



A DUAL ENROLLMENT CAREER PATHWAY FOR

COMPUTER AND INFORMATION TECHNOLOGY

tctc.edu/careerpathways

About the Program

- Students studying this major learn how to perform entry-level positions in the computer information technology field. Upon graduation, employment opportunities are available in a wide range of computing environments.
- As part of the Technical Career Pathway, students have the opportunity to earn 21 hours of college credit (7 courses), earn the TCTC Computer Technician Certificate, and earn three industry-recognized Microsoft Office Specialist certifications in Excel, Outlook and Word. Additionally, this program prepares students for the CompTIA A+ certification test; vouchers and tests are available at approved centers.
- Students who complete the certificate and wish to continue in the Associate Degree program may do so without loss of credits earned.
- The US Bureau of Labor Statistics projects an employment growth of 8% from 2019 – 2029. In South Carolina, there are a projected 230 annual job openings

About the Pathway

- Computer Information Technology is a Technical Career Pathway in which courses and textbooks are at **no cost** to students planning to enter the career field after high school.
- High school students take dual enrollment classes in a variety of formats, such as in person at the TCTC Pendleton Campus, via live virtual meetings at specified times, or through traditional online delivery methods.
- After high school, students seamlessly transition into the Associate in Applied Science degree in one of two disciplines: **Cybersecurity & Network Administration and Software & Web Development**.

COMPUTER & INFORMATION TECHNOLOGY CAREER PATHWAY

IN HIGH SCHOOL

11th* or 12th Grade:

1st Semester

• CPT 167 • CPT 170

2nd Semester

• CPT 209 • CPT 270 • IST 110

3rd Semester

• IST 220 • IST 222

(please see course descriptions on back)

**HIGH SCHOOL GRADUATION +
COMPUTER TECHNICIAN
CERTIFICATE* AND 21 HOURS
OF COLLEGE CREDIT**

*Students must earn a grade of "C" or higher in all CPT/IST courses used to fulfill major course requirements.

Cybersecurity & Network Administration, A.A.S

Course Number	Course Title	Credit Hours
CPT 180	Shell Scripting	3
CPT 242	Database	3
CPT 264	Systems and Procedures	3
ENG 101	English Composition I	3
IST 191	LINUX System Administration	3
IST 201	Introduction to Networks	3
IST 202	Switching, Routing, and Wireless Essentials	3
IST 203	Enterprise Networking, Security, and Automation	3
IST 241	Network Architecture I	3
IST 257	LAN Network Server Technologies	3
IST 267	Network Vulnerability Assessment	3
IST 268	Computer Forensics	3
IST 291	Network Security I	3
SPC 205	Public Speaking	3
	Humanities Requirement	3
	Mathematics Requirement	3
	Social Science Requirement	3

AFTER HIGH SCHOOL

COMPUTER AND INFORMATION TECHNOLOGY ASSOCIATE IN APPLIED SCIENCE DEGREE

Students may choose an emphasis in one of the following disciplines and complete within 4 semesters:

Software and Web Development

Course Number	Course Title	Credit Hours
CPT 208	Special Topics in Computer Technology	3
CPT 212	Visual Basic Programming I	3
CPT 234	C Programming I	3
CPT 236	Java Programming I	3
CPT 242	Database	3
CPT 244	Data Structures	3
CPT 264	Systems and Procedures	3
CPT 283	PHP Programming	3
ENG 101	English Composition I	3
IST 191	LINUX System Administration	3
IST 237	Website Design II	3
IST 257	LAN Network Server Technologies	3
IST 272	Relational Database	3
SPC 205	Public Speaking	3
	Humanities Requirement	3
	Mathematics Requirement	3
	Social Science Requirement	3

SC Mean Annual Wages **\$54,217-\$71,751**

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Tri-County Technical College is accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) to award associate degrees. Tri-County Technical College also may offer credentials such as certificates and diplomas at approved degree levels. Questions about the accreditation of Tri-County Technical College may be directed in writing to the Southern Association of Colleges and Schools Commission on Colleges at 1866 Southern Lane, Decatur, GA 30033-4097, by calling (404) 679-4500, or by using information available on SACSCOC's website (www.sacscoc.org).

COMPUTER & INFORMATION TECHNOLOGY COURSE DESCRIPTIONS

Widespread use in business, industry, education, and government has created a demand for trained computer professionals. Hands-on training is emphasized as students prepare for entry-level positions in the information technology field. Upon graduation, employment opportunities are available in a wide range of computer environments.

CPT 167 - Introduction to Programming Logic

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This course introduces foundation concepts in structured programming. Problem solving and algorithm development through pseudocode and flowcharting is emphasized. Solutions are developed using the basic control structures of sequential, decision, and iteration.

CPT 170 - Computer Applications I

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This course introduces computer applications software, including word processing, databases, spreadsheets, graphs, and their integration.
Note: Reading placement scores satisfactory for ENG 100 is strongly recommended.

CPT 180 - Shell Scripting

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This course is a study of shell scripting and emphasizes the designing, coding, and testing of scripts. This course will cover shell scripting from both the command line and the Graphical User Interface.

CPT 208 - Special Topics in Computer Technology

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This course focuses on changes in computer technology. As topics change, students may repeat this course for additional credit with permission of the Program Director or Department Head.
Prerequisites: CPT 234.
Note: This course is offered in Spring.

CPT 209 - Computer Systems Management

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This course examines the methods and procedures used in maintaining computer systems. Topics include hardware and software installation, configuration, operations, and troubleshooting.

CPT 212 - Visual Basic Programming I

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This course focuses on Windows programming using Visual Basic to create graphical user interfaces. The course examines forms, controls, graphical controls, loops, control arrays, database and traditional file processing, and application class scheduling.
Prerequisites: CPT 234.
Note: This course is offered in Summer.

CPT 234 - C Programming I

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This introductory course in C programming emphasizes the designing, coding, testing and debugging of C programs involving input/output operations, data types, storage classes, decision structures, looping, functions, preprocessor directives, arrays, and simple pointers.
Prerequisites: CPT 167.

CPT 236 - Java Programming I

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This course is an introduction to java programming. Topics will cover java syntax and classes for use in the development of java applications and applets.
Prerequisites: CPT 234.
Note: This course is offered in Fall.

CPT 242 - Database

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This course introduces database models and the fundamentals of database design. Topics include database structure, database processing, and application programs which access a database.
Prerequisites: CPT 167.
Note: This course is offered in Fall.

CPT 244 - Data Structures

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This course examines data structures widely used in programming. Topics include linked lists, stacks, queues, trees, and sorting and searching techniques.
Prerequisites: CPT 234.
Note: This course is offered in Fall.

CPT 264 - Systems and Procedures

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This course covers the techniques of system analysis, design, development, and implementation.
Prerequisites: CPT 242.
Note: This course is offered in Spring.

CPT 283 - PHP Programming

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This course is an introduction to the PHP programming language and will cover topics related to the syntax of PHP language and how PHP can be used to design and develop dynamic, database-driven web pages.
Prerequisites: IST 222.
Note: This course is offered in Fall.

ENG 101 - English Composition I

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This is a (college transfer) course in which the following topics are presented: a study of composition in conjunction with appropriate literary selections, with frequent theme assignments to reinforce effective writing. A review of standard usage and the basic techniques of research are also presented.
Prerequisites: Satisfactory Writing placement score or a grade of C or higher in ENG 100, ENG 155, or ENG 165 and satisfactory Reading placement score or a grade of C or higher in RDG 100 or HSS 100.

IST 110 - Introduction to Cyberspace and Cybersecurity

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This course studies the fundamentals of cyberspace and cybersecurity. Topics of study include roles and functions within cyberspace, data security, digital forensics, incident management, training and awareness, and physical and environmental security.

IST 191 - LINUX System Administration

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This course will provide students with the skills necessary to administer a LINUX system, including hardware/software configuration, user and group administration, LINUX network configuration, and file system management.
Prerequisites: CPT 167.
Note: This course is offered in Summer.

IST 201 - Introduction to Networks

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This course covers the architecture, structure, functions and components 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, and implement Internet Protocol (IP).
Prerequisites: IST 220.
Note: This course is offered in Summer.

IST 202 - Switching, Routing, and Wireless Essentials

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This course covers the architecture, components, and operations of routers and switches in small networks and introduces wireless local area networks (WLAN) and security concepts. Students learn how to configure and troubleshoot routers and switches for advanced functionality using security best practices and resolve common issues with protocols in both IPv4 and IPv6 networks.
Prerequisites: IST 201.
Note: This course is offered in Fall.

IST 203 - Enterprise Networking, Security, and Automation

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This course describes the architecture, components, operations, and security to scale for large, complex networks, including wide area network (WAN) technologies. The course emphasizes network security concepts and introduces network virtualization and automation. Students learn how to configure, troubleshoot, and secure enterprise network devices and understand how application programming interfaces (API) and configuration management tools enable network automation.
Prerequisites: IST 202.
Note: This course is offered in Spring.

IST 220 - Data Communications

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This course is a study of the fundamentals of data communications. Basic signaling, networking, and various transmission media are covered.

IST 222 - Website Design I

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This course is designed to develop skills in using common office and web development software to produce webpage content.

IST 237 - Website Design II

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This course is a study of server-side (CGI; dynamic html) and client-side (JavaScript) dynamic web design, including the incorporation of database applications and content into web pages.
Prerequisites: CPT 234 and IST 222.
Note: This course is offered in Summer.

IST 241 - Network Architecture I

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This course is a study of how the computer architecture relates to the interconnecting of the various network components, the environment in which the applications processes execute, and the overall plan defining services to be provided in a distributed environment.
Prerequisites: IST 220.
Note: This course is offered in Summer.

IST 257 - LAN Network Server Technologies

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This course is a study of network operating system technologies including network operating system architecture, the installation, configuration, monitoring and troubleshooting of network resources, and network administration functions such as user/group maintenance, network security, print services, remote access, fault tolerance, backup and recovery.
Prerequisites: IST 220.
Note: This course is offered in Spring.

IST 267 - Network Vulnerability Assessment

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This course provides students with the knowledge and skills necessary to test network security using network vulnerability assessment tools and methods. Students will also learn how to improve network security based on the assessment results.
Prerequisites: IST 220.
Note: This course is offered in Spring.

IST 268 - Computer Forensics

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This course provides students with a foundational knowledge in computer forensics investigation. Students are introduced to the skills, tools, and methods used to gather, document, and handle electronic evidence.
Prerequisites: IST 191.
Note: This course is offered in Fall.

IST 272 - Relational Database

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This course provides a comprehensive foundation in both SQL and relational database design and implementation. Dynamic and embedded SQL programming techniques are emphasized.
Prerequisites: CPT 242.
Note: This course is offered in Spring.

IST 291 - Network Security I

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This course is the study of intro levels of security processes based on a security policy, emphasizing hands-on skills in the areas of secure perimeter, security connectivity, security management, identity services, and intrusion detection. The course prepares students to manage network security.
Prerequisites: IST 220.
Note: This course is offered in Fall.

SPC 205 - Public Speaking

Class Hours: 3 Lab Hours: 0 Credit Hours: 3
This course is an introduction to principles of public speaking with application of speaking skills.
Prerequisites: ENG 101, ENG 103, ENG 155, ENG 156, or ENG 165 with a grade of C or higher.

Students must earn a grade of "C" or higher in all CPT/IST courses used to fulfill major course requirements.