

# INFORMATION TECHNOLOGY

## Contact Information

### Division

Business and Technology

### Dean

Amy Schulz

### Associate Deans

Jill Alcorn, Vance Klink

### Division Office

B3, Rocklin Campus

## Overview

Information Technology programs prepare students for a wide array of Information Technology (IT) career paths. IT encompasses computer professional careers and positions, from Tech Support to Cyber Security, and from Office Work to Business Analyst. Careers in IT deal with the design, creation, management, maintenance, and business use of the varied components of computer systems, including software, hardware, networks, and the cloud. The field spans a broad range of industries, including technology, healthcare, finance, retail, government and education; and includes jobs that involve business computer applications, databases, technical and customer support services, web authoring/developing, Internet information research, network administration, and cybersecurity. Some courses prepare students for industry certifications such as CompTIA's, A+, Network+, Security+, or Microsoft's MSCE. The curriculum also provides valuable computer experience and training for students who are enrolled in other disciplines of the College.

## Faculty

### Richard S. Monsen

#### Professor, Information Technology

B.S., California State University, Sacramento

### Annette A. Nylander

#### Professor, Information Technology

A.S., Sierra College

B.A., The Union Institute

M.B.A., DeVry University, Keller Graduate School of Management

### Alex Torres

#### Assistant Professor, Information Technology

B.S., Rochester Institute of Technology

M.S., American Military University

## Information Technology Advisory Committee

- City of Roseville, Roseville, CA
- California Department of Water Resources
- California Prison Industry Authority, Folsom, CA
- Cisco, Greater Sacramento Region
- El Dorado County, El Dorado County, CA
- Emergency Medical Services Authority, State of California, Rancho Cordova, CA (HQ)
- Hewlett Packard, Roseville, CA
- Kai Partners

- Placer County, Placer County, CA
- Sutter Health, Sacramento, CA (HQ)

## Degrees/Certificates

### Associate Degrees

- Information Technology—Cloud Computing (p. 1)
- Information Technology—Cybersecurity (p. 2)
- Information Technology—Data Analytics (p. 2)
- Information Technology—IT Technician (p. 3)
- Information Technology—Network Technician (p. 3)

### Certificates of Achievement

- Information Technology—Cloud Computing (p. 3)
- Information Technology—Cybersecurity (p. 4)
- Information Technology—Data Analytics (p. 4)
- Information Technology—IT Technician (p. 4)
- Information Technology—Network Technician (p. 4)

### Skills Certificates

- Cloud Skills (p. 5)
- Data Specialist (p. 5)
- Information Assurance and Cyber Defense (p. 5)
- IT Technician (p. 5)

## Information Technology - Cloud Computing

### AS Degree

Successful completion of the curriculum in Cloud Computing prepares students to advance their Information Technology careers in jobs such as Cloud Administrator and Cloud Technician. Many of the courses also help prepare students for industry recognized certification exams from Amazon Web Services and CompTIA. For the degree, students must fulfill the following major requirements with grades of "C" or better, complete a minimum of 60 degree-applicable semester units (12 of which must be completed at Sierra College) with a grade point average of at least 2.0 and complete one of the following three general education patterns:

- Sierra College Associate Degree Requirements (<http://catalog.sierracollege.edu/archive/2024-2025/student-resources/general-education/associate-degree-requirements/>);
- California State University General Education Breadth (CSU GE) (<http://catalog.sierracollege.edu/archive/2024-2025/student-resources/general-education/california-state-university-general-education-breadth-requirements/>) pattern;
- Intersegmental General Education Transfer Curriculum (IGETC) (<http://catalog.sierracollege.edu/archive/2024-2025/student-resources/general-education/intersegmental-general-education-transfer-curriculum-igetc/>).

### Required Courses:

Code	Title	Units
IT 0105	Computer Network Fundamentals	3
IT 0110	Installing, Configuring and Administering a Client OS	3
IT 0115	Server Systems Administration	3
IT 0170	AWS Cloud Foundations	3

IT 0171	CompTIA Cloud+ Computing Concepts and Practices	3
IT 0175	AWS Cloud Architecting	3
IT 0176	Cloud Computing - Amazon Web Services System Operations	3
<b>Plus Additional 6 Units from</b>		<b>6</b>
IT 0055	Database Management	
IT 0060	Project Management Concepts and Software	
IT 0065	Data Analytics/Visualization Using Tableau	
IT 0075	Python for Many Uses	
IT 0120	Introduction to Information Systems Security	
<b>Total Units</b>		<b>27</b>

## Information Technology—Cybersecurity

### AA or AS Degree

(formerly Computer Information Systems—Networking and Security)

Successful completion of the curriculum in Cybersecurity prepares students to advance their Information Technology careers as network administrators and cyber security professionals. Many of the courses also help prepare students for industry recognized certification exams. For the degree, students must fulfill the following major requirements with grades of “C” or better, complete a minimum of 60 degree-applicable semester units (12 of which must be completed at Sierra College) with a grade point average of at least 2.0 and complete one of the following three general education patterns:

- Sierra College Associate Degree Requirements (<http://catalog.sierracollege.edu/archive/2024-2025/student-resources/general-education/associate-degree-requirements/>);
- California State University General Education Breadth (CSU GE) (<http://catalog.sierracollege.edu/archive/2024-2025/student-resources/general-education/california-state-university-general-education-breadth-requirements/>) pattern;
- Intersegmental General Education Transfer Curriculum (IGETC) (<http://catalog.sierracollege.edu/archive/2024-2025/student-resources/general-education/intersegmental-general-education-transfer-curriculum-igetc/>).

#### Required Courses:

Code	Title	Units
IT 0075	Python for Many Uses	3
IT 0105	Computer Network Fundamentals	3
IT 0110	Installing, Configuring and Administering a Client OS	3
IT 0115	Server Systems Administration	3
IT 0120	Introduction to Information Systems Security	3
IT 0125	Switching, Routing and Wireless Essentials	3
IT 0140	Implementing Network Security and Firewalls	3
IT 0145	Introduction to Cybersecurity: Ethical Hacking	3

**Select 6 units from the following:** **6**

CSCI 0012	Programming Concepts and Methodology I
CSCI 0050	Introduction to Unix/Linux
IT 0060	Project Management Concepts and Software
IT 0095	Internship in Information Technology
IT 0100	Information and Communication Technology Essentials
IT 0150	Principles of Cybersecurity Analysis
IT 0165	Computer Forensics Fundamentals
<b>Total Units</b>	<b>30</b>

## Information Technology—Data Analytics

### AS Degree

Data analysis is the process of inspecting, cleansing, transforming and modeling data with the goal of discovering useful information and supporting decision-making. Almost all industries examine large amounts of data to uncover hidden patterns, correlations and other insights. This degree will start you on a path to finding the answers needed in any environment by teaching how to work with and understand the data. For the degree, students must fulfill the following major requirements with grades of “C” or better, complete a minimum of 60 degree-applicable semester units (12 of which must be completed at Sierra College) with a grade point average of at least 2.0 and complete one of the following three general education patterns:

- Sierra College Associate Degree Requirements (<http://catalog.sierracollege.edu/archive/2024-2025/student-resources/general-education/associate-degree-requirements/>);
- California State University General Education Breadth (CSU GE) (<http://catalog.sierracollege.edu/archive/2024-2025/student-resources/general-education/california-state-university-general-education-breadth-requirements/>) pattern;
- Intersegmental General Education Transfer Curriculum (IGETC) (<http://catalog.sierracollege.edu/archive/2024-2025/student-resources/general-education/intersegmental-general-education-transfer-curriculum-igetc/>).

#### Required Courses:

Code	Title	Units
BUS 0252	Excel for Business Applications	3
IT 0015	Business Information Systems	3
IT 0055	Database Management	3
IT 0065	Data Analytics/Visualization Using Tableau	3
IT 0075	Python for Many Uses	3
MATH 0013	Elementary Statistics	4-6
<b>Select 6 units from the following:</b>		<b>6</b>
IT 0060	Project Management Concepts and Software	
IT 0080	IoT - Internet of Things	
IT 0095	Internship in Information Technology	
<b>Total Units</b>		<b>25-27</b>

## Information Technology—IT Technician

### AA or AS Degree

(formerly Computer Information Systems—IT Technician)

The IT Technician program prepares students for entry level positions in computer retail, helpdesk, system administration, computer application installation, and technically oriented administrative roles. Many of the courses also help prepare students for industry recognized certification examinations. For the degree, students must fulfill the following major requirements with grades of "C" or better, complete a minimum of 60 degree-applicable semester units (12 of which must be completed at Sierra College) with a grade point average of at least 2.0 and complete one of the following three general education patterns:

- Sierra College Associate Degree Requirements (<http://catalog.sierracollege.edu/archive/2024-2025/student-resources/general-education/associate-degree-requirements/>);
- California State University General Education Breadth (CSU GE) (<http://catalog.sierracollege.edu/archive/2024-2025/student-resources/general-education/california-state-university-general-education-breadth-requirements/>) pattern;
- Intersegmental General Education Transfer Curriculum (IGETC) (<http://catalog.sierracollege.edu/archive/2024-2025/student-resources/general-education/intersegmental-general-education-transfer-curriculum-igetc/>).

#### Required Courses:

Code	Title	Units
BUS 0250	Computer Applications for Business - Microsoft	3
IT 0015	Business Information Systems	3
IT 0100	Information and Communication Technology Essentials	4
IT 0105	Computer Network Fundamentals	3
IT 0110	Installing, Configuring and Administering a Client OS	3
<b>Select 6 units from the following:</b>		<b>6</b>
BUS 0261	Customer Service Skills	
BUS 0265 or BUS 0266	Business Communications Introduction to Oral Communication	
IT 0095	Internship in Information Technology	
<b>Total Units</b>		<b>22</b>

## Information Technology—Network Technician

### AS Degree

The Network Technician program prepares students to work in the Information Technology industry performing a variety of network related jobs, such as Network Technician, Network Administrator, and Network Engineer. Students learn important skills like installation, configuration and troubleshooting of complex computer networks. This program also prepares students to take Cisco's CCNA certification, which is the premier industry-recognized certification in data networking. Many of the courses in this program also help prepare students for other industry recognized certification exams such as the CompTIA A+, Network+ and Security+ certifications.

For the degree, students must fulfill the following major requirements with grades of "C" or better, complete a minimum of 60 degree-applicable

semester units (12 of which must be completed at Sierra College) with a grade point average of at least 2.0 and complete one of the following three general education patterns:

- Sierra College Associate Degree Requirements (<http://catalog.sierracollege.edu/archive/2024-2025/student-resources/general-education/associate-degree-requirements/>);
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- Intersegmental General Education Transfer Curriculum (IGETC) (<http://catalog.sierracollege.edu/archive/2024-2025/student-resources/general-education/intersegmental-general-education-transfer-curriculum-igetc/>).

#### Required Courses:

Code	Title	Units
IT 0105	Computer Network Fundamentals	3
IT 0115	Server Systems Administration	3
IT 0120	Introduction to Information Systems Security	3
IT 0125	Switching, Routing and Wireless Essentials	3
IT 0130	Cisco CCNA 3 Enterprise Networking, Security and Automation	3
IT 0140	Implementing Network Security and Firewalls	3
<b>Select 3-4 units from the following:</b>		<b>3-4</b>
IT 0015	Business Information Systems	
IT 0075	Python for Many Uses	
IT 0080	IoT - Internet of Things	
IT 0100	Information and Communication Technology Essentials	
IT 0110	Installing, Configuring and Administering a Client OS	
<b>Total Units</b>		<b>21-22</b>

## Information Technology - Cloud Computing

### Certificate of Achievement

Successful completion of the curriculum in Cloud Computing prepares students to advance their Information Technology careers in jobs such as Cloud Administrator and Cloud Technician. Many of the courses also help prepare students for industry recognized certification exams from Amazon Web Services and CompTIA.

#### Required Courses:

Code	Title	Units
IT 0105	Computer Network Fundamentals	3
IT 0110	Installing, Configuring and Administering a Client OS	3
IT 0115	Server Systems Administration	3
IT 0170	AWS Cloud Foundations	3
IT 0171	CompTIA Cloud+ Computing Concepts and Practices	3
IT 0175	AWS Cloud Architecting	3

IT 0176	Cloud Computing - Amazon Web Services System Operations	3
<b>Plus Additional 6 Units from</b>		<b>6</b>
IT 0055	Database Management	
IT 0060	Project Management Concepts and Software	
IT 0065	Data Analytics/Visualization Using Tableau	
IT 0075	Python for Many Uses	
IT 0120	Introduction to Information Systems Security	
<b>Total Units</b>		<b>27</b>

## Information Technology—Cybersecurity

### Certificate of Achievement

(formerly Computer Information Systems—Networking and Security)

Successful completion of the curriculum in Cybersecurity prepares students to advance their Information Technology careers as network administrators and cyber security professionals. Many of the courses also help prepare students for industry recognized certification exams. A certificate is designed to provide career technical skills; it is not equivalent to an associate degree.

#### Required Courses:

Code	Title	Units
IT 0075	Python for Many Uses	3
IT 0105	Computer Network Fundamentals	3
IT 0110	Installing, Configuring and Administering a Client OS	3
IT 0115	Server Systems Administration	3
IT 0120	Introduction to Information Systems Security	3
IT 0125	Switching, Routing and Wireless Essentials	3
IT 0140	Implementing Network Security and Firewalls	3
IT 0145	Introduction to Cybersecurity: Ethical Hacking	3
<b>Select 6 units from the following:</b>		<b>6</b>
CSCI 0012	Programming Concepts and Methodology I	
CSCI 0050	Introduction to Unix/Linux	
IT 0060	Project Management Concepts and Software	
IT 0095	Internship in Information Technology	
IT 0100	Information and Communication Technology Essentials	
IT 0150	Principles of Cybersecurity Analysis	
IT 0165	Computer Forensics Fundamentals	
<b>Total Units</b>		<b>30</b>

## Information Technology—Data Analytics

### Certificate of Achievement

Data analysis is the process of inspecting, cleansing, transforming and modeling data with the goal of discovering useful information and

supporting decision-making. Almost all industries examine large amounts of data to uncover hidden patterns, correlations and other insights. This degree will start you on a path to finding the answers needed in any environment by teaching how to work with and understand the data. A certificate is designed to provide career technical skills; it is not equivalent to an associate degree.

#### Required Courses:

Code	Title	Units
BUS 0252	Excel for Business Applications	3
IT 0015	Business Information Systems	3
IT 0055	Database Management	3
IT 0065	Data Analytics/Visualization Using Tableau	3
IT 0075	Python for Many Uses	3
MATH 0013	Elementary Statistics	4-6
<b>Select 6 units from the following:</b>		<b>6</b>
IT 0060	Project Management Concepts and Software	
IT 0080	IoT - Internet of Things	
IT 0095	Internship in Information Technology	
<b>Total Units</b>		<b>25-27</b>

## Information Technology—IT Technician

### Certificate of Achievement

(formerly Computer Information Systems—IT Technician)

The IT Technician program prepares students for entry level positions in computer retail, helpdesk, system administration, computer application installation, and technically oriented administrative roles. Many of the courses also help prepare students for industry recognized certification examinations. A certificate is designed to provide career technical skills; it is not equivalent to an associate degree.

#### Required Courses:

Code	Title	Units
BUS 0250	Computer Applications for Business - Microsoft	3
IT 0015	Business Information Systems	3
IT 0100	Information and Communication Technology Essentials	4
IT 0105	Computer Network Fundamentals	3
IT 0110	Installing, Configuring and Administering a Client OS	3
<b>Select 6 units from the following:</b>		<b>6</b>
BUS 0261	Customer Service Skills	
BUS 0265	Business Communications	
or BUS 0266	Introduction to Oral Communication	
IT 0095	Internship in Information Technology	
<b>Total Units</b>		<b>22</b>

## Information Technology—Network Technician

### Certificate of Achievement

The Network Technician program prepares students to work in the Information Technology industry performing a variety of network related jobs, such as Network Technician, Network Administrator, and Network

Engineer. Students learn important skills like installation, configuration and troubleshooting of complex computer networks. This program also prepares students to take Cisco's CCNA certification, which is the premier industry-recognized certification in data networking. Many of the courses in this program also help prepare students for other industry recognized certification exams such as the CompTIA A+, Network+ and Security+ certifications. A certificate is designed to provide career technical skills; it is not equivalent to an associate degree.

#### Required Courses:

Code	Title	Units
IT 0105	Computer Network Fundamentals	3
IT 0115	Server Systems Administration	3
IT 0120	Introduction to Information Systems Security	3
IT 0125	Switching, Routing and Wireless Essentials	3
IT 0130	Cisco CCNA 3 Enterprise Networking, Security and Automation	3
IT 0140	Implementing Network Security and Firewalls	3
<b>Select 3-4 units from the following:</b>		<b>3-4</b>
IT 0015	Business Information Systems	
IT 0075	Python for Many Uses	
IT 0080	IoT - Internet of Things	
IT 0100	Information and Communication Technology Essentials	
IT 0110	Installing, Configuring and Administering a Client OS	
<b>Total Units</b>		<b>21-22</b>

## Cloud Skills

### Skills Certificate

Completion of this certificate provides students with entry level Cloud Computing skills needed in cloud technician support positions. It also supports management professionals that need to understand how Cloud Computing can be used to expand computer infrastructures and the costs models that must be taken into account. Hands-on skills labs will provide a solid foundation of how to implement cloud services. A skills certificate is designed to provide career technical skills; it is not equivalent to an associate degree.

#### Required Courses:

Code	Title	Units
IT 0170	AWS Cloud Foundations	3
IT 0105	Computer Network Fundamentals	3
IT 0110	Installing, Configuring and Administering a Client OS	3
IT 0115	Server Systems Administration	3
IT 0171	CompTIA Cloud+ Computing Concepts and Practices	3
<b>Total Units</b>		<b>15</b>

## Data Specialist

### Skills Certificate

This skills certificate provides students with the specific knowledge and skills needed for an entry-level data analyst position or to expand

their current job skills to include basic data analytics. Today's business decisions are data driven and the skills developed in this sequence of classes will allow you to help businesses understand their data better. A skills certificate is designed to provide career technical skills; it is not equivalent to an associate degree.

#### Required Courses:

Code	Title	Units
BUS 0252	Excel for Business Applications	3
IT 0015	Business Information Systems	3
IT 0055	Database Management	3
IT 0065	Data Analytics/Visualization Using Tableau	3
<b>Total Units</b>		<b>12</b>

## Information Assurance and Cyber Defense

### Skills Certificate

This skills certificate provides students with the specific knowledge and skills of an entry level cyber security professional. This foundational level was established by the Department of Homeland Security (DHS) and the National Security Agency (NSA) through their co-sponsored National Centers of Academic Excellence in Information Assurance and Cyber Defense (CAE2Y) program. This skills certificate prepares students for a variety of information technology positions in the ICT industry sector, such as network administrator, network engineer, IT security professional, and security analyst. A skills certificate is designed to provide career technical skills; it is not equivalent to an associate degree.

#### Required Courses:

Code	Title	Units
IT 0105	Computer Network Fundamentals	3
IT 0115	Server Systems Administration	3
IT 0120	Introduction to Information Systems Security	3
CSCI 0012	Programming Concepts and Methodology I	3
<b>Total Units</b>		<b>12</b>

## IT Technician

### Skills Certificate

This skills certificate provides students with the specific knowledge and skills needed for an entry-level desktop support positions. The IT industry is a high demand area and this certificate can help you gain employment while continuing to build on your career and educational pathways. A skills certificate is designed to provide career technical skills; it is not equivalent to an associate degree.

#### Required Courses:

Code	Title	Units
IT 0100	Information and Communication Technology Essentials	4
IT 0105	Computer Network Fundamentals	3
IT 0115	Server Systems Administration	3
<b>Total Units</b>		<b>10</b>



## Courses

Understanding course descriptions (<http://catalog.sierracollege.edu/archive/2024-2025/student-resources/course-information/understanding-course-descriptions/>)

### IT 0015. Business Information Systems

*Units: 3*

Formerly known as CIS 62

Advisory: Eligibility for ENGL 1A

Hours: 72 (54 lecture, 18 laboratory)

Examination of information systems and their role in business. Focus on information systems, database management systems, networking, e-commerce, ethics and security, computer systems hardware and software components. Application of these concepts and methods through hands-on projects developing computer-based solutions to business problems. (C-ID ITIS 120) (CSU)

### IT 0028. Independent Study

*Units: 1-3*

Formerly known as CIS 28

Designed for students interested in furthering their knowledge at an independent study level in an area where no specific curriculum offering is currently available. Independent study might include, but is not limited to, research papers, special subject area projects, and research projects. See Independent Study page in catalog. (CSU)

### IT 0055. Database Management

*Units: 3*

Formerly known as CIS 90

Advisory: Completion of Bus 252 with grade of "C" or better or strong understanding of MS Office Application navigation

Hours: 72 (54 lecture, 18 laboratory)

Discover the intricacies of relational databases using the current version of Microsoft Access. Includes designing database structures: tables, queries, forms, reports, and macros. Also includes integrating with the Web, Excel and other programs. Emphasis on hands-on learning. (C-ID ITIS 180) (CSU)

### IT 0060. Project Management Concepts and Software

*Units: 3*

Formerly known as CIS 136

Advisory: Completion of BUS 252 and/or IT 55 with grade of "C" or better

Hours: 72 (54 lecture, 18 laboratory)

Explores Project Management concepts and terminologies along with the use of Microsoft Office Project and other project management tools through discussions, hands-on exercises and classroom learning experiences. Includes WBS, budgeting, and resource allocation and other important PM topics such as Scope and Project Team Development. Helps prepare students to use the software package in their daily duties as a project manager or project assistant. Helps prepare students to take the Certified Associate in Project Management - CAPM exam from PMI or the CompTIA Project+ exam. (not transferable)

### IT 0065. Data Analytics/Visualization Using Tableau

*Units: 3*

Formerly known as CIS 91

Advisory: Completion of BUS 252 and IT 55 with grades of "C" or better

Hours: 72 (54 lecture, 18 laboratory)

Learn how to use Tableau, a leading data analysis and visualization tool, to bring the world's data into views that everyone can use and understand. Go beyond basic charts by building powerful dashboards and drill down reports to support business decision makers or help explain visually the global impact of a single voice. (not transferable)

### IT 0075. Python for Many Uses

*Units: 3*

Advisory: Completion of IT 105 with grade of "C" or better

Hours: 72 (54 lecture, 18 laboratory)

Learn to use Python to manipulate data for analytics, to manage IoT devices and/or for creating scripts to improve network security. This course will start at a very basic level and work up to applied solutions for real world work environments. (CSU)

### IT 0080. IoT - Internet of Things

*Units: 3*

Advisory: Eligibility for ENGL 1A; Completion with grades of "C" or better or concurrent enrollment in IT 75 and IT 105 recommended

Hours: 72 (54 lecture, 18 laboratory)

Introduction to the Internet of Things (IoT), where people, processes, things, and data are connected via emerging Internet technologies. A variety of networking and computer hardware devices will be integrated into end-to-end systems to solve practical problems. (CSU)

### IT 0090. IT Fundamentals

*Unit: 1.5*

Hours: 36 (27 lecture, 9 laboratory)

Designed to prepare students to explain the basics of computing, IT infrastructure, software development, database use, installing software, establishing basic networking connectivity, and identifying/preventing basic security risks. This course is intended for students who are considering a career in IT and/or later considering the pursuit of completing the CompTIA Fundamentals+ (ITF+) certification exam. (not transferable)

### IT 0095. Internship in Information Technology

*Units: 0.5-4*

Designed for advanced students to work in an area related to their educational or occupational goal. Provides new on-the-job technical training under the direction of a worksite supervisor, allowing students to expand knowledge and skills in the chosen field. Mandatory orientation session and faculty approval to determine eligibility. One unit of credit is equal to 54 hours of work. Students may earn up to a total of 16 units in internship courses (any course numbered 95 and PDEV 94). (CSU-with unit limitation)

### IT 0100. Information and Communication Technology Essentials

*Units: 4*

Formerly known as CIS 26

Hours: 90 (72 lecture, 18 laboratory)

Provides an introduction to the computer hardware and software skills needed to help meet the growing demand for entry-level Information Communication Technology (ICT) professionals. The fundamentals of computer hardware and software as well as advanced concepts such as security, networking, cloud computing, and the responsibilities of an ICT professional will be introduced. A special emphasis is placed on software, hardware, and network troubleshooting techniques. This course is intended to help students prepare for the CompTIA A+ certification exams. (C-ID ITIS 110) (CSU)

**IT 0105. Computer Network Fundamentals***Units: 3*

Formerly known as CIS 65

Advisory: Completion of IT 100 with grade of "C" or better

Hours: 72 (54 lecture, 18 laboratory)

Introduces the architecture, structure, functions, components, and models of the Internet and other computer networks. Students achieve a basic understanding of how networks operate and how to build simple local area networks (LAN), perform basic configurations for routers and switches, implement Internet Protocol (IP) and enterprise technologies, including cloud and virtualization. Students will apply the knowledge and skills required to troubleshoot, configure, and manage common network devices; establish basic network connectivity; and implement network security, standards, and protocols. Preparation for the CompTIA Network+ certification exam. (C-ID ITIS 150) (CSU)

**IT 0110. Installing, Configuring and Administering a Client OS***Units: 3*

Formerly known as CIS 141

Advisory: Completion of IT 105 with grade of "C" or better

Hours: 72 (54 lecture, 18 laboratory)

Setup and support for a desktop operating system using a current desktop operating system in a networked environment. Creation of local and domain-level accounts, creation of shared resources, use of network services, remote access, resource management and monitoring, and security considerations. (CSU)

**IT 0115. Server Systems Administration***Units: 3*

Formerly known as CIS 142

Prerequisite: Completion of IT 105 with grade of "C" or better

Hours: 72 (54 lecture, 18 laboratory)

Provides knowledge and skills required to build, maintain, troubleshoot and support Microsoft server OS technologies. Covers environmental issues, disaster recovery, physical/software security procedures, industry terminology and concepts, server roles, specializations, and interaction within the overall computing environment. (C-ID ITIS 155) (CSU)

**IT 0120. Introduction to Information Systems Security***Units: 3*

Formerly known as CIS 147

Prerequisite: Completion of IT 105 with grade of "C" or better

Advisory: Completion of IT 115 with grade of "C" or better

Hours: 72 (54 lecture, 18 laboratory)

Introduction to the fundamental principles and topics of Information Technology Security and Risk Management at the organizational level. Addresses hardware, software, processes, communications, applications, and policies and procedures with respect to organizational Cybersecurity and Risk Management. Preparation for the CompTIA Security+ certification exams. (C-ID ITIS 160) (CSU)

**IT 0125. Switching, Routing and Wireless Essentials***Units: 3*

Formerly known as CIS 66

Prerequisite: Completion of IT 105 with grade of "C" or better

Hours: 72 (54 lecture, 18 laboratory)

Focuses on switching technologies and router operations that support small-to-medium business networks and includes Wireless Local Area Networks (WLANs) and security concepts. Students learn key switching and routing concepts. Students will perform basic network configuration and troubleshooting, identify and mitigate Local Area Network (LAN) security threats, and configure and secure a basic WLAN. (CSU)

**IT 0130. Cisco CCNA 3 Enterprise Networking, Security and Automation***Units: 3*

Prerequisite: Completion of IT 125 with grade of "C" or better

Hours: 72 (54 lecture, 18 laboratory)

This is the third of three courses that are aligned to the CCNA Certification Exam. In Enterprise Networking, Security, and Automation, students will take the skills and knowledge that they learned in the previous two courses and apply them to wide area networks (WANs). WANs are large, complex networks that require advanced understanding of network operation and security. This class also introduces students to two important areas of networking: virtualization and automation. By the end of this course, students will be able to configure, troubleshoot, and secure enterprise network devices. Students will be versed in application programming interfaces (APIs) and the configuration management tools that make network automation possible. When students have completed ENSA, they will have gained the practical experience they need to prepare for the CCNA certification exam. (CSU)

**IT 0140. Implementing Network Security and Firewalls***Units: 3*

Prerequisite: Completion of IT 120 with grade of "C" or better

Hours: 72 (54 lecture, 18 laboratory)

Firewalls are one of the primary tools used to prevent unauthorized access to corporate networks. Students will learn how to design and configure firewalls to allow access to key services while maintaining an organization's security, as well as how to implement firewall-to-firewall Virtual Private Networks (VPNs). (CSU)

**IT 0145. Introduction to Cybersecurity: Ethical Hacking***Units: 3*

Formerly known as CIS 152

Prerequisite: Completion of IT 120 with grade of "C" or better

Advisory: Completion of CSCI 50 with grade of "C" or better

Hours: 72 (54 lecture, 18 laboratory)

Immerses IT Professionals in hands-on intensive environment providing in-depth knowledge and experience with current essential security systems. Provides understanding of perimeter defenses and leads to scanning and attacking networks; no real networks are harmed. Students learn how intruders escalate privileges and the steps to be taken to secure a system. Also covers Intrusion Detection, Policy Creation, Social Engineering, DDoS Attacks, Buffer Overflows, and Virtual Creation. Focus includes legal and regulatory requirements, ethical issues, basic methodology and technical tools used for ethical hacking and penetration tests. Students establish a pre-test agreement with the enterprise, discover and exploit vulnerabilities, participate as a member of a pen test team and prepare a penetration test report. (CSU)

**IT 0150. Principles of Cybersecurity Analysis***Units: 3*

Formerly known as CIS 153

Prerequisite: Completion of IT 120 with grade of "C" or better or CompTIA Security+ certification as determined by the Information Technology Department Chair

Hours: 72 (54 lecture, 18 laboratory)

Learn how to configure and use threat detection tools, perform data analysis, and interpret the results to identify vulnerabilities, threats, and risks to an organization with the end goal of securing and protecting applications and systems within an organization. This course covers skills used by Information Security (IT) security analysts, vulnerability analysts, or threat intelligence analysts with a technical, "hands-on" focus on IT security analytics. Covers exam objectives relating to the CompTIA Cybersecurity Analyst (CSA+) industry certification. (CSU)

**IT 0165. Computer Forensics Fundamentals***Units: 3*

Also known as ADMJ 88

Advisory: Completion of ADMJ 54 and IT 120 with grades of "C" or better

Hours: 72 (54 lecture, 18 laboratory)

Introduction to the methods used to properly conduct a computer forensics investigation, beginning with a discussion of ethics, while mapping the objectives of the International Association of Computer Investigative Specialists (IACIS) certification. Topics covered include an overview of computer forensics as a profession; the computer investigation process; understanding operating systems boot processes and disk structures; data acquisition and analysis; technical writing; and a review of familiar computer forensics tools. (C-ID ITIS 165) (CSU)

**IT 0170. AWS Cloud Foundations***Units: 3*

Hours: 72 (54 lecture, 18 laboratory)

Intended for students who seek an overall understanding of cloud computing concepts, independent of specific technical roles. This course provides a detailed overview of cloud concepts, Amazon Web Services (AWS) core services, security, architecture, pricing, and support. Can be used to prepare for the AWS Cloud Practitioner exam. (CSU)

**IT 0171. CompTIA Cloud+ Computing Concepts and Practices***Units: 3*

Prerequisite: Completion of IT 105 with grade of "C" or better

Advisory: Completion of IT 110 and IT 115 with grades of "C" or better

Hours: 72 (54 lecture, 18 laboratory)

Introduces students to cloud management concepts including cloud architecture and design, cloud security, deployment, operations and support, and cloud troubleshooting. This course helps prepare students for the CompTIA Cloud+ CV0-003 exam and for entry into the workforce in the Cloud market. (CSU)

**IT 0175. AWS Cloud Architecting***Units: 3*

Prerequisite: Completion of IT 105 and IT 170 with grades of "C" or better

Hours: 72 (54 lecture, 18 laboratory)

Covers the fundamentals of building IT infrastructure on Amazon Web Services (AWS). The course is designed to teach solutions architects how to optimize their use of the AWS Cloud by understanding AWS services and how they fit into cloud-based solutions. Although architectural solutions can differ depending on the industry, type of application, and size of the business, this course emphasizes best practices for the AWS Cloud that apply to all of them. It also recommends various design patterns to help you think through the process of architecting optimal IT solutions on AWS. Throughout the course, students will explore case studies that showcase how some AWS customers have designed their infrastructures and the strategies and services that they have implemented. Finally, this course provides opportunities for students to build a variety of infrastructures through a guided, hands-on approach. (CSU)

**IT 0176. Cloud Computing - Amazon Web Services System Operations***Units: 3*

Prerequisite: Completion of IT 115 and IT 175 with grades of "C" or better

Advisory: Completion of IT 170 and/or IT 171 with grades of "C" or better

Hours: 72 (54 lecture, 18 laboratory)

Helps students identify and develop the skills needed for implementing cloud initiatives. Students will gain experience deploying, managing, and operating workloads on the AWS cloud platform. This course helps prepare students for the AWS Certified SysOps Administrator - Associate industry certification exam. (CSU)

**Program Student Learning Outcomes (PSLOs)**

- Design LAN and WAN logical topologies that support various sized organizations.
- Assess security risks and identify ways to minimize their threat and/or impact.
- Analyze various operating system options and make recommendations based on organization needs.
- Demonstrate digital literacy and work habits required for a successful virtual business.
- Evaluate effectiveness of web-based business tools for successful operation of a virtual business.
- Develop and implement common deliverables for virtual office entrepreneur.
- Diagnose common software and hardware problems.
- Analyze and integrate software solutions for the business environment.
- Demonstrate professional communication and customer services skills.
- Demonstrate computer literacy.
- Analyze scenarios, investigate options, and appropriately apply workplace computer programs.
- Demonstrate file management proficiency.