

# INFORMATION TECHNOLOGY

## Contact Information

### Division

Business and Technology

### Dean

Amy Schulz

### Associate Deans

Jill Alcorn, Darlene Jackson

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

### Certificates of Achievement

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

### Skills Certificates

- Data Specialist (p. 3)
- Information Assurance and Cyber Defense (p. 3)
- IT Technician (p. 3)

## Information Technology—Cybersecurity

### AA or AS Degree and/or 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. 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/2021-2022/student-resources/general-education/associate-degree-requirements/>);
- California State University General Education Breadth (CSU GE) (<http://catalog.sierracollege.edu/archive/2021-2022/student-resources/general-education/california-state-university-general-education-breadth-requirements/>) pattern;
- Intersegmental General Education Transfer Curriculum (IGETC) (<http://catalog.sierracollege.edu/archive/2021-2022/student-resources/general-education/intersegmental-general-education-transfer-curriculum-igetc/>).

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 0100	Information and Communication Technology Essentials	4
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 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 0125	Routing and Switching Essentials	
IT 0150	Principles of Cybersecurity Analysis	
IT 0155	Virtualization Concepts and Technologies	
IT 0165	Computer Forensics Fundamentals	
<b>Total Units</b>		<b>31</b>

## Information Technology—Data Analytics

### AS Degree and/or 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.

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/2021-2022/student-resources/general-education/associate-degree-requirements/>);
- California State University General Education Breadth (CSU GE) (<http://catalog.sierracollege.edu/archive/2021-2022/student-resources/general-education/california-state-university-general-education-breadth-requirements/>) pattern;
- Intersegmental General Education Transfer Curriculum (IGETC) (<http://catalog.sierracollege.edu/archive/2021-2022/student-resources/general-education/intersegmental-general-education-transfer-curriculum-igetc/>).

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
or MATH 0013A & MATH 0013B	Elementary Statistics with Support (Part 1) and Elementary Statistics with Support (Part 2)	
<b>Select 6 units from the following:</b>		<b>6</b>
IT 0060	Project Management Concepts and Software	
IT 0070	Systems Analysis and Design	
IT 0080	IoT - Internet of Things	
IT 0095	Internship in Information Technology	

**Total Units**

**25-27**

## Information Technology—IT Technician

### AA or AS Degree and/or 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. 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/2021-2022/student-resources/general-education/associate-degree-requirements/>);
- California State University General Education Breadth (CSU GE) (<http://catalog.sierracollege.edu/archive/2021-2022/student-resources/general-education/california-state-university-general-education-breadth-requirements/>) pattern;
- Intersegmental General Education Transfer Curriculum (IGETC) (<http://catalog.sierracollege.edu/archive/2021-2022/student-resources/general-education/intersegmental-general-education-transfer-curriculum-igetc/>).

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	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

**Select 6 units from the following:**

**6**

BUS 0261	Customer Service Skills
BUS 0265	Business Communications
or BUS 0266	Introduction to Oral Communication

IT 0095 Internship in Information Technology

**Total Units** 22

## Information Technology—Network Technician AS Degree and/or 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.

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/2021-2022/student-resources/general-education/associate-degree-requirements/>);
- California State University General Education Breadth (CSU GE) (<http://catalog.sierracollege.edu/archive/2021-2022/student-resources/general-education/california-state-university-general-education-breadth-requirements/>) pattern;
- Intersegmental General Education Transfer Curriculum (IGETC) (<http://catalog.sierracollege.edu/archive/2021-2022/student-resources/general-education/intersegmental-general-education-transfer-curriculum-igetc/>).

A 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
IT 0125	Routing and Switching Essentials	3
IT 0130	Cisco CCNA 3 Enterprise Networking, Security and Automation	3
IT 0140	Implementing Network Security and Firewalls	3
<b>Select 3 units from the following:</b>		<b>3</b>
IT 0075	Python for Many Uses	
IT 0080	IoT - Internet of Things	
IT 0015	Business Information Systems	
IT 0110	Installing, Configuring and Administering a Client OS	
<b>Total Units</b>		<b>22</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/2021-2022/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. Also includes exploration and practice of 21st century career skills: Digital Fluency - Professional Networking (Social Media), Collaboration – Teamwork, Social/Diversity Awareness. (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

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. Also includes exploration and practice of 21st century career skills: Analysis/Solution Mindset, Critical Thinking, Problem Solving and Digital Fluency. (CSU)

### IT 0060. Project Management Concepts and Software

*Units: 3*

Formerly known as CIS 136

Advisory: Completion of 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. Also includes exploration and practice of 21st century career skills: Adaptability, Collaboration and Social/Diversity Awareness. (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 0070. Systems Analysis and Design

*Units: 3*

Advisory: Completion of BUS 250 and IT 15 with grades of "C" or better

Hours: 72 (54 lecture, 18 laboratory)

This course is a detailed study of business systems analysis and design theory and application techniques. Issues in systems analysis and design, from project identification, requirements, specification and analysis, design to implementation and maintenance, will be presented. Focus will be on tools and principles related to object oriented systems analysis and design. Attention is given to the role of the systems analyst within the business environment. Also includes exploration and practice of 21st century career skills: Adaptability, Analysis/Solution Mindset, and Communication. (CSU)

### 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 identify and explain basic computer components, set up a basic workstation, conduct basic software installation, establish basic network connectivity, identify compatibility issues, and identify/prevent basic security risks. Further, this course will prepare students in the areas of safety and preventative maintenance of computers. This course is intended for students who are considering a career in IT and later considering the pursuit of completing IT 100 and the CompTIA A+ certification exam. (not transferable)

**IT 0095. Internship in Information Technology***Units: 0.5-4*

Formerly known as CIS 95

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 each 60 hours of non-paid work, or each 75 hours of paid 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: 72 lecture

Provides an introduction to the computer hardware and software skills needed to help meet the growing demand for entry-level ICT professionals. Focuses on the fundamentals of computer hardware and software as well as advanced concepts such as security, networking, and the responsibilities of an ICT professional. Preparation for CompTIA's A+ certification exam. Also includes exploration and practice of 21st century career skills: Self Awareness, Communication, Social/Diversity Awareness. (C-ID ITIS 110) (CSU)

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

Formerly known as CIS 65

Prerequisite: 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. The principles and structure of IP (Internet Protocol) addressing and the fundamentals of Ethernet concepts, media, and operations are introduced to provide a foundation for further study of computer networks. Uses OSI (Open Systems Interconnection) and TCP (Transmission Control Protocol) layered models to examine the nature and roles of protocols and services at the application, network, data link, and physical layers. Preparation for the CompTIA Network+ certification exam. Also includes exploration and practice of 21st century career skills: Digital Fluency and Resilience. (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. Also includes exploration and practice of 21st century career skills: Analysis/Solution Mindset, Digital Fluency and Adaptability. (CSU)

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

Formerly known as CIS 142

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

Advisory: Completion of IT 15 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. Also includes exploration and practice of 21st century career skills: Analysis/Solution Mindset, Communication, Collaboration. (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. Routing and Switching 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)

Architecture, components, and operations of routers and switches in a small network. Configuring a router and a switch for basic functionality. Configure and troubleshoot routers and switches and resolve common issues with RIPv1, RIPv2, single-area and multi-area OSPF, virtual LANs, and inter-VLAN routing in both IPv4 and IPv6 networks. Along with IT 105, prepares students for the current version of the Cisco Certified Entry-level Network Technician (CCENT) certification examination. Also includes exploration and practice of 21st century career skills: Analysis/Solution Mindset, Collaboration, and Adaptability. (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). Also includes exploration and practice of 21st century career skills: Analysis/Solution Mindset, Collaboration, and Adaptability. (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. Also includes exploration and practice of 21st century career skills: Self-Awareness and Empathy. (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)

Focuses on the critical knowledge and skills required to prevent, detect and combat cybersecurity threats; includes the application of behavioral analytics to improve the overall state of IT security. Covers exam objectives relating to the CompTIA Cybersecurity Analyst (CSA+) industry certification. (CSU)

**IT 0155. Virtualization Concepts and Technologies***Units: 3*

Formerly known as CIS 148

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

Hours: 72 (54 lecture, 18 laboratory)

Knowledge and skills necessary to understand and implement Virtualization Concepts. The core concepts of creating and managing virtual machines, network servers, and network design presented. Labs demonstrate benefits associated with virtualization such as fault tolerance and high availability. Successful completion of this course meets the educational requirement for VMware certification. Also includes exploration and practice of 21st century career skills: Adaptability and Analysis/Solution Mindset. (CSU)

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

Formerly known as CIS 88

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. Also includes exploration and practice of 21st century career skills: Analysis/Solution Mindset. (CSU)

**IT 0170. AWS Cloud Foundations***Unit: 1.5*

Hours: 36 (27 lecture, 9 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 0175. AWS Cloud Architecting***Units: 3*

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

Advisory: Completion of IT 15 with grade 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 0865. CompTIA Network+ Exam Prep***Units: 0*

Formerly known as CIS 865

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

Hours: 12 lecture

Intended to prepare students to take and pass the CompTIA Network + Certification Exam. Students taking this class should have taken IT 105 class or equivalent, and have a thorough understanding of the key concepts covered in exam. The course will discuss the layout and content areas of the exam, example test questions, and high-level review of key concepts when needed. (pass/no pass grading) (noncredit)

**IT 0890. IT Fundamentals***Units: 0*

Hours: 36 (27 lecture, 9 laboratory)

Designed to prepare students to identify and explain basic computer components, set up a basic workstation, conduct basic software installation, establish basic network connectivity, identify compatibility issues, and identify/prevent basic security risks. Further, this course will prepare students in the areas of safety and preventative maintenance of computers. This course is intended for students who are considering a career in IT and later considering the pursuit of completing IT 100 and the CompTIA A+ certification exam. (pass/no pass grading) (noncredit)

## **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.