

# COMPUTER INFORMATION SYSTEMS

2009 – 2010

20 Months

Graphic/Web Developer Specialist Option: 76.5

Network Specialist Option: 76.5

Network Specialist/Cisco Option: 78.5

Programming Specialist Option: 76.5

Associate of Applied Science (A.A.S.) Degree

## CIS Offers Four Options

Lake Area Technical Institute offers training for exciting careers in computer programming, graphic and web development, networking, and Cisco/networking. All of these programs are 20 months in length. The first semester for each of the four options is the same, so students can wait to decide in what area they want to specialize.

## If You Enjoy . . .

Working with detail, thinking logically, and troubleshooting problems, you should consider one of the computer areas. All training is conducted on the newest personal and mid-size computers.

## Employment Opportunities

The job market continues to grow with the increasing use of personal computers in the business environment. As advances in technology continue, the need for trained technicians and programmers increases. A career in the computer field pays well and offers good advancement possibilities with corresponding rewards.

## Recommended Background Courses

Although not required, the following courses would be beneficial to this course of study prior to attending Lake Area Technical Institute: Math, Accounting, Communications, General Business, English, and Computer Concepts.

## Computer Information Courses

- AED 100 – Automated External Defibrillator (.5 credit)
- CIS 100 – PC Maintenance (3 credits)
- CIS 126 – Computer Software Applications/CIS (3 credits)
- CIS 132 – Intro to Computer Programming (3 credits)
- CIS 140 – Database Design and SQL (3 Credits)
- CIS 141 – Web Design and Maintenance (3 credits)
- NET 111 – Networking for Home and Small Business (3 credits)
- \* Communications Elective (Choose 2)
- \* Behavioral Science Elective
- \* Math Elective
- \* Social Science Elective

\* Choose from the following courses: (EN 110, MATH 100, MATH 101, COMM 101, PSYC 100, and ECON 101 are not transferable.)

### Communications Elective 1 (Choose 1)

- EN 110 – Business Communication
- ENGL 101 – Composition

### Communications Elective 2 (Choose 1)

- COMM 101 – Contemporary Communication
- SPCM 101 – Fundamentals of Speech

### Behavioral Science Elective (Choose 1)

- PSYC 100 – Human Relations
- PSYC 101 – General Psychology

### Math Elective (Choose 1)

- MATH 100 – Applied General Math
- MATH 101 – Intermediate Algebra
- MATH 102 – College Algebra

### Social Science Elective (Choose 1)

- ECON 105 – Leadership in the Global Workplace
- ECON 201 – Principles of Microeconomics I
- SOC 100 – Introduction to Sociology

## Additional Courses for Graphic/Web Development Specialist Option

- ACCT 210 – Principles of Accounting I (3 credits)
- CIS 127 – Access Applications Development (3 credits)
- CIS 133 – Intro to OOP using Alice (3 credits)
- CIS 152 – Desktop Publishing (3 credits)
- or CIS 232 – Advanced Visual Basic (3 credits)
- CIS 160 – UNIX Operating System (3 credits)
- CIS 170 – Web 2.0 (3 credits)
- CIS 241 – Advanced Web Design (3 credits)
- CIS 252 – Multimedia Production and Integration (3 credits)
- CIS 253 – Computer Graphics (3 credits)
- CIS 254 – Animation (3 credits)
- CIS 273 – Web Applications – ASP (3 credits)
- CIS 276 – Web Applications – PHP (3 credits)
- CIS 290 – System Analysis and Design (3 credits)
- CIS 299 – Internship (4 credits)

## Additional Courses for Network Specialist Option

- CIS 160 – UNIX Operating Systems (3 credits)
- CIS 200 – Advanced PC Maintenance – A+ Certification (3 credits)
- CIS 215 – Cyber Security/Ethical Hacking (3 credits)
- CIS 235 – Computer Crime Investigation (3 credits)
- CIS 260 – UNIX OS Administration (3 credits)
- CIS 265 – Technical Communications (3 credits)
- CIS 280 – Windows Server Administration (3 credits)
- CIS 290 – System Analysis and Design (3 credits)
- CIS 299 – Internship (4 credits)
- NET 101 – Network Cabling (3 credits)
- NET 115 – Networking Basics (3 credits)
- NET 121 – Routers and Routing Basics (3 credits)
- NET 131 – Switching Basics and Intermediate Routing (3 credits)
- NET 141 – WAN Technologies (3 credits)

## Additional Courses for Network/CISCO Specialist Option

- CIS 160 – UNIX Operating Systems (3 credits)
- CIS 215 – Cyber Security/Ethical Hacking (3 credits)
- CIS 260 – UNIX OS Administration (3 credits)
- CIS 265 – Technical Communications (3 credits)
- CIS 280 – Windows Server Administration (3 credits)
- CIS 290 – System Analysis and Design (3 credits)
- CIS 298 – Internship (4 credits)
- NET 101 – Network Cabling (3 credits)
- NET 115 – Networking Basics (3 credits)
- NET 121 – Routers and Routing Basics (3 credits)
- NET 131 – Switching Basics and Intermediate Routing (3 credits)
- NET 141 – WAN Technologies (3 credits)
- NET 151 – Building Scalable Networks (3 credits)
- NET 161 – Implementing Secure WANs (3 credits)
- NET 171 – Building MultiSwitch Networks (3 credits)
- NET 181 – Optimizing Converged Networks (3 credits)

## Additional Courses for Programming Specialist Option

- ACCT 210 – Principles of Accounting I (3 credits)
- CIS 127 – Access Applications Development (3 credits)
- CIS 133 – Intro to OOP using Alice (3 credits)
- CIS 136 – Object-Oriented Programming (3 credits)
- CIS 170 – Web 2.0 (3 credits)
- CIS 232 – Advanced Visual Basic (3 credits)
- CIS 238 – Advanced Java Programming (3 credits)
- CIS 270 – Intro to Database Programming (3 credits)
- CIS 272 – Client/Server Programming (3 credits)
- CIS 273 – Web Applications – ASP (3 credits)
- CIS 276 – Web Applications – PHP (3 credits)
- CIS 290 – System Analysis and Design (3 credits)
- CIS 299 – Internship (4 credits)
- Elective (Choose 1) (3 credits)
  - CIS 252 – Multimedia Production and Integration
  - CIS 253 – Computer Graphics
  - CIS 254 – Animation

**CIS 100 – PC Maintenance (3 credits)** This an introduction to the fundamentals of PC hardware and software technologies with labs providing a hands-on approach to disassembling reassembling and installing PC hardware components and operating systems with connections to a variety of network services.

**CIS 126 – Computer Software Applications/CIS (3 credits)** This course will teach the skills that will help master features of Microsoft Office 2007 applications which include Word, Excel, Access, and PowerPoint.

**CIS 127 – Access Applications Development (3 credits)** Using MS Access, students develop full-functioning business applications that include GUI forms, reports, and web data access pages.

**CIS 132 – Intro to Computer Programming (3 credits)** The student will be introduced to the basic concepts of programming in an object-oriented/event-driven language, including data types, decision making, looping structures, and basic design.

**CIS 133 – Intro to OOP using Alice (3 credits)** Students are introduced to the ideas of object-oriented programming using Alice, a three-dimensional world (much like a game) in which objects interact with each other, the world, and the user.

**CIS 136 – Object-Oriented Programming (3 credits)** This course introduces the fundamentals of C++ and Java programming with emphasis on an object-oriented approach to writing applications.

**CIS 140 – Database Design and SQL (3 credits)** Utilizing such database products as Oracle, SQL2005, and MySQL, students are introduced to the fundamentals of database design and management. SQL is introduced for data definition and manipulation.

**CIS 141 – Web Design and Maintenance (3 credits)** The students will create and manage web sites on a remote server using HTML, JavaScript, and various web development tools.

**CIS 160 – UNIX Operating Systems (3 credits)** Examines the concepts that are common to any Unix system using a hands-on approach to explore the Unix file system, commands, application design and programming, and an introduction to system management.

**CIS 170 – Web 2.0 (3 credits)** Students will install, configure, and administer Drupal, Joomla!, WordPress, and Moodle. The course will familiarize students with many of the Web 2.0 concepts including RSS, Wikis, and user-generated content.

**CIS 200 – Advanced PC Maintenance – A+ Certification (3 credits)** A further in depth study of computer hardware and PC operating systems as preparation for becoming A+ certificated. Students will begin the certification process by taking at least one of two required exams.

**CIS 215 – Cyber Security/Ethical Hacking (3 credits)** This hands-on course will introduce students to many aspects of network security. Students will acquire the skills necessary to perform and prevent network intrusions on a variety of different computing platforms.

**CIS 232 – Advanced Visual Basic (3 credits)** The student will learn how to create and manipulate data files using sequential, random access, and database formats.

**CIS 235 – Computer Crime Investigation (3 credits)** Students will learn the policies, procedures, and technology to gather and analyze digital information in an authentic, accurate and complete form for presentation as evidence in a business environment or, with proper credentials, a court of law.

**CIS 238 – Advanced Java Programming (3 credits)** More advanced features of object-oriented programming are covered as well as Java's networking, database, and web capabilities.

**CIS 241 – Advanced Web Design (3 credits)** This project based class will allow the student to demonstrate the techniques learned using Dreamweaver and graphics applications.

**CIS 252 – Multimedia Production/Integration (3 credits)** Students will learn to record and edit video, record and edit sound, develop project layouts using Photoshop and PowerPoint, and tie everything together with Adobe PDF.

**CIS 253 – Computer Graphics (3 credits)** The student will use Adobe Photoshop to demonstrate knowledge and skills of computer imagery.

**CIS 254 – Animation (3 credits)** This course includes creative projects, concise instructions, and complete coverage of basic to advanced skills, helping students to create and publish Flash CS3 animations.

**CIS 260 – UNIX OS Administration (3 credits)** An in depth study of the installation of a UNIX operating system. Students also learn the necessary steps to administer the system, programs and users.

**CIS 265 – Technical Communications (3 credits)** Using modern communication devices and applications, the student will gain hands-on experience with on-line collaboration and presentations.

**CIS 270 – Database Programming (3 credits)** Using SQL development tools in various database management systems, students learn to create stored procedures and database applications.

**CIS 272 – Client/Server Programming (3 credits)** Students create applications that access various database management systems. PDAs, touch-screens, card-readers, bar-codes, speech synthesis and recognition are also incorporated into various applications.

**CIS 273 – Web Applications – ASP (3 credits)** Students will gain experience in creating web-based, database-driven applications using Active Server Pages technology.

**CIS 276 – Web Applications – PHP (3 credits)** Students will gain experience in creating web-based, database-driven applications using the PHP server-side scripting language.

**CIS 280 – Windows Server Administration (3 credits)** This class covers the role of the system administration of a Windows server environment from setup to management of a Windows network for small to midsize business environments.

**CIS 290 – System Analysis and Design (3 credits)** The student will learn to define and describe the five phases of the systems development life cycle. The student will work in a team to create a case study demonstrating their knowledge of this technique.

**CIS 298/299 – Internship (4 credits)** This course provides the opportunity for the student to apply knowledge gained in the classroom. Internship consists of 240 hours at the job site.

**NET 101 – Network Cabling (3 credits)** This course focuses on cabling issues related to data and voice connections and provides an understanding of the industry and its worldwide standards.

**NET 111 – Networking for Home and Small Business (3 credits)** This course provides a hands-on introduction to networking and the Internet using tools and hardware commonly found in the home and small business environment.

**NET 115 – Network Fundamentals (3 credits)** This course uses a hands-on approach to introduce the architecture, structure, functions, components, and models of the Internet and other computer networks.

**NET 121 – Routing Protocols and Concepts (3 credits)** The student will analyze, configure, verify, and troubleshoot the primary routing protocols RIPv1, RIPv2, EIGRP, and OSPF.

**NET 131 – LAN Switching and Wireless (3 credits)** This course provides a practical approach to learning the technologies and protocols needed to design and implement a converged switched network.

**NET 141 – Accessing the WAN (3 credits)** Students learn how to apply WAN security concepts and how to troubleshoot, and correct common enterprise network implementation issues.

**NET 151 – Building Scalable Internetworks (3 credits)** Students will learn how to create an efficient and expandable enterprise network by installing, configuring, monitoring, and troubleshooting network infrastructure equipment.

**NET 161 – Implementing Secure Converged Wide-area Networks (3 credits)** Students will learn how to secure and expand the reach of an enterprise network with focus on VPN configuration and securing network access.

**NET 171 – Building Multilayer Switched Networks (3 credits)** The course focuses on the selection and implementation of the appropriate IOS services to build reliable, scalable, secure multilayer-switched LANs that include support for VoIP.

**NET 181 – Optimizing Converged Networks (3 credits)** This course introduces students to optimizing and providing effective QoS techniques in converged networks operating voice, wireless and security applications.

More information is available on-line at <http://www.lakeareatech.edu/programs/cis>

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Lake Area Technical Institute offers superior, comprehensive technical education, creating a foundation for success in an ever-changing world.