

Bachelor of Science in Computer Technology

The Bachelor of Science in Computer Technology degree provides practical knowledge and skills designed to prepare you for technical positions in the information and related computer industries regardless of your background. Pursuing this degree will afford you the opportunity to complement your mandatory industry certifications such as Security+ and A+ with a degree. The program covers a variety of subject areas to include soft skills in human relations, computer-based systems organization processes and components, web development fundamentals, productivity applications, programming essentials, communication and network technologies, database systems and information security management. Additional concentrations allow you to choose from dozens of specific courses in order to specialize in the technology area of interest for your career. Successful completion of this online program prepares you for entry-level careers in the computer and information technology field.

Coursework in this program also meets various industry certifications including Microsoft Office Specialist (MOS), Certified Internet Webmaster (CIW), Cisco Certified Network Associate (CCNA), Amazon Web Services (AWS), and CompTIA A+, Security+, and Network+. Please view course descriptions for complete details.

The program also has a completer option, which allows associate degree holding students to transfer in up to 70 semester hours of credits to expedite completing the degree - please see your advisor for more details.

Degree Program Objectives

In addition to the institutional and degree level learning objectives, graduates of this program are expected to achieve these learning outcomes:

- Demonstrate effective interpersonal skills to communicate and collaborate.
- Analyze computing requirements to solve problems.
- Design computer systems or technology-based projects using appropriate hardware and software technologies.
- Develop computer systems and technology-based projects using analytical, logical, and critical thinking skills.
- Demonstrate understanding of ethical, legal, security, and social responsibilities as a professional in the technology industry.
- Apply current skills and tools of software applications development, network architecture, data productivity and information security analysis.

Degree at a Glance

Code	Title	Semester Hours
	General Education Requirements	30
	Major Required	72
	Select one of the following concentrations:	15
	Cloud Computing (p. 2)	
	Information Security and Assurance (p. 3)	
	Networking (p. 3)	
	Web Development (p. 4)	
	Final Program Requirements	3
	Total Semester Hours	120

Degree Program Requirements

General Education Requirements (30 semester hours)

Code	Title	Semester Hours
Arts and Humanities (6 semester hours)¹		
PHIL200	Introduction to Ethics	3
Select 1 course from the following:		3
ARAB100	Arabic I	
ARAB101	Arabic II	
ARTH200	Art Appreciation	
ARTH241	Film and Literature	
DSIN141	Image Enhancement using Adobe Photoshop	
FREN100	French I	
FREN101	French II	
GERM100	German I	
GERM101	German II	
JAPN100	Introduction to Japanese	
LITR215	Literature of American Encounters, Revolution, and Rebellion	
LITR218	From Abolition to #MeToo: Literature of the American Civil Rights Movement	
LITR222	Pivotal Figures in Early British Literature	
LITR225	British Literature from Wordsworth through the Wasteland	
LITR231	Leadership in World Literature: Antiquity to the Early Modern Period	
LITR233	Literature of the Newly Globalized World: The Individual's Struggle to Adapt	
MUSI200	Music Appreciation	

MUSI250	World Music and Cultures
PHIL101	Introduction to Philosophy
PHIL110	Critical Thinking
PHIL202	Philosophy of Science
PORT100	Introduction to Brazilian Portuguese
RELS201	Introduction to World Religions
RUSS100	Russian I
SPAN100	Spanish I
SPAN101	Spanish II
STEM270	Thinking and Acting Ethically

Civics, Political and Social Sciences (6 semester hours)¹

COMM211	Social Media and Society	3
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Select 1 course from the following: 3

ANTH100	Introduction to Anthropology
ANTH202	Introduction to Cultural Anthropology
CHFD220	Human Sexuality
COMM240	Intercultural Communication
ECON101	Microeconomics
ECON102	Macroeconomics
EDUC200	Humane Education: A Global Interdisciplinary Perspective
GEOG101	Introduction to Geography
HOSP110	Practical Food Safety and Awareness
IRLS210	International Relations I
LITR212	Forgotten America—Under Represented Cultures in American Literature
LITR235	Four Points of the Compass: Culture and Society Around the World
POLS101	Introduction to Political Science
POLS210	American Government I
PSYC101	Introduction to Psychology
SOCI111	Introduction to Sociology
SOCI212	Social Problems
SOCI220	American Popular Culture

Communication: Writing, Oral, and Multimedia (9 semester hours)

COMM120	Information and Digital Literacy	3
ENGL110	Making Writing Relevant	3
ITCC231	Introduction to Information Technology Writing	3

History (3 semester hours)

HIST270	History of Science	3
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Mathematics and Applied Reasoning (3 semester hours)

MATH110	College Algebra	3
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Natural Sciences (3 semester hours)

STEM100	Introduction to STEM Disciplines	3
Total Semester Hours		30

¹ All literature courses require successful completion of ENGL101 - Proficiency in Writing or ENGL110 - Making Writing Relevant.

Major Required (72 semester hours)

Code	Title	Semester Hours
MGMT100	Human Relations	3
ITCC121	Introduction to Computer Science	3
ITCC200	Application Software Integration	3
ITCC112	Advanced Productivity Applications	3
ENTD200	Fundamentals of Programming	3
ENTD220	Introduction to Python	3
WEBD121	Web Development Fundamentals	3
WEBD122	Introduction to Web Analytics	3
WEBD221	Intermediate Web Development	3
WEBD241	Web Development Using JavaScript	3
ISSC221	Intermediate Computer Systems	3
ISSC231	Networking Concepts	3
INFO222	Database Concepts	3
INFO331	Management Information Systems	3
ENTD313	Mobile Application Design and Development	3
ISSC322	Computer Systems Organization: Advanced	3
ISSC323	Computer Hardware Systems	3
ISSC422	Information Security	3
ISSC331	Legal Issues in Information Security	3
ISSC344	Open Source System Security	3
ITMG321	Information Technology Project Management	3
ITMG481	Ethics in Information Technology	3
SOCI403	Social Change	3
POLS410	Public Policy	3
Total Semester Hours		72

Students must choose a concentration for this degree program and may select from the Concentration in Cloud Computing, Concentration in Information Security and Assurance, Concentration in Networking, or Concentration in Web Development.

Concentration in Cloud Computing (15 semester hours)

The concentration offers an introduction to the field of cloud computing. You will learn about cloud architecting, the fundamentals of building IT infrastructure on Amazon Web Services (AWS); it will teach

you solutions architects and how to optimize the use of the AWS Cloud by understanding AWS services and how these services fit into cloud-based solutions, while maintaining recommended security and privacy. The concentration aligns with AWS Certification.

Objectives

Upon successful completion of this concentration, the student will be able to:

- Identify appropriate cloud services such as Infrastructure-as-a-Service, Platform-as-a-Service, and Software-as-a-Service necessary to fulfill business requirements.
- Select key resources to model service specifications and service contracts to perform service orchestration.
- Design logical Service-Oriented Architecture (SOA) to convert into services implementable in today's cloud environments.
- Demonstrate use of key tools to analyze an organization's assets and verify if the cloud security and privacy implications are justifiable in implementing cloud computing.
- Apply key principles of cloud computing and the security and privacy involved with this technology.

Concentration Requirements (15 semester hours)

Code	Title	Semester Hours
ITNW210	Cloud Foundations	3
ITNW211	Cloud Architecting	3
ISSC326	Cloud Computing	3
ISSC426	Cloud Security and Privacy	3
ISSC345	Service Oriented Architecture	3
Total Semester Hours		15

Concentration in Information Security and Assurance (15 semester hours)

This concentration expands your knowledge of information technology security and, it helps you better apply critical security measures. Protecting sensitive or proprietary information is of paramount importance. Malicious security threats are on the rise and necessitates critical security strategies that incorporate information assurance, solid attack and defense tactics, risk management, auditing, planning and policies that will maintain the credibility and survival of the organization. The concentration focuses on addressing these information security needs in the industry.

Objectives

Upon successful completion of this concentration, the student will be able to:

- Analyze user requirements to design, develop and deploy effective information security solutions.
- Apply information assurance initiatives to protect an organization's information assets.
- Develop a security architecture consisting of tools, techniques, and technologies to prevent the penetration of networks, to detect attacks, and to defend an organization using effective countermeasures.
- Develop effective assessment strategies to implement effective and proactive risk mitigation measures and risk management practices.
- Examine various technologies and tools to assist with discovery and auditing in the world of security management.
- Construct security plans and actionable and maintainable policies to create a holistic approach to cybersecurity for an organization.

Concentration Requirements (15 semester hours)

Code	Title	Semester Hours
ISSC361	Information Assurance	3
ISSC262	Red and Blue Team Security	3
ISSC363	IT Security: Risk Management	3
ISSC471	IT Security: Auditing	3
ISSC481	IT Security: Planning and Policy	3
Total Semester Hours		15

Concentration in Networking (15 semester hours)

The concentration extends your understanding of the principles and practices associated with local, distributed and enterprise networking. You will learn about basic routing and switching concepts, Virtual LANs (VLANs), Inter-VLAN routing, static routing and dynamic routing protocols, Single-Area OSPF, Access Control Lists (ACLs), Dynamic Host Configuration Protocol (DHCP), Network Address Translation (NAT), wireless ad-hoc networks, and network and mobile security. The concentration aligns with Cisco Certified Entry Networking Technician (CCENT) certificate as well as the Cisco Certified Network Associate (CCNA R&S) designation.

Objectives

Upon successful completion of this concentration, the student will be able to:

- Identify user requirements to design, develop and deploy effective network solutions.
- Analyze network designs, topologies, architectures, protocols, communications, administration, operations, and resource management for wired, wireless, and web-based networks.
- Demonstrate the ability to configure routers, switches, static routing, dynamic routing, and Virtual LANs (VLAN).
- Demonstrate the use of common network protocols.
- Develop network security practices, processes, and plans used to maintain an effective and productive network.
- Apply relevant wireless and mobile network security measures to address security threats.

Concentration Requirements (15 semester hours)

Code	Title	Semester Hours
ITNW200	Cisco I	3
ITNW201	Cisco II	3
ISSC343	Wireless Networks	3
ISSC421	Computer and Network Security	3
ISSC442	Wireless and Mobile Network Security	3
Total Semester Hours		15

Concentration in Web Development (15 semester hours)

This concentration focuses on the principles and practices necessary to design, develop, and deploy web applications. You will study Internet communication and technology, Web browsing, multimedia on the Web, databases and Web search engines, business e-mail and personal information management, Internet services and tools. You will also explore search engine optimization (SEO) techniques, design effective user interfaces for websites, examine Web e-commerce development and how businesses and organizations may use the Web to buy and sell products and services online, and use Extensible Markup Language (XML) standard to create data formats to electronically share structured data.

Objectives

Upon successful completion of this concentration, the student will be able to:

- Explain the principles and practices of Web technologies.
- Apply search engine optimization (SEO) strategies.
- Design effective user interfaces for websites, with an emphasis on designing for mobile technologies.
- Summarize the growing trends of e-commerce development and how it is transforming businesses.

- Demonstrate use of Extensible Markup Language (XML) standard to create a document structure.

Concentration Requirements (15 semester hours)

Code	Title	Semester Hours
WEBD311	Internet Concepts	3
WEBD323	Search Engine Optimization	3
WEBD300	User Interface Design	3
WEBD321	Web eCommerce Development	3
WEBD341	Enterprise Data Exchange Using XML	3
Total Semester Hours		15

Final Program Requirements (3 semester hours)

Code	Title	Semester Hours
ITCC498	Computer Technology Advanced Capstone (to be taken as the last course before graduation)	3
Total Semester Hours		3