COMPUTER TECHNOLOGY

Programs

- Artificial Intelligence for Cybersecurity Systems Certificate in Applied Science (https://catalog.gvltec.edu/school-business-computer-technology/computer-technology/artificial-intelligence-for-cybersecurity-systems-certificate/)
- Artificial Intelligence for Data Systems Certificate in Applied Science (https://catalog.gvltec.edu/school-business-computer-technology/computer-technology/artificial-intelligence-for-data-systems-certificate/)
- Artificial Intelligence Foundations Certificate in Applied Science (https://catalog.gvltec.edu/school-business-computer-technology/computer-technology/artificial-intelligence-foundations-certificate/)
- Business Analytics Certificate in Applied Science (https://catalog.gvltec.edu/school-business-computer-technology/computer-technology/business-analytics-certificate/)
- Cisco Network Operations and Security Certificate in Applied Science (https://catalog.gvltec.edu/school-business-computer-technology/computer-technology/cisco-network-administrator-certificate/)
- Computer Technology Associate in Applied Science (https://catalog.gvltec.edu/school-business-computer-technology/computer-technology/computer-technology-aas/)
- Cybersecurity Certificate in Applied Science (https://catalog.gvltec.edu/school-business-computer-technology/computer-technology/cybersecurity-certificate/)
- Data Science Certificate in Applied Science (https://catalog.gvltec.edu/school-business-computer-technology/computer-technology/data-science-certificate/)
- Full Stack Developer Certificate in Applied Science (https://catalog.gvltec.edu/school-business-computer-technology/computer-technology/full-stack-developer-certificate/)
- Server Support Specialist Certificate in Applied Science (https://catalog.gvltec.edu/school-business-computer-technology/computer-technology/microsoft-network-technician-certificate/)
- Systems Administration and Infrastructure Certificate in Applied Science (https://catalog.gvltec.edu/school-business-computer-technology/computer-technology/systems-administration-certificate/)
- Web Programming Certificate in Applied Science (https://catalog.gvltec.edu/school-business-computer-technology/computer-technology/web-programming-certificate/)

Courses

Computer Technology

CPT 113 Information Systems (3-0-3)
Offered Fall, Spring, and Summer Semesters
This course is an introduction to the principles and technologies used in modern management information systems.

CPT 123 Introduction to Artificial Intelligence (3-0-3)
Offered Fall, Spring, and Summer Semesters
This course provides a comprehensive overview of Artificial Intelligence, including its history, key concepts and current applications. Machine learning, neural networks, and AI's impact on society will be studied. Also included is an examination of the ethical considerations and implications of AI.

CPT 127 Python Programming I (3-0-3)
Offered Fall, Spring, and Summer Semesters
Prerequisite: CPT 113 or EET 145
This course is a study of Python programming and covers the language syntax and algorithm design. Students also learn how Python can be used for many purposes in information systems.

CPT 128 Practical AI Tools and Techniques (3-0-3)
Offered Spring, and Summer Semesters
Prerequisite: CPT 123
This course introduces students to various Artificial Intelligence tools and techniques used in industry with a focus on hands-on learning.

CPT 130 AI in Everyday Life and Industry (3-0-3)
Offered Fall and Summer Semesters
Prerequisite: CPT 123
This course will showcase how Artificial Intelligence is transforming industries and enhancing daily lives. The real-world impact of AI will be discovered through exploration of various industry breakthroughs.

CPT 131 Ethical AI: Navigating the Future (3-0-3)
Offered Fall, Spring, and Summer Semesters
This course explores the principles of creating fair, transparent, and responsible Artificial Intelligence systems while learning how to address bias, ensure fairness, and understand the societal implications of its usage.

CPT 170 Computer Applications I (3-0-3)
Offered Fall, Spring, and Summer Semesters
This course introduces computer applications software, including word processing, databases, spreadsheets, graphs and their integration.

CPT 189 Data Science I (3-0-3)
Offered Fall Semester
Prerequisites: CPT 168 or CPT 127 and IST 272
This course is an introduction to foundational topics in data science. Topics include data collection, integration, management, modeling, analysis, visualization, presentation, and decision making.

CPT 209 Computer Systems Management (3-0-3)
Offered Fall, Spring, and Summer Semesters
This course examines the methods and procedures used in maintaining microcomputer systems. Topics include hardware and software installation, configuration, operations and troubleshooting.

CPT 227 Python Programming II (3-0-3)
Offered Spring and Fall Semesters
Prerequisites: CPT 168 or CPT 127 and IST 272
This course is a study of advanced topics of Python programming. Topics covered can include applications of web development, gaming, data science, cybersecurity, machine learning, artificial intelligence, and quantum computing.

CPT 230 C# Programming I (3-0-3)
Offered Fall and Summer Semesters
Prerequisites: CPT 168 or CPT 127
This course introduces designing, coding, testing and debugging C# programs. Topics include procedural, functional and object-oriented techniques; programming; IDEs; .NET; processing data; data types; I/O; decision processing; control structures; modularized coding with methods; and arrays.

CPT 231 C# Programming II (3-0-3)
Offered Fall and Spring Semesters
Prerequisite: CPT 230
Co-requisite: IST 272
This course focuses on advanced programming concepts for C#. Topics include advanced string and character processing, user-defined classes and advanced .NET, multiform projects, inheritance and polymorphism, database processing, exception handling and GUIs with Windows Forms.

CPT 234 C Programming I (2-3-3)
Offered Fall and Spring Semesters
Prerequisites: EGR 269 or CPT 170 or CPT 113
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.

CPT 236 Java Programming I (3-0-3)
Offered Fall and Spring Semesters
Prerequisite: CPT 127 or CPT 168
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.

CPT 237 Java Programming II (3-0-3)
Offered Fall and Spring Semesters
Prerequisite: CPT 236
This course is a study of advanced topics of the Java programming language by building on a basic knowledge of the Java language. Topics covered will include multi-reading, swing classes, swing event models, advanced layout managers, the JavaBean component model, network programming and server-side programming.

CPT 239 Active Server Pages (3-0-3)
Offered based on enrollment
Prerequisites: CPT 230, IST 226, IST 272
This course is a study of Active Server Pages (ASP) programming to build, implement and execute ASP scripts and examines topics related to the syntax of server-side ASP scripting as well as the use of ASP with databases.

CPT 257 Operating Systems (3-0-3)
Offered Fall, Spring, and Summer Semesters
This course examines the theory of operating systems and how the operating system theory is implemented in current operating systems.

CPT 264 Systems & Procedures (3-0-3)
Offered Fall, Spring, and Summer Semesters
Prerequisites: CPT 267; and (CPT 231 or CPT 237 or CPT 273 or CPT 289 or IST 191 or IST 203 or IST 258 or CYB 269 or CYB 282 or CYB 293 or IST 292 or IST 293 or IST 294 or BUS 190); and (SPC 205, SPC 208, or SPC 209); and MAT 109 or higher college transferable math***Instructor or Department Head Consent also required
This course covers the techniques of system analysis, design, development and implementation.

CPT 267 Technical Support Concepts (3-0-3)
Offered Fall, Spring, and Summer Semesters
Prerequisites: CPT 209, CPT 257
This course is a study of technical support/help desk concepts and techniques for supporting computers and computer services.

CPT 270 Computer Applications II (3-0-3)
Offered Fall, Spring, and Summer Semesters
Prerequisite: CPT 170
This course emphasizes the integration of popular computer software packages using advanced concepts in computer applications software.

CPT 273 Data Visualization (3-0-3)
Offered Spring Semester
Prerequisite: CPT 170
Co-requisite: IST 272
This course explores key concepts in data visualization and reporting. Topics include methods used in graphical representation of data, exploration and reporting of data, and basic predictive modeling methods.

CPT 275 Computer Technology Senior Project (3-0-3)
Offered Fall, Spring, and Summer Semesters
Prerequisites: CPT 264; and CPT 231 or CPT 237 or IST 203 or IST 204 or IST 258 or IST 191 or IST 292 or IST 294; and SPC 205, SPC 208 or SPC 209; and MAT 103 or MAT 109 or MAT 120 or higher math
This course includes the design, development, testing and implementation of an instructor-approved project.

CPT 280 SCWE in Computer Technology (0-12-3)
Offered based on enrollment
Prerequisite: Departmental Approval
This course integrates computer technology skills within an approved work site related to the computer industry.

CPT 283 PHP Programming I (3-0-3)
Offered based on enrollment
Prerequisites: CPT 168, IST 226 and IST 272
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.

CPT 289 Data Science II (3-0-3)
Offered Spring Semester
Prerequisites: CPT 189
This course explores popular data science programming tools. Students will review and assess the features, capabilities, and limitations of open-source, commercial, and cloud-based solutions.

Cybersecurity

CYB 110 Introduction to Cybersecurity (3-0-3)
Offered Fall, Spring, and Summer Semesters
Prerequisites: AOT 162 or CPT 270 or IST 220
An introduction/broad overview course of cybersecurity knowledge domains including the need for cybersecurity, malicious activity, Internet and Internet of Things (IoT), access controls, security operations and administration, risk management, cryptography, network security, certification and law.

CYB 201 Cybersecurity Operations (3-0-3)
Offered Fall and Spring Semesters
Prerequisites: IST 110 or CYB 110 and IST 266
Co-requisite: IST 190
This course is a study of the concepts and technologies related to Security Operations Center teams that detect and respond to cybersecurity threats. Topics cover an in-depth review of security concepts and monitoring, host-based and network intrusion analysis, and security policies and procedures.

CYB 269 Digital Forensics (3-0-3)
Offered Fall and Spring Semesters
Prerequisites: IST 110 or CYB 110 and CPT 209, IST 190
This course examines advanced technical aspects of digital computer evidence to include detection, collection, identification, and preservation. Emphasis is placed on specific tools and methods for extracting deleted or destroyed computer-related evidence.

CYB 282 Security and Risk Analysis (3-0-3)
Offered Spring and Summer Semesters
Prerequisites: IST 110 or CYB 110 and IST 291 or CYB 294
An overview of risk management and its implication on infrastructure, compliance and organizational objectives. Risk to people, processes and technology is addressed. Modern frameworks for risk analysis and mitigation are used. Students will write security policy and create implementation plan.

CYB 285 Cybersecurity Capstone (3-0-3)
Offered Fall, Spring, and Summer Semesters
Prerequisites: CPT 267; and (CPT 130 and CYB 201) or CYB 269 or CYB 282 or CYB 293; and (SPC 205, SPC 208, or SPC 209); and MAT 109 or higher college transferable math***Instructor or APD or DH consent also required
This course integrates the knowledge and skills gained through previous coursework and experience to develop and implement risk management, vulnerability assessment, threat analysis, and incident response plans.

CYB 293 Attack Vectors (Red Teaming) (3-0-3)
Offered Fall and Spring Semesters
Prerequisites: IST 267 or CYB 201
This course introduces methods for attacking and compromising various systems including authentication systems, passwords, networks, computers, people and peripheral devices (IoT). Students will develop skills necessary to participate in Red Team ethical hacking exercises and competitions.

CYB 294 Incident Response (Blue Teaming) (3-0-3)
Offered Fall and Spring Semesters
Prerequisites: IST 110 or CYB 110 and IST 266
Co-requisite: IST 190
This course introduces skills and techniques necessary to detect, respond and recover from cyber incidents. The goal is to learn how to integrate business continuity/ disaster recovery plans into the incident response process. Students will document/communicate impact of cybersecurity incidents.

Information System Technology

IST 190 LINUX Essentials (3-0-3)
Offered Fall and Summer Semesters
Prerequisites: CPT 257 and IST 220
This course will provide students with the fundamental knowledge and concepts of the LINUX operating system, including command-line functions, file systems, user and group administration, process management, text editors and network applications.

IST 191 LINUX Administration (3-0-3)
Offered Fall and Spring Semesters
Prerequisite: IST 190
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.

IST 198 Cloud Computing I (3-0-3)
Offered Fall and Spring Semesters
Co-requisite: IST 190 or IST 257
This course is a study of cloud computing as a framework for providing network access to shared computing resources including storage, network, server and virtualization infrastructures.

IST 201 Cisco Introduction to Networks (3-0-3)
Offered Summer Semester
Prerequisite: IST 220
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).

IST 202 Cisco Switching, Routing, and Wireless Essentials (3-0-3)
Offered Fall Semester
Prerequisites: IST 201
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.

IST 203 Cisco Enterprise Networking, Security, and Automation (3-0-3)
Offered Spring Semester
Prerequisite: IST 202
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.

IST 220 Data Communications (3-0-3)
Offered Fall, Spring, and Summer Semesters
Co-requisite: CPT 257 or EET 251
This course is a study of the fundamentals of data communications. Basic signaling, networking and various transmission media are covered.

IST 226 Internet Programming (3-0-3)
Offered Fall, Spring, and Summer Semesters
Prerequisite: AOT 162 or CPT 170 or CPT 257
This course covers designing internet pages and applications for personal/business use, writing the required program code in languages such as HTML, JavaScript and CSS, testing and debugging programs, uploading and maintaining internet pages and applications.

IST 239 JavaScript (3-0-3)
Offered Fall and Summer Semesters
Prerequisites: CPT 168 or CPT 127 and IST 226
This course includes concepts and skills for developing dynamic functionality and interactivity for websites using JavaScript. Variables, operators, conditionals, functions, objects (image and form), properties, methods, cookies, frames, and arrays.

IST 257 LAN Network Server Technologies (3-0-3)
Offered Fall and Spring Semesters
Prerequisites: CPT 257, IST 220
This course is a study of networking 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.

IST 258 LAN Directory Services (3-0-3)
Offered Fall and Spring Semesters
Prerequisites: IST 257, IST 220
This course is a study of LAN objects, object properties and the organization of network objects into a structure that is extensible and scalable. The course includes a hierarchical view of network resources and allows administrators, developers and end-users to gain access to those resources.

IST 266 Internet and Firewall Security (3-0-3)
Offered Fall, Spring, and Summer Semesters
Co-requisite: IST 110 or CYB 110
This course is an introduction to firewalls and other network security components that can work together to create an in-depth defensive perimeter around a local area network (LAN).

IST 272 Relational Database (3-0-3)
Offered Fall, Spring, and Summer Semesters
Prerequisites: CPT 113 or CPT 170
This course provides a comprehensive foundation in both SQL and relational database design and implementation. Dynamic and embedded SQL programming techniques are emphasized. Note: SQL Server is used.

IST 278 Database Programming (3-0-3)
Offered based on enrollment
Prerequisites: IST 272
This course is a study of advanced database techniques. Topics will cover procedures, triggers, query optimization and user security.

IST 299 Research in Information Technology (0-9-3)
Offered as needed
Prerequisites: Instructor Consent
This course provides an opportunity for students to investigate a faculty-approved topic related to information systems technology using the application of practical research methods. *This course is for use at Greenville Technical College in support of the academic agreement with Clemson University.