

Official Program Outline



HERZING
— UNIVERSITY —

Certificate in Information Technology

Program Description

The Certificate in Information Technology is designed to prepare students for entry-level roles in IT support. This program provides a comprehensive foundation in essential IT skills, including hardware and software troubleshooting, network basics, customer support, and cybersecurity fundamentals. Students will engage in both theoretical learning and practical, hands-on experiences to develop the ability to efficiently resolve technical issues and provide exceptional support to end-users. This program is ideal for individuals aiming to start a career in IT support, as well as those looking to enhance their technical skills and knowledge for better job prospects in the technology industry.

Coursework in this program provides a foundation for select industry certifications. These certifications enhance employment opportunities but are not a state specific requirement.

Program Outcomes

Upon completion of this program, the student should be able to:

1. Resolve common problems related to computer hardware, software applications, and operating systems.
2. Demonstrate strong communication and interpersonal skills to assist end-users in resolving technical issues and improving their understanding of IT systems.
3. Apply basic networking concepts to set up, configure, and maintain network connections and troubleshoot common network problems.
4. Identify potential security threats and implement standard cybersecurity practices to protect information systems and data.
5. Employ various tools and software used in technical support environments for diagnostics, remote support, and system monitoring.

Program Content

A minimum of 25.00 semester credit hours is required for graduation.

Required Courses

All courses, 25.00 semester credit hours, are required.

Course Number and Name	Prerequisites/Corequisites	Semester Credit Hours
IT 101 MicroComputer Organization	None	3.00
IT 105 Computer Architecture	None	3.00
IT 110 Computer Operating Systems	None	3.00
IT 115 Network Fundamentals	IT 101 MicroComputer Organization	3.00
IT 204 Linux System Administration	None	4.00
IT 210 Enterprise Network Engineering	IT 115 Network Fundamentals	3.00
IT 215 Programming in Python	IT 101 MicroComputer Organization	3.00
IT 220 Database Management Systems	IT 101 MicroComputer Organization	3.00

Distribution of Contact Hours by Course				
Course	Lecture Hours	Internship Hours	Total Contact Hours	Credits
IT 101	45.00	0.00	45.00	3.00
IT 105	45.00	0.00	45.00	3.00
IT 110	45.00	0.00	45.00	3.00
IT 115	45.00	0.00	45.00	3.00
IT 204	60.00	0.00	60.00	4.00
IT 210	45.00	0.00	45.00	3.00
IT 215	45.00	0.00	45.00	3.00
IT 220	45.00	0.00	45.00	3.00
Totals	375.00	0.00	375.00	25.00

Course Descriptions

IT 101 MicroComputer Organization	This course delves into the intricacies of microcomputer architecture and organization, exploring the fundamental principles and concepts that govern their design and operation. The course emphasizes the interplay between sets, logic, and graph theory as they form the building blocks of microcomputer systems.
IT 105 Computer Architecture	This course is designed to provide students with a solid foundation in the fundamental principles of computer architecture. This course explores the inner workings of computer hardware components, their interactions, and the underlying principles that govern their design and functionality. Throughout the course, students will delve into various topics related to computer architecture, including processor architecture, memory systems, storage devices, and input/output systems.
IT 110 Computer Operating Systems	This course is designed to provide students with a comprehensive understanding of computer operating systems. This course explores the fundamental concepts, principles, and functionalities of operating systems, enabling students to effectively support and troubleshoot common operating system issues. Throughout the course, students will delve into various topics related to computer operating systems, including installation, configuration, maintenance, and troubleshooting of different operating systems.
IT 115 Network Fundamentals	This course is designed to provide students with a comprehensive understanding of networking concepts and principles. This course explores the foundational knowledge required to design, implement, and troubleshoot both wired and wireless networks. Throughout the course, students will delve into various topics related to network fundamentals, including network architecture, protocols, devices, and security.
IT 204 Linux System Administration	This course is designed to provide students with a comprehensive understanding of Linux operating systems and the skills required to administer and manage Linux-based environments. This course covers a wide range of topics related to Linux system administration, including installation, configuration, maintenance, and troubleshooting. Throughout the course, students will delve into various aspects of Linux system administration, including file systems, user management, process management, networking, and security.
IT 210 Enterprise Network Engineering	This course is designed to equip students with the essential knowledge and skills required to design, implement, and manage enterprise-level networks. This course focuses on the fundamental concepts and best practices of network engineering in a corporate environment. Throughout the course, students will explore a wide range of topics related to enterprise network engineering, including network architecture, routing and switching, network security, WAN (Wide Area Network) connectivity, and network troubleshooting.
IT 215 Programming in Python	This course is designed to introduce students to the fundamentals of programming using the Python programming language. This course is ideal for beginners who have no prior programming experience and wish to learn a versatile and widely used language. Throughout the course, students will be introduced to key programming concepts and techniques, including variables, data types, control structures, functions, and object-oriented programming (OOP) principles.
IT 220 Database Management Systems	This course is designed to provide students with the knowledge and skills required to design, implement, and manage relational databases effectively. Throughout the course, students will explore various aspects of database management systems, including database design, normalization, data modeling, SQL (Structured Query Language), and database security.