2022 – 2023

PROGRAM GUIDE FOR:

INFORMATION TECHNOLOGY CLUSTER

AND

INFORMATION TECHNOLOGY MIDDLE SCHOOL

ALABAMA STATE DEPARTMENT OF EDUCATION
CAREER AND TECHNICAL EDUCATION
DAWN MORRISON, EDUCATION ADMINISTRATOR
NIKETA DEAN, EDUCATION SPECIALIST
AMANDA DYKES, COMPUTER SCIENCE SPECIALIST
(334) 694-4761

Information Technology Cluster

This cluster prepares high school students with essential knowledge and skills for pursuing careers in the following three pathways: Database Design; Network Systems and Computer Services; and Programming and Software Development (*end date 2022-2023*). Effective 2023 – 2024, the following three pathways will provide curriculum content congruent with current technologies: Cybersecurity and Infrastructure; Information Technology Support and Services; and Computer Science.

Courses highlighted in yellow are shared with other clusters. See "Shared Courses" table on page 7 for additional details.

Career Pathway Program	**Database Design Program (Outgoing 2022-2023)** **(Must teach three courses from this program list within two years.)** This program is for students who are interested in pursuing careers that involve developing strategies to design, administer, fine-tune, and maintain databases, plus develop the business acumen needed to excel in the IT industry. Courses provide an overview of the knowledge and skills required in implementing operational databases that help organizations successfully manage their business processes and provide business intelligence.		
Course Number	**Career Pathway Program Courses**	**Career Readiness Indicator (CRI)**	**Workforce Careers**
10001G1000	Information Technology Fundamentals	• Certified Internet Web (CIW) - Database Design Specialist • Certiport Information Technology Specialist (ITS) Databases • Oracle Certified Associate, Database	• Database Administrator • Database Architects • Data Warehousing Specialist • Information Security Analyst • Database Information Manager
10052G1013	Database Design I		
10052G1023	Database Design II		
10052G1033	Database Design III		
10997G1001	Senior Career Pathway Project-Information Technology		
10997G1002	CTE Lab in Information Technology		

Career Pathway Program	**Network Systems and Computer Services Program (Outgoing 2022-2023)** **(Must teach three courses from this program list within two years.)** This program is for students who are interested in careers that involve information technology security, network analysis, planning, and implementation, including design, installation, repair, maintenance, and management of network systems. Courses provide an overview of the knowledge and skills required in network and systems administration.		
Course Number	**Career Pathway Program Courses**	**Career Readiness Indicator (CRI)**	**Workforce Careers**
10001G1000	Information Technology Fundamentals	• C-Tech Copper Network Cabling Specialist • C-Tech Fiber Network Cabling Specialist • Certified Network Computer Technician • Certiport Information Technology Specialist (ITS) – Device Configuration and Management • Certiport Information Technology Specialist (ITS) - Networking • Certiport Information Technology Specialist (ITS) - Network Security • Certiport Information Technology Specialist (ITS) – Cloud Computing • Cisco Certified Network Associate (CCNA) – Routing and Switching • CompTIA A+ • CompTIA Network+ • CompTIA Security+ • CompTIA IT Fundamentals • CompTIA Linux+ Powered by LPI • Electronic Technicians Association – Certified Electronics Technician (CETa) • TestOut Network Pro (4.1.0 or higher) • TestOut Security Pro (5.1.0 or higher) • TestOut PC Pro (5.0.0 or higher) • TestOut Routing Pro • TestOut Switching Pro • TestOut Linux Pro • TestOut IT Fundamentals Pro	• Information Security Analyst • Computer Hardware Engineers • Network Architects • Telecommunications Engineering Specialists • Network and Computer Systems Administrators • Computer Network Support Specialist • Computer and Information Research Scientist • Computer and Information Systems Manager
10101G1014	Networking I		
10101G1024	Networking II		
10102G1034	Networking III		
10102G1044	Networking IV		
10111G1000	Computer Management and Support		
10102G1002	Information Technology Support and Services		
17106G1002	Alternating Current		
17106G1001	Direct Current		
10109G1000	Linux Fundamentals		
10997G1001	Senior Career Pathway Project-Information Technology		
10997G1002	CTE Lab in Information Technology		

Career Pathway Program	**Network Systems and Computer Services Program – Cyber Security Specialization (Outgoing 2022-2023)** **(Must teach three courses from this program list within two years.)** This program is for students who are interested in careers in the growing field of cyber security. Includes instruction in cyber ethics, network systems and security, computer boot processes and drives, intrusion detection, ethical hacking, cryptography, virtualization, cyberterrorism, and applicable laws and administrative procedures. Courses provide an overview of the knowledge and skills required in the field of cyber security. Please note that ALL courses within this specialization are sequential courses, which means that knowledge of the second course is reliant on knowledge of the first course, such as Foundations of Informational Security and Principles of Informational Security.		
Course Number	**Career Pathway Program Courses**	**Career Readiness Indicator (CRI)**	**Workforce Careers**
10020G1001	Foundations of Informational Security	• CompTIA IT Fundamentals • CompTIA Network+ • CompTIA Security+	• Chief Information Security Officer • Forensic Computer Analyst • Information Security Analyst • Cryptographer • Security Architect • Penetration Tester • IT Security Engineer • Security Systems Administrator • IT Security Consultant
10020G1002	Principles of Informational Security		
10020G1003	Cyber Forensics		
10020G1004	Advanced Cyber Forensics		
10997G1001	Senior Career Pathway Project-Information Technology		
10997G1002	CTE Lab in Information Technology		

Career Pathway Program	**Programming and Software Development Program (Outgoing 2022-2023)** **(Must teach three courses from this program list within two years.)** This program is for students who are interested in careers that involve designing, implementing, and maintaining computer systems and software for desktop and web-based applications. Courses provide an overview of the knowledge and skills required in computer operating systems, programming languages, and software development.		
Course Number	**Career Pathway Program Courses**	**Career Readiness Indicator (CRI)**	**Workforce Careers**
10001G1000	Information Technology Fundamentals	• Certified Internet Web (CIW) - JavaScript Specialist • Certiport Information Technology Specialist (ITS) HTML5 Application Development • Certiport Information Technology Specialist (ITS) Software Development • Certiport Information Technology Specialist (ITS) HTML & CSS • Certiport Information Technology Specialist (ITS) JavaScript • Certiport Information Technology Specialist (ITS) Java • Certiport Information Technology Specialist (ITS) Python • Oracle Certified Associate (OCA) - Java Programmer	• Software Engineer • Applications Software Developer • Game Developer • Computer Engineer • Programmer Analyst • Project Manager • Programmer Analyst • Project Lead Specialist • Administrator Test Engineer • System Administrator • Computer Science Teacher • Information Security Analyst
10154G1000	Software Development		
10155G1000	Java Programming		
10157E1000	AP Computer Science A		
10019E1000	AP Computer Science Principles		
10012G1001	Exploring Computer Science		
10152G1000	Programming with Robots		
10012G1002	*Introduction to Computer Science - TEALS		
10156G0500	Introduction to Python - MSIA (one-half credit)		
10156G1000	Introduction to Python-MSIA (one credit)		
10997G1001	Senior Career Pathway Project-Information Technology		
10997G1002	CTE Lab in Information Technology		
***NOTE:** LEAs must contact TEALS for additional information prior to utilizing the course code listed above, as it does require submission of an application, an interview, and a signed partnership agreement.			

Career Pathway Program	***SREB AC Health Informatics Program** **(Must teach three courses from this program list within two years.)** This program merges information science, computer science, and health care. Students use information technology, data analysis software, and statistics to address a range of health-related topics. Through real-world projects, students use information technology, data analysis software and statistics to address a range of health-related topics. Knowledge and skills are reinforced and enhanced through participation in SkillsUSA and/or HOSA – Future Health Professionals and project-based learning opportunities that are age and grade appropriate.		
Course Number	**Career Pathway Program Courses**	**Career Readiness Indicator (CRI)**	**Workforce Careers**
14155G1001	Data and Use	• Certified Internet Web (CIW) - Database Design Specialist • Certiport Information Technology Specialist (ITS) Databases • Oracle Certified Associate, Database LEAs may contact the IT Cluster Manager for additional CRI options.	• Chief Medical Information Officer (CMIO) • Director of Clinical Information Systems • Data Scientist • Health Informatics Consultant • Professor of Health Informatics • Researcher
14155G1002	Transforming Data into Information		
14155G1003	Transforming Information into Knowledge		
14155G1004	Problems and Solutions		
***NOTE:** LEAs must contact SREB for additional information prior to utilizing any of the course codes listed above, as it does require commitment to the conditions in a MOU and participation in mandatory training provided by the provider.			

Career Pathway Program	*SREB AC Informatics Program (Must teach three courses from this program list within two years.) This program merges information science, computer science, and health care. Students use information technology, data analysis software, and statistics to address a range of health-related topics. Through real-world projects, students use information technology, data analysis software and statistics to address a range of health-related topics. Knowledge and skills are reinforced and enhanced through participation in SkillsUSA and project-based learning opportunities that are age and grade appropriate.		
Course Number	**Career Pathway Program Courses**	**Career Readiness Indicator (CRI)**	**Workforce Careers**
10054G1014	Computers, Networks and Databases	• Certified Internet Web (CIW) - Database Design Specialist • Certiport Information Technology Specialist (ITS) Databases • CompTIA Security+ • Oracle Certified Associate, Database • TestOut Network Pro LEAs may contact the IT Cluster Manager for additional CRI options.	• Bio Informaticist • Data Mapper • Chemical Informaticist • Database Designer • Digital Artist • Human-Computer Interface Designer • Information Architect • Usability Analyst • Interaction Designer • System Integrator • Web Designer • Software Engineer • Project Manager • Many Careers Not Yet Created
10054G1024	Design for the Digital World		
10054G1034	Databases in the Cloud		
10054G1044	Developing a Cloud Presence		
***NOTE:** LEAs must contact SREB for additional information prior to utilizing any of the course codes listed above, as it does require commitment to the conditions in a MOU and participation in mandatory training provided by the provider.			

Career Pathway Program	*Project Lead The Way (PLTW) – Computer Science (Must teach three courses from this program list within two years.) Whether building apps to meet client needs or exploring cybersecurity, PLTW Computer Science engages students in interdisciplinary activities that not only build knowledge and skills in computer science, but also empower students to develop essential skills such as problem solving, critical and creative thinking, communication, collaboration, and perseverance. The program's courses empower students with in-demand knowledge and skills they will use in high school and for the rest of their lives, on any career path they choose.		
Course Number	**Career Pathway Program Courses**	**Career Readiness Indicator (CRI)**	**Workforce Careers**
10013G1000	Computer Science Essentials - PLTW	• Certified Internet Web (CIW) - JavaScript Specialist • Certiport Information Technology Specialist (ITS) HTML5 Application Development • Certiport Information Technology Specialist (ITS) Software Development • Certiport Information Technology Specialist (ITS) Cybersecurity • Certiport Information Technology Specialist (ITS) Java • Certiport Information Technology Specialist (ITS) JavaScript • Certiport Information Technology Specialist (ITS) Python • CompTIA Security+ • Microsoft Security, Compliance, and Identity Fundamentals • Oracle Certified Associate (OCA) - Java Programmer • TestOut Security Pro	• Software Engineer • Applications Software Developer • Game Developer • Computer Engineer • Programmer Analyst • Project Manager • Programmer Analyst • Project Lead Specialist • Administrator Test Engineer • System Administrator • Computer Science Teacher • Information Security Analyst
10157E1000	AP Computer Science A		
10019E1000	AP Computer Science Principles		
10016G1000	Cybersecurity - PLTW		
***NOTE:** This is a purchased curriculum. LEAs must contact PLTW for additional information prior to utilizing the course codes listed above with a PLTW suffix, as it does require submission of a signed copy of the Terms and Conditions, participation in mandatory training and payment of a participation fee to the provider.			

Career Pathway Program	*Project Lead The Way (PLTW) – Gateway Computer Science Units Grades 6-8 PLTW Gateway's units empower students to lead their own discovery. As students engage in PLTW's activities, they see a range of paths and possibilities they can look forward to in high school and beyond.
Course Number	**Courses**
10099G6806	App Creators - PLTW
10099G6801	Computer Science for Innovators and Makers - PLTW
***NOTE:** This is a purchased curriculum. LEAs must contact PLTW for additional information prior to utilizing the course codes listed above with a PLTW suffix, as it does require submission of a signed copy of the Terms and Conditions, participation in mandatory training and payment of a participation fee to the provider.	

Career Pathway Program	Cybersecurity and Infrastructure (NEW 2023-2024) (Must teach three courses from this program list within two years.) This pathway provides students with the skills necessary for protecting information technology infrastructure and networks, devices, and data from unauthorized access or criminal use and the practice of ensuring confidentiality, integrity, and availability of information. Cybersecurity is an enormous and growing field as consumers and businesses share data through online shopping and social media applications.		
Course Number	**Career Pathway Program Courses**	**Career Readiness Indicator (CRI)**	**Workforce Careers**
10001G1000	Information Technology Fundamentals	• Certiport Information Technology Specialist (ITS) Cloud Computing • Certiport Information Technology Specialist (ITS) Networking • Certiport Information Technology Specialist (ITS) Cybersecurity • Certiport Information Technology Specialist (ITS) Cloud Computing • Cisco Certified Network Associate (CCNA) • CompTIA IT Fundamentals • CompTIA Linux+ • CompTIA Network+ • CompTIA Security+ • Microsoft Azure Fundamentals • Microsoft Azure Data Fundamentals • Microsoft Dynamics 365 Fundamentals CRM • Microsoft Dynamics 365 Fundamentals ERP • Microsoft Security, Compliance, and Identity Fundamentals • Microsoft 365 Fundamentals • Microsoft Power Platform Fundamentals • TestOut Network Pro • TestOut Security Pro	• Cloud Architect • Cloud Engineer • Data Engineer • DevOps Cloud Engineer • Cloud Infrastructure Engineer • Cloud System Administrator • UI Developer
TBD	Programming Foundations		
TBD	Cloud and Virtualization		
TBD	Cybersecurity I		
TBD	Cybersecurity II		
TBD	Cybersecurity III		
TBD	Foundations of Operating Systems		
10109G1000	Linux Fundamentals		
TBD	Network Fundamentals		
TBD	Network Systems Administration		
10997G1001	Career Pathway Project in Information Technology		
10997G1002	CTE Lab in Information Technology		

Career Pathway Program	Information Technology Support and Services (NEW 2023-2024) (Must teach three courses from this program list within two years.) This pathway provides students with a basic understanding of computer hardware and software and with the skills which could lead them to careers providing IT or technical support services. Students also develop problem-solving and critical thinking skills.		
Course Number	**Career Pathway Program Courses**	**Career Readiness Indicator (CRI)**	**Workforce Careers**
10001G1000	Information Technology Fundamentals	• C-Tech Copper Network Cabling Specialist • C-Tech Fiber Network Cabling Specialist • Certified Electronics Technician (CETa) • Certiport ITS Device Configuration and Management • Certiport ITS Network Security • Certiport Information Technology Specialist (ITS) Device Configuration and Management • CompTIA A+ • Microsoft Azure Fundamentals • Microsoft Azure Data Fundamentals • Microsoft Dynamics 65 Fundamentals CRM • Microsoft 365 Fundamentals • TestOut IT Fundamentals Pro • Test Out PC Pro • TestOut Linux Pro • TestOut Routing and Switching Pro	• Technical Support Engineer • IT Support Specialist • Technical Support Analyst • Help Desk Tech Support • Customer Support Representative • Technical Support Technician
TBD	Programming Foundations		
TBD	Cloud and Virtualization		
TBD	Computer Maintenance and Troubleshooting		
TBD	Foundations of Operating Systems		
10109G1000	Linux Fundamentals		
TBD	Network Fundamentals		
TBD	Technology Support and Services		
10997G1001	Career Pathway Project in Information Technology		
10997G1002	CTE Lab in Information Technology		

Career Pathway Program	Computer Science (NEW 2023-2024) (Must teach three courses from this program list within two years.) This pathway includes the study of theoretical algorithms and the practical problems involved in implementing them through computer hardware and software. This pathway includes artificial intelligence, software engineering, programming, and computer graphics. The need for computer science as a discipline has grown as computers become more integrated into daily life and technology continues to advance. This pathway provides students with skills required for the workforce both now and in the future.		
Course Number	**Career Pathway Program Courses**	**Career Readiness Indicator (CRI)**	**Workforce Careers**
10001G1000	Information Technology Fundamentals	• Certified Internet Web (CIW) – JavaScript Specialist • Certiport Information Technology Specialist (ITS) Software Development • Certiport Information Technology Specialist (ITS) Java • Certiport Information Technology Specialist (ITS) JavaScript • Certiport Information Technology Specialist (ITS) Python • Certiport Information Technology Specialist (ITS) Databases • Certiport Information Technology Specialist (ITS) HTML5 Application Development • Certiport Information Technology Specialist (ITS) Artificial Intelligence • Microsoft Azure AI Fundamentals • Microsoft Azure Data Fundamentals • Microsoft Power Platform Fundamentals • Microsoft Office Specialist- Excel Expert 2019/O365 • Microsoft Office Specialist- Access Expert 2019/O365 • Oracle Certified Associate (OCA) – Java Programmer	• Software Engineer • Senior Software Engineer • Machine Learning Engineer • Java Web Developer • Software/Application Developer • DevOps Engineer- Azure • Research Scientist • AI Engineer • Machine Learning Engineer • Data Scientist
TBD	Programming Foundations		
TBD	Artificial Intelligence		
TBD	Computer Game and Simulation Programming		
TBD	Mobile Application Development		
TBD	Object-Oriented Programming I		
TBD	Object-Oriented Programming II		
TBD	Programming Design and Development		
10159E10SL	Computer Science, SL, IB		
10159E10HL	Computer Science, HL, IB		
10157E1000	**Computer Science A, AP		
10019R1000	**Computer Science Principles, AP		
10012G1001	**Exploring Computer Science		
10012G1002	*Introduction to Computer Science-TEALS		
10011G1000	Introduction to Digital Literacy and Computer Science-ACCESS		
21009G1000	Robotic Systems		
10997G1001	Career Pathway Project in Information Technology		
10997G1002	CTE Lab in Information Technology		
NOTE: *LEAs must contact TEALS for additional information prior to utilizing the course code listed above, as it does require submission of an application, an interview, and a signed partnership agreement. ** LEAs must contact the ALSDE program specialist listed on cover page prior to utilizing the course codes listed to obtain information for required training and curriculum material.			

2022 – 2023 Subject and Personnel Codes

Information Technology Cluster

Information Technology Cluster Courses	
Course Number	**Course Name**
10020G1004	Advanced Cyber Forensics
17106G1002	Alternating Current
10157E1000	AP Computer Science A
10019E1000	AP Computer Science Principles
TBD	Artificial Intelligence
TBD	Cloud and Virtualization
10205G1001	Computer Game and Simulation Programming
TBD	Computer Maintenance and Troubleshooting
10111G1000	Computer Management and Support
10013G1000	Computer Science Essentials - PLTW
10054G1014	Computers, Networks and Databases
10997G1002	CTE Lab in Information Technology
10020G1003	Cyber Forensics
10016G1000	Cybersecurity - PLTW
TBD	Cybersecurity I
TBD	Cybersecurity II
TBD	Cybersecurity III
14155G1001	Data and Use
10052G1013	Database Design I
10052G1023	Database Design II
10052G1033	Database Design III
10054G1034	Databases in the Cloud
10054G1024	Design for the Digital World
10054G1044	Developing a Cloud Presence
17106G1001	Direct Current
10012G1001	Exploring Computer Science
10020G1001	Foundations of Informational Security
TBD	Foundations of Operating Systems
10001G1000	Information Technology Fundamentals
10102G1002	Information Technology Support and Services
10012G1002	Introduction to Computer Science - TEALS
10156G0500	Introduction to Python - MSIA (one-half credit)
10156G1000	Introduction to Python-MSIA (one credit)
10155G1000	Java Programming
10206G1001	Mobile Application Development
TBD	Network Fundamentals
TBD	Network Systems Administration
10101G1014	Networking I
10101G1024	Networking II
10102G1034	Networking III
10102G1044	Networking IV
TBD	Object-Oriented Programming I
TBD	Object-Oriented Programming II
10020G1002	Principles of Informational Security
14155G1004	Problems and Solutions
TBD	Programming Design and Development
TBD	Programming Foundations
10152G1000	Programming with Robots
21009G1000	Robotic Systems
10997G1001	Senior Career Pathway Project – Information Technology
10154G1000	Software Development
TBD	Technology Support and Services
14155G1002	Transforming Data into Information
14155G1003	Transforming Information into Knowledge

Information Technology Middle School	
10099G6806	App Creators - PLTW
10012G0608	Computer Science Discoveries
10099G6801	Computer Science for Innovators and Makers - PLTW
10013G0808	CS Makers
TBD	Exploring Information Technology Careers
10020G0808	Introduction to Cybersecurity

Shared Courses			
Course Number	**Course Name**	**Cluster(s)**	**Required Year to Implement COS**
17106G1002	Alternating Current	Manufacturing	2022-2023
10099G6806	App Creators – PLTW	STEM	N/A
10205G1001	Computer Game and Simulation Programming	Business Management and Administration	2022-2023
10099G6801	Computer Science for Innovators and Makers – PLTW	STEM	N/A
17106G1001	Direct Current	Manufacturing	2022-2023
10206G1001	Mobile Application Development	Business Management and Administration	2022-2023
21009G1000	Robotics Systems	STEM	2021-2022

General Note: Course descriptions and content standards for most courses are located on the Alabama Department of Education website at: https://www.alabamaachieves.org/career-and-technical-education/cte-courses-of-study/.