help develop an understanding of how to configure

routing operations while reinforcing the concepts learned in each chapter. Network administration and management will also be presented and the learner will demonstrate the ability to provide the appropriate strategies which insure network reliability. Finally, the learner will identify and troubleshoot common enterprise network implementation issues using a layered model approach.

**ISATI-223 CERTIFICATION PREPARATION (4 cr.)** This course is designed to allow the student to take a structured approach to the examination preparation process which will be required to successfully pass industry standardized examinations. All students will be required to take one certification exam of their choice to successfully complete this course.

**ISATI-224 WINDOWS SERVER 2008 (5 cr.)** This course presents an overview of the Windows Server operating system corporate technologies that reduce the total cost of ownership (TCO) and provides for scalability from a small network to a large enterprise network. Students will be required to install, upgrade, and troubleshoot Windows Server 2008 operating system. In addition, management of hardware devices, user accounts, group accounts, file access, disk and data storage, printers, group policy, as well as server administration, server performance, implementing backups, Web administration and security will be required. Active Directory will be emphasized. Pre-requisite: ISATI 203.

**ISATI-225 MICROSOFT WINDOWS 7 (5 cr.)** This course provides an overview of Windows 7. The main objectives for the course include installing and/or upgrading to Windows 7, configuring and troubleshooting post-installation, configuring security settings, configuring network connectivity, configuring applications to run with Windows 7, maintain and optimize systems that run Windows 7 and configure and troubleshoot mobile computing.

**ISATI-226 VIRTUALIZATION TECHNOLOGIES (5 cr.)** Provides the student with the skills and knowledge to effectively install, configure, and administer virtualization products. Microsoft Virtual PC, Microsoft Virtual Server, Microsoft Hyper-V and VMWare vSphere form the basis for this course.

**ISATI-290 DIRECTED STUDY (1-10 cr.)** Required study in area agreed upon by student and instructor. Topics might include specialized devices, new product experiments, or advanced troubleshooting.

**ISATI-292 DIRECTED SPECIAL PROJECTS (1-10 cr.)** Opportunity to learn advanced skills for students who are progressing at a faster than normal pace.

**ISATI-296 COOPERATIVE EDUCATION IN INFORMATION SYSTEMS ANALYSIS (1-10 cr.)** Work experience in business related to student career goals. Student is a paid part-time employee working under the supervision of employer and program coordinator.

**ISATI-310 FUNDAMENTALS OF CISCO WIRELESS LANS (4 cr.)** The learner will demonstrate required knowledge of wireless technologies and the implementation of these technologies in wireless networks. Emphasis is placed on the areas of design, planning, implementation, operation, and troubleshooting. The course expands knowledge of and provides practical experience with wireless networks. This self-directed course requires 90 documented in class hours in addition to the required 30 homework/application hours. This course prepares the student for the Wireless LAN Association certification exam CWNA (Certified Wireless Network Administrator).

**ISATI-312 CCNP 1:BUILDING SCALABLE CISCO INTERNETWORKS (4 cr.)** Cisco demands a certain level of proficiency. In addition the skills required for basic design and implementation of small scale Cisco networks, this course enhances the learner's level of knowledge for applying large network concepts to industry environments. These skills include installing, configuring, and troubleshooting complex routed LAN, Routed WAN, and Switched LAN networks. In addition students will understand complex networks which employ Policy-Based Routing, IP Service Level Agreements, BGP path control, route redistribution, route summarization, OSPF, VLSM, BGP, and EIGRP routing protocols. An in-depth knowledge and application of IPv6 addressing, routing protocols, and IPv4 coexistence will also be required.

**ISATI-314 CCNP 3:BUILDING CISCO MULTILAYER SWITCHED NETWORKS (4 CR.)** The learner will demonstrate the ability to design, implement, test, and troubleshoot Cisco multilayer network systems utilizing Cisco-based equipment in a live shop environment. The student will be required to perform complete systems analysis of switched networks including VLANs. **To successfully complete this course, the learner must pass the Cisco SWITCH examination number 642-813.**

**ISATI-321 COMPTIA SECURITY + (5 cr.)** This course is primarily targeted at individuals with limited exposure to security concepts. Students after taking this class will have knowledge and skills required to identify risk and participate in risk mitigation activities, provide infrastructure, application, operational and availability and availability, identify appropriate technologies and problems, and operate with an awareness of applicable policies, laws and regulations. Additional security skill sets will be used in this class – hands-on.

**ISATI-322 WIN SRV 2008 NTWK INFRASTRUCTURE CONFIG (4 cr.)** This course provides the student with the critical skills and knowledge needed to prepare for the Windows Server 2008 Network Infrastructure Configuration examination (70-642). Windows Server 2008 is a multipurpose operating system with integrated support for client/server networks. It incorporates technologies that reduce the total cost of ownership (TCO) and provides for scalability from a small network to large enterprise networks. Students will be required to design, install, and troubleshoot Windows Server 2008 in a network environment. This includes configuring IP addresses and service, DNS, network access, file and print services, as well as monitoring and managing a network infrastructure. Students are required to take the 70-642 certification examination.

**ISATI-323 WINDOWS SERVER 2008 ACTIVE DIR CONFIG (5 cr.)** This course equips students with the critical skills and knowledge needed to prepare for the Windows Server 2008 Active Directory Configuration examination (70-646). Windows Server 2008 is a multipurpose operating system with integrated support for client/server networks. It incorporates technologies that reduce the total cost of ownership (TCO) and provides for scalability from a small network to a large enterprise network. Students will be required to design, install and troubleshoot Windows Server 2008 Active Directory. Additionally, the student will learn about the various methods used to implement the tools and features of Windows Server 2008 based upon business and technical requirements. Students are required to take the 70-646 certification examination.

**ISATI-325 CCNP 2: IMPLEMENT. SECURE CONVERGED WANS (4 cr.)** The learner will demonstrate the ability to describe the remote connectivity requirements for secured access and explain the alignment of these requirements with Cisco network architectures; describe and implement teleworker broadband connectivity; implement and verify frame-mode MPLS; describe and configure a site-to-site IPSec VPN; describe and configure Cisco device

hardening; describe and configure IOS firewall features. **To successfully complete this course, the learner must pass the Cisco CCNP TSHOOT examination number 642-832.**

**ISATI-326 MICROSOFT EXCHANGE SERVER 2007 (4 cr.)** This course provides information and experience working Microsoft Exchange Server 2007. It provides coverage of the various tasks with which an Exchange Server administrator must be familiar. Students are required to take the Microsoft Certification Exam 70-236, Microsoft Exchange Server 2007 Configuration.

**ISATI-367 VISUAL PROGRAMMING (5 cr.)** Development of tools used in Visual C++ including IDE and several other utilities. Develop Windows applications and demonstrate practical application of Microsoft Foundation Classes including database classes.

**ISATI-402 NOVELL/LINUX OPERATING SYSTEMS (5 cr.)** Introduce the student to the usage and administration of the linux operating system and assist with preparation for the Linux+ certification (XK0-001). Students are required to take the Linux+ certification examination.

**ISATI-410 SQL SERVER ADMINISTRATION (3 cr.)** Students will learn T-SQL and work with enterprise-level organization and designing, deploying, optimizing, maintaining, and supporting database service life cycle. You will also get experience in: defining high-availability solutions, data distribution, automating administrative tasks, defining security solutions, monitoring and troubleshooting the database server, performance optimization, designing and executing deployments, deployments and migration, defining the infrastructure.

**ISATI-477 SENIOR PROJECTS (4 cr.)** Students will demonstrate competence in the major through a culminating project which presents a written, oral, pictorial, and computer interactive summary of the work done in the major or of a comprehensive senior-level project.

**ISATI-490 DIRECTED STUDY IN INFORMATION SYSTEMS ANALYSIS (1-10 cr.)** Opportunity to learn advanced skills for students progressing at a faster than normal pace.

**ISATI-492 DIRECTED SPECIAL PROJECTS (1-10 cr.)** The student will study specialized topics emerging from discipline.

**ISATI-496 COOPERATIVE EDUCATION IN INFORMATION SYSTEMS ANALYSIS (1-10 cr.)**