

MICROCOMPUTER AND NETWORKING SYSTEMS LEA.3V

It was only a few years ago that the terms Internet, intranet and extranet were used only in very specialized environments. Now they are part of the everyday vocabulary. The widespread use of the Internet has led to the use of routers, proxies, firewalls, VPN (Virtual Private Networks) and now cloud computing and virtualization. The new technologies that have evolved in the last few years have also led to such internet-business terms as B2B, B2C and M2M. Our program is in constant evolution from year to year as the ever-increasing changes in industry dictate changes to course content. Currently, students will acquire the competencies and skills needed to administer a network and offer efficient technical support to users as well as plan for future network growth in an enterprise-wide environment.

Through both theory classes and laboratory exercises, students will acquire the skills and competencies needed to install, configure and maintain microcomputers, workstation and network operating systems such Windows and LINUX; install and administer networks and internet/extranet services such as Web servers and Electronic Mail, understand and practice the concepts of cloud computing and virtualization.

This 15.5-month program includes a 2-week job search and c.v. preparation period in addition to a 12-week work internship that allows the student to acquire practical experience in the IT environment. The student will receive an Attestation d'Études Collégiales (A.E.C) upon the successful completion of the program and begin a career in a field where the competencies acquired at Herzing College are in high demand.

Studying at Herzing not only means having access to well-equipped labs, but also to qualified and competent instructors.

What about Certification?

We prepare students for jobs that demand proficiency with Microsoft products and technologies. In addition, Herzing College is a member of the Computer Technology Industry Association (CompTia). We also prepare students for proficiency in microcomputer hardware and operating systems. Because certifications are a reality in the computer industry, the Microcomputers and Networking Systems program contains course material for Microsoft Certified IT Professional (MCITP), Cisco CCNA, CompTia A+ and Network+, VMware Certified Associate 4 - Desktop certifications.

MCITP Windows 2008 track certifications are as follows:

- Windows Server 2008 Active Directory Configuration (Exam 70-640)
- Windows Server 2008 Network Infrastructure Configuration (Exam 70-642)
- Windows Server 2008 Server Administrator (Exam 70-646)
- Desktop Support and Administration Microsoft Windows 7 Professional (Exam 70-685, 70-686)
- Microsoft Exchange Server 2010 (Exam 70-662)

CISCO CCENT Certification:

- Cisco Certified Entry Networking Technician (Exam CCENT)

With a CCENT certification, a network professional demonstrates the skills required for entry-level network support positions - the starting point for many successful careers in networking.

CompTia Certifications:

- CompTia A+ Certification Exam 220-701 (A+ Essentials)
- CompTia A+ Certification Exam 220-702 (Practical Applications)
- Network+ Certification Exam N10-004
- CompTia Cloud Essentials Exam CLO-001
- CompTia Linux+ Powered by LPI Exam LX0-101
- CompTia Linux+ Powered by LPI Exam LX0-102

What will I be able to do with my training?

1. Use modern application software
2. Use computer-related mathematics
3. Troubleshoot electronic components
4. Assemble microcomputers
5. Install peripherals in a computer system
6. Provide technical support
7. Establish communication between computers
8. Configure the Windows operating system
9. Install a network operating system
10. Configure network communication protocols
11. Manage an enterprise wide network
12. Use the Linux operating system
13. Install a Web Server
14. Configure electronic mail applications and servers
15. Build a network
16. Integrate into the workforce and build a professional attitude

What else does Herzing College have to offer?

While studying at Herzing College, the student has help and training from dedicated instructors, a free career development service, the help of a stage coordinator, free access to the Internet, and the attention of friendly staff.

What career path will Herzing College prepare me for?

Graduates will be prepared to work for any organization that currently has installed or is planning to install a computer network. In addition, graduates should find employment opportunities with computer support organizations that consult with clients on the installation and maintenance of computer networks. Potential job position titles include Help Desk Technician, Technical Support Specialist, Service Technician, Network Specialist, Network Consultant, Network Administrator, Network Operations Analyst, Customer Service Representative, PC Support Specialist and PC Systems Coordinator.

Admissions Criteria

A person who has obtained a D.E.S or D.E.P or has relevant work experience or has received instruction deemed acceptable by the college **and** who meets one of the following requirements may be admitted to a program leading to an AEC:

1. the person's studies have been interrupted for at least two consecutive terms or one school year;
2. the person is covered by an agreement entered into by the college and an employer or by a government program;
3. the person has completed at least one year of post-secondary studies spread over a period of one year or more.

In addition the student must

4. pass an admissions test or a problem-solving course

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The college reserves the right to modify course content, operating systems, course order and tools during the course of the year

Theory: 570 hours
Practice: 555 hours
Internship: 420 hours
Total hours: 1545 hours

Total credits: 45.94

Course Schedule

Upon entry into the job market, you will find yourself surrounded by colleagues that have more experience than you and who will be your mentor. In the same fashion, as you gain experience you will probably become a mentor for novices coming in for their first job.

Herzing College has developed a teaching method and course schedule that allows you to experience the "real world". You will begin with session A and then either carry on together with the same class into session B or join an existing group in session C depending on the semester in which you enrolled. This could mean that at one point in the program you will junior, surrounded by more advanced students that will serve as mentors, and later on in the program, you will become a mentor helping out new students coming in to your class.

Your program can follow one of many semester schemes: ABC or BCA or CAB or CBA Every session is self-contained.

SEMESTER A A+ / NETWORK + Certification

Introduction to Computing & Application Software 420-TBA-05 75 hours 2.33 credits

This course introduces basic microcomputer hardware and software applications. An overview of microcomputer hardware is presented for the purpose of using a computer effectively. Students also obtain a firm foundation in the Microsoft Windows 7 desktop operating system. Topics include navigation, file management, printing, configuring and customizing Windows. In the second part of this course, students are exposed to office productivity software. Topics include word processing, spreadsheets, presentations and databases using the Microsoft Office suite. Virus detection software use is also included. Students will also be introduced to the Linux Ubuntu operating system.

Computer Architecture 247-TBD-05 75 hours 2.33 credits

This course introduces students to the operation of microcomputer systems. Topics include the microprocessor, memory organization, bus structures, chipsets, BIOS, input/output devices, power supplies, troubleshooting hardware and software problems. Students will assemble a microcomputer from parts, install various operating systems and utilities, run tests and troubleshoot problems.

Peripherals 247-TBE-05 75 hours 2.33 credits

In this course students learn to install, configure and troubleshoot problems with peripheral devices. Topics include disk drives, CD-ROM drives, SCSI devices, sound cards, memory, printers, scanners, network cards, video cards. Students will install a fully functional microcomputer system and use Microsoft Windows device manager to diagnose and troubleshoot system faults.

Electronics for Network Specialists 247-TBC-05 75 hours 2.66 credits

This course introduces the students to the concepts of electronic, digital and solid state devices as these relate to the computer field. Students are exposed to the theory of operation of network components, network topologies, network cards, connection media, bridges, routers, gateways, networking standards, protocols, access methods, modems, ISDN and T1 lines. The OSI model for a Network will be cover too.

Introduction to Networking 247-TBF-05 75 hours 2.33 credits

This course corresponds in part to **CompTia Network+ exam**. Students learn the difference between client/server and peer-to-peer networks; implement and support the major networking components, including the server, operating system and clients. Students will learn PC-to-PC communications through USB ports, modems and the Internet. Students will also install, configure and manage Microsoft Windows 7 networks.

SEMESTER B MCITP WINDOWS SERVER 2008 + CISCO

The Windows Operating System **247-TBG-05 75 hours 2.33 credits**

The course focuses on Windows 7 Professional and Windows Server 2008. Participants will cover the following topics: plan and perform an installation of Windows 7; configure desktop settings for computers running Windows 7; configure security settings for Microsoft Internet Explorer; configure computers to run Windows 7 in a Windows networking environment.

The second part of the course provides instruction in Windows® 2008 Server. Topics include installing Windows® 2008; implementing and conducting administration of resources; implementing, managing, and troubleshooting hardware devices and drivers; monitoring and optimizing performance and reliability; configuring and troubleshooting the desktop environment; implementing, managing, and troubleshooting network protocols; managing, monitoring, and optimizing system performance, reliability, and availability; managing, configuring, and troubleshooting storage use; configuring and troubleshooting Windows® 2008 network connections; and implementing, monitoring, and troubleshooting security.

This is a preparation course for exam 70-646 Windows Server 2008, Server Administrator, which is one of the core exams in the Networking Systems part of the core component for the MCITP on Microsoft Windows Server 2008.

Mathematics for Network Specialists **201-TBB-05 75 hours 2.33 credits**

The focus of this course is to give students a thorough understanding of computer mathematics as it relates to operations on binary and hexadecimal numbers, and logic functions. In addition the course covers the concepts to implement, manage, and maintain a Microsoft Windows Server™ 2008 network infrastructure. This includes implementing routing; 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. This is a preparation course for **exam 70-642 Windows Server 2008 Network Infrastructure Configuration**, which is one of the core exams in the Networking Systems part of the core component for the MCITP on Microsoft Windows Server 2008.

Web Server Installation **247-TBN-05 75 hours 2.33 credits**

This course focuses on the architecture and the characteristics of Internet Information Server IIS Windows Server 2008 system. Subjects to be studied are: TCP/IP protocol, server installation, server configuration and server administration, performance optimization and security control, as well as proxy connections.

Communication Protocols **247-TBL-05 75 hours 2.33 credits**

In this course students will learn knowledge and skills necessary to select, connect, configure, and troubleshoot the various Cisco networking devices. The exam covers topics on router and switch configuration commands, routing protocols, determining IP Routes, managing IP traffic, establishing Point-to-Point connections and Frame Relay Connections. This course will cover material to help students prepare for the **Cisco CCENT (Cisco Certified Entry Networking Technician) exam**.

Communication and Electronic Mail **247-TBP-05 75 hours 2.33 credits**

This course provides students with the knowledge and skills that are needed to update and support a reliable, secure messaging infrastructure. This infrastructure is used for creating, storing, and sharing information by using Microsoft Exchange Server 2010 in a medium-sized to large-sized (250 to 5,000 seats) messaging environment.

This course will cover material to help students prepare for part of **Microsoft Exchange Server 2010 exam (70-662)**.

SEMESTER C CLOUD COMPUTING + LINUX

Technical Support **247-TBK-05 75 hours 2.33 credits**

This is a course on the installation and use of LINUX operating system. Students should acquire a basic knowledge of the LINUX operating system, using the GUI, LINUX commands and utilities, create files using an editor and work with directories and permissions, manage applications, create and manage users and groups, manage and configure storage, create scripts. At the same time the student will learn troubleshooting techniques to resolve hardware, software and network problems.

This course will cover material to help students prepare for the **CompTia Linux+ Powered by LPI Exam LX0-101**.

The UNIX Operating System **247-TBH-05 75 hours 2.33 credits**

This is a course on the installation and configuration of LINUX Server operating system (CentOS). Topics include Dynamic Host Configuration Protocol (DHCP), Domain Name Service (DNS), sharing resources with the Samba protocol, network printing services, and TCP/IP services such as telnet, ssh and FTP. Students will learn and practice network configuration and troubleshooting techniques, client / server relationship, log files, protocols and port numbers, and network security issues. Connectivity of Linux with Microsoft Windows will also be covered.

This course will cover material to help students prepare for the **CompTia Linux+ Powered by LPI Exam LX0-102**.

Network Operating System **247-TBJ-05 75 hours 2.33 credits**

This course relates to advanced networking topics as well as virtualization and cloud computing. Students will learn and practice Apache server, internet proxy, rsync utility and cron jobs based on the Linux operating system. Coverage of cloud computing includes the following topics: Fundamental Cloud Computing terminology and concepts; Horizontal and vertical scaling; Specific characteristics that define a Cloud; On-Premise services vs. Cloud services; Understanding elasticity, resiliency, On-demand and measured usage; Benefits, Challenges and Risks of Contemporary Cloud Computing Platforms and Cloud Services.

Managing an Enterprise Network **247-TBM-05 75 hours 2.33 credits**

This course provides additional training in enterprise level networking. Students will learn to install and configure electronic mail services, iptables firewall, advanced storage techniques and advanced security features using the Linux operating system. Contemporary cloud computing topics will also be covered in order to provide the students with a firm knowledge of cloud service architecture, cloud security threats and technologies, virtualization and data processing. Cloud computing models and modern cloud platforms (IaaS, PaaS and SaaS) will be analyzed and explained.

This course will cover material to help students prepare for the **CompTia Cloud Essentials Exam CLO-001**.

Project **247-TBQ-05 75 hours 2.66 credits**

In this project students will put together a functional network using desktop virtualization, network servers and clients from a set of specifications. The project consists of core requirements and advanced options to choose from, and provides the students with an excellent opportunity to put their knowledge into practice while improving their technical and troubleshooting skills. Students will be required to submit a report of their work.

SEMESTER D INTERNSHIP

An individual who knows her/his skills and abilities and who develops and nurtures her/his career can generally find a job and knows how to keep a job and receive promotions. Prior to going on an industry internship during the instructor-led portion of the program, students will be given the tools they need for an effective job search. Topics include: writing a C.V. and cover letter, the interview process, role-playing, job search techniques.

2-WEEK JOB SEARCH PERIOD

After the completion of the instructor-led portion of the program, there will be a 2-week period for stage interviews. The career services department will be sending out c.v.'s to companies and student will be called on interviews. It is important for all students to take the process seriously and be available for interviews on a moment's notice.

WORK INTERNSHIP

247-TBS-28 420 hours 10.33 credits

After completing the program students will apply the knowledge and skills acquired in school during their internship. Internships are 12 weeks in duration and take place within the industry. Students will reinforce computer and networking concepts learned in school; learn new technologies, learn time management, build a professional and positive attitude, learn to work independently as well as in a team and build rapport with colleagues and customers. Students will be expected to document their work and submit it for evaluation.

Prerequisites: Successful completion of all program courses