

Lakeland

COMMUNITY COLLEGE

PROGRAM GUIDE

Applied Studies Division


Information Technology & Computer Science

- Associate of Applied Business Degree in:
 - Application Programming and Development Concentration
 - Computer Science/Software Engineering Concentration
 - Database Administrator Concentration
 - User Support Specialist Major
 - Web Content Developer Concentration
 - Operating Systems/Networking Concentration
- Associate of Technical Studies Degree in Computer Information Technology
- Certificates



Opportunity
starts **HERE**
lakelandcc.edu

Information Technology & Computer Science



The information technology & computer science (IT & CS) department provides programs of instruction in various programming languages, systems development and support, database development and administration, hardware and software usage and support, and networking.

Career Opportunities

The U.S. Department of Labor projects that software developers, web developers, computer support specialists, database administrators, and network architects will be among the fastest growing occupations through 2022. Lakeland's IT & CS programs can help students gain the skills they need for a solid foundation in information technology as well as an opportunity to specialize in high demand technology fields.

Information Technology & Computer Science

Computer Science/Programming:

- Application Programming and Development Concentration
- Computer Science/Software Engineering Concentration

Database:

- Database Administrator Concentration

Information Systems:

- User Support Specialist Major
- Web Content Developer Concentration

Operating Systems/Networking:

- Operating Systems/Networking Concentration

Associate of Technical Studies Degree in Computer Information Technology

Certificates:

- Computer User
- IT Foundations
- IT Specialist
- IT Professional

Lakeland's Program

Students may pursue the Associate of Applied Business degree, with a concentration in one of six areas, or a certificate in one of four areas. In addition, the Associate of Technical Studies in computer information technology prepares or upgrades the graduate for a career requiring more than one computer-related specialization. The degree programs will take approximately two years of full-time study. The certificate programs are designed for people who wish to acquire new skills or update current ones without completing a degree program.

Lakeland Community College Admission Requirements

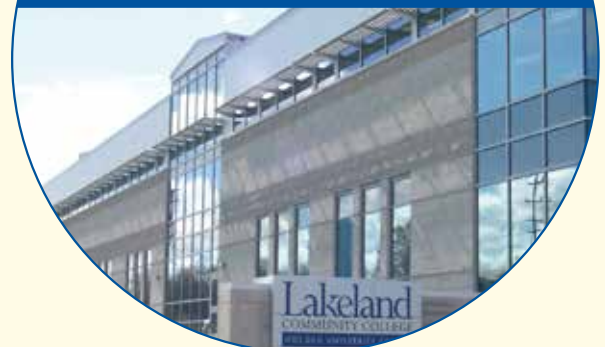
For admission into Lakeland, students must be a high school graduate or have obtained a high school diploma equivalency. Please consult Lakeland Community College's Enrollment Guide (available on Lakeland's website at lakelandcc.edu/enrollment) for specific admissions requirements and procedures.

For more information

1.800.589.8520 • lakelandcc.edu

Information Technology Computer Science Department
440.525.7265

To further your education, Lakeland's Holden University Center offers a variety of bachelor's degree programs from a number of four-year colleges and universities offering you the opportunity to *stay here and go far!* Visit lakelandcc.edu/uc to explore your options.



Application Programming and Development Concentration (9246)

This program prepares students for entry-level software development positions in the high demand field of mobile application development. Students will learn how to develop software and design mobile applications for Apple's iPhone/iPad and Android phone and tablets. The primary languages covered include Objective C, Swift, and Java. Students will use both Apple's Xcode and Android Studio integrated development environments to design, develop, and simulate mobile applications. In addition to employment opportunities, students have the option to continue their education beyond the two-year associate degree program by enrolling in four-year programs at local universities.

NOTE: Students must fulfill the following requirements for this program:

Successfully complete the CIS Tech Prep program **OR** have waived with equivalent high school or college coursework the following course:

ITIS 1005 Computers and Information Processing or ITIS 1007 Principles of Information Technology & Computer Science

OR

Complete ITIS 1005 Computers and Information Processing or ITIS 1007 Principles of Information Technology & Computer Science with a grade of "C" or better

NOTE: Students planning to transfer to a four-year college are encouraged to take ENGL 1120 English Composition II in addition to the following requirements.

First Semester:

BUSM 1300.....	Introduction to Business.....	3
ENGL 1110*	English Composition I (A).....	3
OR		
ENGL 1111.....	English Composition I (B)	
FYEX 1000.....	First Year Experience.....	1
ITCS 1010.....	Programming Logic.....	3
ITON 1050.....	Using Microsoft Windows 7.....	1
OR		
ITON 1070.....	Operating Systems: Skills and Techniques	
MATH 1600**.....	Survey of College Mathematics.....	3
		14

Second Semester:

BUSM 2400.....	Business Communication.....	3
ITCS 1820.....	Java Programming I.....	3
ITCS 1825.....	Programming I for iOS.....	3
ITDB 1400.....	Introduction to SQL.....	2
PEHR 1650.....	Health Fitness.....	2
Choose course(s) from the Social and Behavioral Sciences Electives list.....		3
		16

Third Semester:

BUSM 2200.....	Organizational Behavior.....	3
ITCS 2820.....	Java/Android Programming II.....	3
ITCS 2825.....	Programming II for iOS.....	3
ITIS 1008.....	Ethics in Information Technology.....	1
ITON 1205.....	Network+ and Networking Essentials.....	2
Choose course(s) from the Arts and Humanities Electives list.....		3
		15

Fourth Semester:

BUSM 1700.....	Principles of E-Business.....	3
ITCS 2821.....	Java/Android Programming III.....	2
ITCS 2826.....	Programming III for iOS.....	2
ITCS 2848.....	.NET Programming.....	3
ITIS 2890.....	Information Technology and Computer Science Capstone.....	2
Choose course(s) from the Natural Sciences Electives list.....		3
		15
		Program Total: 60

*English course selection is based on placement test results (ENGL 1111 is 4 credits, only 3 credits apply to the degree).

**Students planning to transfer to a four-year college should take a sequence of math as advised by their counselor.

Natural Sciences Electives: minimum 3 credits

CHEM 1050.....	Chemistry in the Everyday World.....	3
PSCI 1300.....	Earth Science.....	3
PSCI 1400.....	Introduction to Meteorology.....	3
Any other Natural Sciences laboratory course included in the Transfer Module.		

Arts and Humanities Electives: minimum 3 credits

ARTS 1120, 2220, 2230; ENGL 2250, 2260, 2280, 2290; HUMX 1100, 1200; MUSC 1200, 1215, 1800, 2200, 2250; PHIL 1500, 2000; PHOT 1000

Social and Behavioral Sciences Electives: minimum 3 credits

ANTH 1160; ECON 1150, 2500, 2600; GEOG 1500, 1600, 2500; HIST 1150, 1250, 2150, 2250; POLS 1300, 2500; PSYC 1500; SOCY 1150



Computer Science/Software Engineering Concentration (9259)

This concentration is designed for students planning to transfer to a Computer Science or Computer Information Systems program at a four-year college. In addition to being a transfer program, this program will help students who are interested in game and entertainment programming acquire the fundamental skills to get started. Students should consult a Lakeland counselor prior to beginning this program in order to ensure maximum transferability.

NOTE: Students must fulfill the following requirements for this program:

- place into MATH 1700 Trigonometry OR complete MATH 1650 College Algebra with a "C" grade or higher
- successfully complete the CIS Tech Prep program
OR have waived with equivalent high school OR college coursework the following course:
 ITIS 1005 Computers and Information Processing **OR** complete ITIS 1005 with a "C" grade or higher
OR
 ITIS 1007 Principles of Information Technology and Computer Science
OR complete ITIS 1007 Principles of Information Technology and Computer Science with a "C" grade or higher
OR
 Pass the AP Computer Science Principles Exam with a "3" or higher

NOTE: Students planning to transfer to a four-year college are encouraged to take ENGL 1120 English Composition II in addition to the following requirements.

First Semester:

BUSM 1300.....	Introduction to Business.....	3
CPET 1120.....	C Programming for Engineering Technology.....	3
FYEX 1000.....	First Year Experience.....	1
ITCS 1010.....	Programming Logic.....	3
ITON 1011.....	Comparative Analysis of Microcomputer Operating Systems.....	2
ITON 1050.....	Using Microsoft Windows 7.....	1
OR		
ITON 1070.....	Operating Systems: Skills and Techniques.....	3
MATH 1700.....	Trigonometry.....	3
		16

Second Semester:

ENGL 1110*.....	English Composition I (A).....	3
OR		
ENGL 1111.....	English Composition I (B).....	3
ITCS 1820.....	Java Programming I.....	3
ITCS 1870.....	Python Programming I.....	3
ITDB 1400.....	Introduction to SQL.....	2
MATH 2500.....	Calculus and Analytical Geometry I.....	5
		16

Third Semester:

BUSM 2400.....	Business Communication.....	3
ITCS 2080.....	Fundamentals of Software Engineering.....	3
ITCS 2870.....	Data Structures.....	4
ITON 1205.....	Network+ and Networking Essentials.....	2
MATH 2600.....	Calculus and Analytical Geometry II.....	5
		17

Fourth Semester:

CHEM 1500**.....	General Chemistry I.....	5
OR		
PHYS 2410.....	Science and Engineering Physics I.....	3
ITCS 2012.....	Discrete Structures.....	3
ITCS 2875.....	Computer Architecture and Organization.....	3
ITIS 2890.....	Information Technology and Computer Science Capstone.....	2
	Choose course(s) from the Arts and Humanities Electives list.....	3
		16

Program Total: 65

*English course selection is based on placement test results (ENGL 1111 is 4 credits, only 3 credits apply to the degree).

**Students should discuss the choice of science courses with their advisor.

Arts and Humanities Electives: minimum 3 credits

ARTS 1120, 2220, 2230; ENGL 2250, 2260, 2280, 2290; HUMX 1100, 1200; MUSC 1200, 1215, 1800, 2200, 2250; PHIL 1500, 2000; PHOT 1000



Database

Database Administrator Concentration (9258)

This program prepares students for entry-level employment in the field of database administration. Students will obtain skills that are necessary for the configuration, implementation, administration, and maintenance of Enterprise level databases. Database administrators are responsible for the storage, organization, integrity, and management of data, as well as for the security and backup/recovery of the database. Courses within this program help students prepare for various vendor certification exams, including Microsoft, Oracle and CompTIA. In addition to employment opportunities, students have the option to continue their education beyond the two-year associate degree program by enrolling in four-year programs at local universities.

NOTE: Students planning to transfer to a four-year college are encouraged to take ENGL 1120 English Composition II in addition to the following requirements.

First Semester:

BUSM 1300.....	Introduction to Business.....	3
ENGL 1110*.....	English Composition I (A).....	3
OR		
ENGL 1111.....	English Composition I (B)	
FYEX 1000.....	First Year Experience.....	1
(1st 8 weeks)		
ITIS 1007.....	Principles of Information Technology and Computer Science.....	3
(2nd 8 weeks)		
ITCS 1010.....	Programming Logic.....	3
ITON 1050.....	Using Microsoft Windows 7.....	1
OR		
ITON 1070.....	Operating Systems: Skill and Techniques	
ITON 1205.....	Network+ and Networking Essentials.....	2
		16

Second Semester:

BUSM 2400.....	Business Communication.....	3
ITON 1748.....	Linux Administration I.....	3
MATH 1600**.....	Survey of College Mathematics.....	3
(1st 8 weeks)		
ITDB 1400.....	Introduction to SQL.....	2
(2nd 8 weeks)		
ITDB 1405.....	Oracle PL/SQL Programming.....	2
ITON 2050.....	Windows 7 Configuration.....	2
OR		
ITON 2070.....	Configuring Windows Devices	
		15

Third Semester:

ITCS 1820.....	Java Programming I.....	3
ITDB 1406.....	Microsoft SQL Concepts.....	2
ITDB 2417.....	Oracle Database Administration.....	3
ITON 2240.....	Installing and Configuring Windows Server 2012.....	2
PEHR 1650.....	Health Fitness.....	2
	Choose course(s) from the Arts and Humanities Electives list.....	3
		15

Fourth Semester:

ITDB 2427.....	Microsoft SQL Server Administration.....	3
ITIS 2890.....	Information Technology and Computer Science Capstone.....	2
MATH 2130.....	Business Statistics I.....	3
	Choose course(s) from the Natural Sciences Electives list.....	3
	Choose course(s) from the Social and Behavioral Sciences Electives list.....	3
	Choose course(s) from the Technical Electives list.....	3
		17

Program Total: 63

*English course selection is based on placement test results (ENGL 1111 is 4 credits, only 3 credits apply to the degree).

**Students planning to transfer to a four-year college should take a sequence of math as advised by their counselor.

Technical Electives: minimum 3 credits

CPET 1050.....	Assembling, Upgrading and Repairing Personal Computers.....	2
ITCS 1105.....	Web Programming I.....	3
ITCS 2010.....	Systems Analysis.....	3
ITCS 2170.....	Introduction to ASP.NET.....	2
ITCS 2820.....	Java/Android Programming II.....	3
ITCS 2848.....	.NET Programming.....	3
ITIS 1100.....	Internet: Services, Tools, and Web Page Creation.....	2
ITIS 1115.....	Internet Technologies and Concepts.....	2
ITIS 2015.....	Information Technology Project Management.....	3
ITON 1758.....	Linux Administration II.....	3
ITON 2241.....	Administering Windows Server 2012.....	2
ITON 2242.....	Configuring Advanced Windows Server 2012.....	2
	Any Information Technology (ITCS, ITDB, ITIS, ITON) course(s) except ITIS 1000	

Natural Sciences Electives: minimum 3 credits

CHEM 1050.....	Chemistry in the Everyday World.....	3
PSCI 1300.....	Earth Science.....	3
PSCI 1400.....	Introduction to Meteorology.....	3
	Any other Natural Sciences laboratory course included in the Transfer Module.	

Arts and Humanities Electives: minimum 3 credits

ARTS 1120, 2220, 2230; ENGL 2250, 2260, 2280, 2290; HUMX 1100, 1200; MUSC 1200, 1215, 1800, 2200, 2250; PHIL 1500, 2000; PHOT 1000

Social and Behavioral Sciences Electives: minimum 3 credits

ANTH 1160; ECON 1150, 2500, 2600; GEOG 1500, 1600, 2500; HIST 1150, 1250, 2150, 2250; POLS 1300, 2500; PSYC 1500; SOCY 1150



Information Systems

User Support Specialist Major (9243)

This program provides students with expertise in supporting business computer applications and operating systems. It includes a study of hardware and software installation, the use and support of common operating systems, networking, and security. Graduates are prepared to tailor hardware and software based on user needs and to provide end-user support and training. Career opportunities include help desk support, technical computer training, computer consulting, and information technologies employment. Courses within this program help students to prepare for industry certification exams, including Microsoft, Oracle, and CompTIA. The typical education required to become a help desk support technician is an associate degree; however, students have the option to continue their education by enrolling in four-year programs at local universities.

NOTE: Students planning to transfer to a four-year college are encouraged to take ENGL 1120 English Composition II in addition to the following requirements.

First Semester:

BUSM 1300.....	Introduction to Business.....	3
ENGL 1110*	English Composition I (A).....	3
OR		
ENGL 1111.....	English Composition I (B)	
FYEX 1000.....	First Year Experience.....	1
ITIS 1007.....	Principles of Information Technology and Computer Science.....	3
MATH 1600**.....	Survey of College Mathematics.....	3
Choose course(s) from the Arts and Humanities Electives list.....		3
		16

Second Semester:

BUSM 2200.....	Organizational Behavior.....	3
ITCS 1010.....	Programming Logic.....	3
ITIS 1025.....	Managing and Optimizing Personal Computers.....	3
ITIS 1510.....	Microsoft Office Word: Skills and Techniques.....	3
ITIS 1520.....	Microsoft Office Excel: Skills and Techniques.....	3
ITON 1050.....	Using Microsoft Windows 7.....	1
OR		
ITON 1070.....	Operating Systems: Skills and Techniques	
		16

Third Semester:

BUSM 2400.....	Business Communication.....	3
ITIS 2015.....	Information Technology Project Management.....	3
ITIS 2510.....	Help Desk Concepts and Management.....	3
ITON 1205.....	Network+ and Networking Essentials.....	2
PEHR 1650.....	Health Fitness.....	2
Choose course(s) from the Natural Sciences Electives list.....		3
		16

Fourth Semester:

ITDB 1400.....	Introduction to SQL.....	2
ITIS 1355.....	Security+ and Security Essentials.....	3
ITIS 2890.....	Information Technology and Computer Science Capstone.....	2
ITON 1748.....	Linux Administration I.....	3
ITON 2050.....	Windows 7 Configuration.....	2
OR		
ITON 2070.....	Configuring Windows Devices	
Choose course(s) from the Social and Behavioral Sciences Electives list.....		3
		15
		Program Total: 63

*English course selection is based on placement test results (ENGL 1111 is 4 credits, only 3 credits apply to the degree).

**Students planning to transfer to a four-year college should take a sequence of math as advised by their counselor.

Natural Sciences Electives: minimum 3 credits

CHEM 1050.....	Chemistry in the Everyday World.....	3
PSCI 1300.....	Earth Science.....	3
PSCI 1400.....	Introduction to Meteorology.....	3
Any other Natural Sciences laboratory course included in the Transfer Module.		

Arts and Humanities Electives: minimum 3 credits

ARTS 1120, 2220, 2230; ENGL 2250, 2260, 2280, 2290; HUMX 1100, 1200; MUSC 1200, 1215, 1800, 2200, 2250; PHIL 1500, 2000; PHOT 1000

Social and Behavioral Sciences Electives: minimum 3 credits

ANTH 1160; ECON 1150, 2500, 2600; GEOG 1500, 1600, 2500; HIST 1150, 1250, 2150, 2250; POLS 1300, 2500; PSYC 1500; SOCY 1150





Web Content Developer Concentration (9251)

This program provides students with skills necessary to understand, use, and develop Internet services and resources. In addition, the program will help students become web developers who are responsible for the look and technical aspects of a web site. Students will create content-rich sites that use various forms of media as well as basic interactive programming techniques. Projects will emphasize business, home-office, and personal applications. According to the U.S. Bureau of Labor Statistics, the employment of web developers is projected to grow through 2022, faster than the average for all occupations. The typical education needed to become a web developer is an associate degree; however, students have the option to continue their education by enrolling in four-year programs at local universities.

NOTE: Students who are interested in additional skills should also consider: *ITCS 2105, ITCS 2170, ITDB 1405, and ITON 1748. Students may need to complete additional prerequisite courses.*

NOTE: Students planning to transfer to a four-year college are encouraged to take *ENGL 1120 English Composition II* in addition to the following requirements.

First Semester:

BUSM 1300	Introduction to Business	3
ENGL 1110*	English Composition I (A)	3
OR		
ENGL 1111	English Composition I (B)	
FYEX 1000	First Year Experience	1
ITIS 1100	Internet: Services, Tools and Web Page Creation	2
(1st 8 weeks)		
ITIS 1007	Principles of Information Technology and Computer Science	3
(2nd 8 weeks)		
ITCS 1010	Programming Logic	3
		15

Second Semester:

BUSM 2400	Business Communications	3
ECON 2600	Principles of Microeconomics	3
ITCS 1105	Web Programming I	3
ITCS 1820	Java Programming I	3
ITDB 1400	Introduction to SQL	2
ITIS 1130	Introduction to Web Design	1
		15

Third Semester:

BUSM 2500	Principles of Marketing	3
ITCS 2120	JavaScript Programming I	3
ITIS 1108	Using an HTML Editor	2
PHOT 2300	Introduction to Digital Photo Imaging	3
Choose course(s) from the Natural Sciences Electives list		3
Choose course(s) from the Technical Electives list		3
		17

Fourth Semester:

BUSM 2550**	Direct and Internet Marketing	3
ITIS 2890	Information Technology and Computer Science Capstone	2
MATH 1600***	Survey of College Mathematics	3
Choose course(s) from the Arts and Humanities Electives list		3
Choose course(s) from the Technical Electives list		3
		14
Program Total:		61

*English course selection is based on placement test results (*ENGL 1111* is 4 credits, only 3 credits apply to the degree).

**Students may substitute *BUSM 2520, BUSM 2530, or BUSM 2560* for *BUSM 2550*.

***Students planning to transfer to a four-year college should take a sequence of math as advised by their counselor.

Technical Electives: minimum 6 credits

GRDS 1010	Visual Organization	3
GRDS 1015	Introduction to Typography	3
GRDS 1020	Graphic Design	3
ITCS 2105	Web Programming II	3
ITCS 2170	Introduction to ASP.NET	2
ITCS 2820	Java/Android Programming II	3
ITDB 1405	Oracle PL/SQL Programming	2
ITIS 1008	Ethics in Information Technology	1
ITIS 1030	Security Awareness	1
ITIS 1115	Internet Technologies and Concepts	2
ITIS 1530	Microsoft Office Access: Skills and Techniques	3
ITON 1205	Network+ and Networking Essentials	2
PHOT 1105	Basic Photography - Digital	3
PHOT 2350	Advanced Digital Photo Imaging	3

Natural Sciences Electives: minimum 3 credits

CHEM 1050	Chemistry in the Everyday World	3
PSCI 1300	Earth Science	3
PSCI 1400	Introduction to Meteorology	3
Any other Natural Sciences laboratory course included in the Transfer Module.		

Arts and Humanities Electives: minimum 3 credits

ARTS 1120, 2220, 2230; ENGL 2250, 2260, 2280, 2290; HUMX 1100, 1200; MUSC 1200, 1215, 1800, 2200, 2250; PHIL 1500, 2000; PHOT 1000
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Operating Systems/Networking

Operating Systems/Networking Concentration (9249)

The Operating Systems/Networking Concentration provides coverage of all aspects of installing, administering and managing heterogeneous local and wide area networks. Based on Lakeland's status as a Microsoft Imagine Academy, instruction included in the emphasis helps prepare students and professionals for multiple vendor and vendor neutral certifications such as CompTIA Networking+, CompTIA Security+, and Microsoft Certified Solution Associate (MCSA). In addition to employment opportunities, students have the option to continue their education beyond the two-year associate degree program by enrolling in four-year programs at local universities.

NOTE: Students planning to transfer to a four-year college are encouraged to take *ENGL 1120 English Composition II* in addition to the following requirements.

First Semester:

BUSM 1300	Introduction to Business	3
ENGL 1110*	English Composition I (A)	3
OR		
ENGL 1111	English Composition I (B)	
FYEX 1000	First Year Experience	1
MATH 1600**	Survey of College Mathematics	3
(1st 8 weeks)		
ITIS 1007	Principles of Information Technology and Computer Science	3
(2nd 8 weeks)		
ITON 1070	Operating Systems: Skills and Techniques	1
ITON 1205	Network+ and Networking Essentials	2

Second Semester:

BUSM 2200.....	Organizational Behavior.....	3
BUSM 2400.....	Business Communication.....	3
ITCS 1010.....	Programming Logic.....	3
ITON 1748.....	Linux Administration I.....	3
(1st 8 weeks)		
ITON 2070.....	Configuring Windows Devices.....	2
(2nd 8 weeks)		
ITON 2240.....	Installing and Configuring Windows Server 2012.....	2
		16

Third Semester:

ITIS 1025.....	Managing and Optimizing Personal Computers.....	3
ITIS 1355.....	Security+ and Security Essentials.....	3
ITON 1758.....	Linux Administration II.....	3
ITON 2750.....	Shell Script Programming.....	2
PEHR 1650.....	Health Fitness.....	2
(1st 8 weeks)		
ITON 2241.....	Administering Windows Server 2012.....	2
(2nd 8 weeks)		
ITON 2242.....	Configuring Advanced Windows Server 2012 Services.....	2
		17

Fourth Semester:

ITIS 2890.....	Information Technology and Computer Science Capstone.....	2
ITON 2051.....	Windows 7 Enterprise Support Technician.....	2
ITON 2768.....	Linux Administration III.....	3
	Choose course(s) from the Arts and Humanities Electives list.....	3
	Choose course(s) from the Natural Sciences Electives list.....	3
	Choose courses(s) from the Social and Behavioral Sciences Electives list.....	3
		16
		Program Total: 65

**English course selection is based on placement test results (ENGL 1111 is 4 credits, only 3 credits apply to the degree).*

****Students planning to transfer to a four-year college should take a sequence of math as advised by their counselor.**

Natural Sciences Electives: minimum 3 credits

CHEM 1050.....	Chemistry in the Everyday World.....	3
PSCI 1300.....	Earth Science.....	3
PSCI 1400.....	Introduction to Meteorology.....	3
	Any other Natural Sciences laboratory course included in the Transfer Module.	

Arts and Humanities Electives: minimum 3 credits

ARTS 1120, 2220, 2230; ENGL 2250, 2260, 2280, 2290; HUMX 1100, 1200; MUSC 1200, 1215, 1800, 2200, 2250; PHIL 1500, 2000; PHOT 1000

Social and Behavioral Sciences Electives: minimum 3 credits

ANTH 1160; ECON 1150, 2500, 2600; GEOG 1500, 1600, 2500; HIST 1150, 1250, 2150, 2250; POLS 1300, 2500; PSYC 1500; SOCY 1150

Information Systems and Computer Science Certificates

Computer User Certificate (2402)

This certificate is designed to prepare students for employment in a variety of positions requiring fundamental computer knowledge and skills.

ITIS 1000.....	Introduction to Personal Computers.....	1
OR		
ITIS 1005.....	Computers and Information Processing.....	3
OR		
ITIS 1007.....	Principles of Information Technology and Computer Science.....	3
ITON 1050.....	Using Microsoft Windows 7.....	1
OR		
ITON 1070.....	Operating Systems: Skills and Techniques	
	Choose course(s) from the Microsoft Office Electives list.....	2-3
		Certificate Total: 4-7

Microsoft Office Electives: minimum 2-3 credits

ITIS 1510.....	Microsoft Office Word: Skills and Techniques.....	3
ITIS 1520.....	Microsoft Office Excel: Skills and Techniques.....	3
ITIS 1530.....	Microsoft Office Access: Skills and Techniques.....	3
ITIS 1540.....	Microsoft Office PowerPoint: Skills and Techniques.....	2
ITIS 1550.....	Using Microsoft Office: Word and Excel.....	3

IT Foundations Certificate (2401)

This certificate is designed to prepare students for employment in a variety of positions requiring fundamental information technology knowledge and skills. It also fulfills one of the designated steps leading to completion for several IT degree concentrations.

ITCS 1010.....	Programming Logic.....	3
ITIS 1005.....	Computers and Information Processing.....	3
OR		
ITIS 1007.....	Principles of Information Technology and Computer Science.....	3
ITON 1050.....	Using Microsoft Windows 7.....	1
OR		
ITON 1070.....	Operating Systems: Skills and Techniques	



IT Specialist Certificate (2403)

This certificate builds upon previous information technology foundational skills by providing core competencies as well as breadth and/or depth. It is designed to prepare students for employment in a variety of positions requiring more specialized computer knowledge and skills. It also fulfills one of the designated steps leading to completion for all of the IT degree concentrations.

- Completion of the IT Foundations Certificate 7
- OR**
- Completion of ITCS 1010 Programming Logic
- AND**
- Completion of 4 additional credits in ITCS, ITDB, ITIS, ITON courses
- Choose courses from the Information Technology Electives list. 8

Certificate Total: 15

Information Technology Electives: minimum 8 credits

At least one course must be selected from the following courses which help students prepare for industry certification:

ITDB 1400	..... Introduction to SQL	..... 2
ITDB 1405	..... Oracle PL/SQL Programming	..... 2
ITDB 1406	..... Microsoft SQL Concepts	..... 2
ITDB 2417	..... Oracle Database Administration	..... 3
ITDB 2427	..... Microsoft SQL Server Administration	..... 3
ITIS 1355	..... Security+ and Security Essentials	..... 3
ITIS 2015	..... Information Technology Project Management	..... 3
ITIS 2350	..... Management of Information Security	..... 3
ITIS 2355	..... Security Investigation and Penetration Studies	..... 3
ITON 1205	..... Network+ and Networking Essentials	..... 2
ITON 1748	..... Linux Administration I	..... 3
ITON 1758	..... Linux Administration II	..... 3
ITON 2050	..... Windows 7 Configuration	..... 2
ITON 2051	..... Windows 7 Enterprise Support Technician	..... 2
ITON 2232	..... Core Solutions of Microsoft Office SharePoint Server	..... 2
ITON 2240	..... Installing and Configuring Windows Server 2012	..... 2
ITON 2241	..... Administering Windows Server 2012	..... 2
ITON 2242	..... Configuring Advanced Windows Server 2012 Services	..... 2
ITON 2768	..... Linux Administration III	..... 3

Remaining credits can be taken from within the above list or any other Information Technology (ITCS, ITDB, ITIS, ITON) courses.

IT Professional Certificate (2404)

This certificate builds upon previous information technology proficiency skills by providing professional competencies as well as an additional breadth and depth. It is designed to prepare students for employment in a variety of positions requiring a professional level of computer knowledge and skills. It also fulfills one of the designated steps leading to completion for all of the IT degree concentrations.

- Completion of the IT Specialist Certificate 15
- ENGL 1110* English Composition I (A) 3
- OR**
- ENGL 1111 English Composition I (B)
- Choose courses from the Business Management Electives list..... 3
- Choose courses from the Information Technology Electives list. 9

Certificate Total: 30

**English course selection is based on placement test results (ENGL 1111 is 4 credits, only 3 credits apply to the degree).*

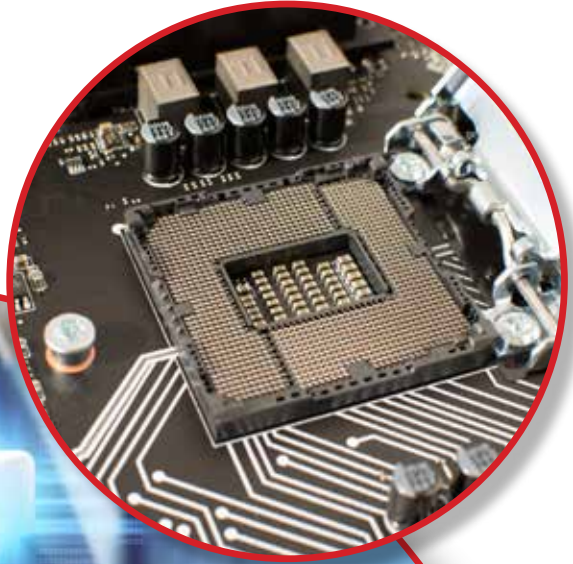
Information Technology Electives: minimum 9 credits

Any Information Technology (ITCS, ITDB, ITIS, ITON) courses

Business Management Electives: minimum 3 credits

BUSM 1300	..... Introduction to Business	..... 3
BUSM 2200	..... Organizational Behavior	..... 3
BUSM 2400	..... Business Communication	..... 3

For more information about our graduation rates, the median debt of students who completed the program, and other important information, please visit lkn.lakelandcc.edu/go/ge/?g=2404.



Associate of Technical Studies Degree

Applied Studies - Computer, Design and Engineering Technologies

Computer Information Technology (9720)

The Associate of Technical Studies Degree in Computer Information Technology prepares or upgrades the graduate for career objectives requiring more than one computer-related specialization. Specializations can be combined from within, but not limited to, areas such as computer network support, computer user support, data information analysis, software design and development, web content design, and media studies. Available courses include those that prepare for industry certification from Oracle, Microsoft, CompTIA and Cisco. In addition to employment opportunities, students have the option to continue their education beyond the two-year associate degree program by enrolling in four-year programs at local universities.

The student will be required to complete a sequence of IT core courses which will fulfill the necessary prerequisites before taking additional technical courses. Students will then select a flexible choice of additional technical courses in the format of specializations with an Information Technology & Computer Science/ATS faculty advisor.

Admission requirements include the creation of an individualized degree plan in conjunction with and approved by at least two Information Technology & Computer Science faculty members. Courses taken prior to approval of the degree plan may or may not be approved for inclusion in this degree program.

Required Technical Courses:

Core IT courses:

ITIS 1007	Principles of Information Technology and Computer Science	3
ITIS 1115	Internet Technologies and Concepts	2
OR		
ITON 1205	Network+ and Networking Essentials	2
OR		
CNET 1100	Cisco Networking Technology I	2
ITON 1050	Using Microsoft Windows 7	1
OR		
ITON 1070	Operating Systems: Skills and Techniques	1
ITCS 1010	Programming Logic	3
ITIS 2015	Information Technology Project Management	3
Choose any ITDB course		2-3

Core Technical Credits: 14-15

Additional approved technical courses selected from within at least two of the following areas:

- Programming and Computer Science (ITCS)
- Database (ITDB)
- Operating Systems and Networking (ITON)
- Information Systems (ITIS)
- Cisco Network Infrastructure (CNET)
- CompTIA A++ (CPET)
- Media Technology (MDIA)

Additional technical Credits: 15-16
Total Required Technical Course Credits: 30

Required Non-Technical Courses: General Studies Courses:

ENGL 1110*	English Composition I (A)	3
OR		
ENGL 1111	English Composition I (B)	3
MATH 1600 or higher**		3
Choose course(s) from the Arts and Humanities Electives list		3
Choose course(s) from the Natural Sciences Electives list		3
Choose course(s) from the Social and Behavioral Sciences Electives list		3

General Studies Credits: 15

Basic/Related Courses:

BUSM 1300	Introduction to Business	3
BUSM 2400	Business Communication	3
FYEX 1000	First Year Experience	1
Additional approved courses selected from the following:		8
Accounting (ACCT)		
Business Management and Marketing (BUSM)		

Basic/Related Credits:

15
Total Required Non-Technical Course Credits: 30
Total Credit Hours: 60

*English course selection is based on placement test results (ENGL 1111 is 4 credits, only 3 credits apply to the degree).

**Students planning to transfer to a four-year college should take a sequence of math as advised by their counselor.

Natural Sciences Electives: minimum 3 credits

CHEM 1050	Chemistry in the Everyday World	3
PSCI 1300	Earth Science	3
PSCI 1400	Introduction to Meteorology	3
Any other Natural Sciences laboratory course included in the Transfer Module.		

Arts and Humanities Electives: minimum 3 credits

ARTS 1120, 2220, 2230; ENGL 2250, 2260, 2280, 2290; HUMX 1100, 1200; MUSC 1200, 1215, 1800, 2200, 2250; PHIL 1500, 2000; PHOT 1000

Social and Behavioral Science Electives: minimum 3 credits

ANTH 1160; ECON 1150, 2500, 2600; GEOG 1500, 1600, 2500; HIST 1150, 1250, 2150, 2250; POLS 1300, 2500; PSYC 1500; SOCY 1150



Information Technology & Computer Science

Graduates with information technology skills are changing the world -- and making a lot of money doing it!

You can gain all the skills and certifications you need right here at Lakeland to enter this amazing job market.



It's one of the fastest growing fields

There are well over 100,000 technology job openings each year and over 2/3 go unfilled!



It's one of the highest paying jobs

The average pay for information technology and computer science (IT & CS) jobs is considerably more than the average of other jobs.



It's one of the top-rated areas of employment for job satisfaction

Most people employed in IT & CS are content with their jobs and find plenty of resources online to expand their knowledge and keep skills current.

Tech grads are on the cutting-edge of the latest innovations. Learn the fundamental skills at Lakeland that can lead you into:

- Mobile Applications
- Web and Software Development
- Medical Devices
- Robots
- Drones
- 3D Printers
- Solar and Wind Power
- Environmental and Medical Research
- Animation
- Artificial Intelligence

Careers include:

Computer Programmers
Computer Support Specialist
Computer Systems Analysts
Database Administrators
Information Security Analysts
Network and Computer Systems Administrators
Software Developers
Web Developers

For more information, call 440.525.7265 or visit lakelandcc.edu/ITCS.

Sources: Bureau of Labor Statistics Occupational Outlook Handbook; Bureau of Labor Statistics, Occupational Projections, 2012-2022; Best Technology Jobs 2015, U.S. News & World Report.

Lakeland
COMMUNITY COLLEGE
INFORMATION TECHNOLOGY
AND COMPUTER SCIENCE



Information Technology and Computer Science

Curriculum and program requirements are subject to change. Find the most up-to-date information in the college catalog, available on the website at lakelandcc.edu.



Quality Education

Lakeland prepares you for a high-demand career or for transfer to a four-year college or university. Professors at Lakeland are experts in their fields with real-world experience. Small class sizes allow for personalized attention.



Affordable Tuition

Save thousands on your college education. Lakeland's tuition is about one-third the cost of most four-year schools. Financial assistance is available, including federal and state grants, scholarships, loans, and work study employment.



Convenience

Lakeland offers convenient day, evening and weekend class times, and a growing number of online courses. The main campus in Kirtland is only 20 miles northeast of Cleveland. Classes are also offered in Madison.



Focus on Students

Lakeland offers a variety of student services to help you succeed, such as counseling, tutoring, wireless computer labs, career services, free parking, and affordable child care.



Accreditation

Lakeland Community College is accredited through the Higher Learning Commission (HLC) and participates in the Academic Quality Improvement Program (AQIP). The Higher Learning Commission, 230 South LaSalle Street, Suite 7-500, Chicago, IL 60604-1413, phone: 800.621.7440, hlcommission.org.

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