
2023 – 2024

PROGRAM GUIDE FOR:

INFORMATION TECHNOLOGY CLUSTER

AND

INFORMATION TECHNOLOGY MIDDLE SCHOOL



ALABAMA STATE DEPARTMENT OF EDUCATION
CAREER AND TECHNICAL EDUCATION
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Information Technology Cluster

This cluster prepares high school students with essential knowledge and skills for pursuing careers in the following three pathways: 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 5 for additional details.

Career Pathway Program	Computer Science Program (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)	In Demand Occupations		
22161G1001	Artificial Intelligence	<ul style="list-style-type: none"> • Certified Internet Web (CIW) – JavaScript Specialist • Certiport Information Technology Specialist (ITS) Artificial Intelligence • Certiport Information Technology Specialist (ITS) Databases • Certiport Information Technology Specialist (ITS) HTML5 Application Development • Certiport Information Technology Specialist (ITS) Java • Certiport Information Technology Specialist (ITS) JavaScript • Certiport Information Technology Specialist (ITS) Python • Certiport Information Technology Specialist (ITS) Software Development • CompTIA IT Fundamentals • FAA Part 107 • Fiber Optics – Skills for Success • Microsoft Azure AI Fundamentals • Microsoft Azure Data Fundamentals • Microsoft Office Specialist- Access Expert 2019/O365 • Microsoft Office Specialist- Excel Expert 2019/O365 • Microsoft Power Platform Fundamentals • Oracle Certified Associate (OCA) – Java Programmer 	<ul style="list-style-type: none"> • AI Engineer • Data Scientist • DevOps Engineer- Azure • Java Web Developer • Machine Learning Engineer • Machine Learning Engineer • Research Scientist • Senior Software Engineer • Software Engineer • Software/Application Developer 		
10997G1001	Career Pathway Project in Information Technology				
10205G1001	Computer Game and Simulation Programming				
10157E1000	**Computer Science A, AP				
10159E10HL	Computer Science, HL, IB				
10019R1000	**Computer Science Principles, AP				
10159E10SL	Computer Science, SL, IB				
10997G1002	CTE Lab in Information Technology				
10012G1001	**Exploring Computer Science				
10001G1000	Information Technology Fundamentals				
10012G1002	*Introduction to Computer Science-TEALS				
10011G1000	Introduction to Digital Literacy and Computer Science-ACCESS				
10206G1001	Mobile Application Development				
10152G1003	Object-Oriented Programming I				
10152G1004	Object-Oriented Programming II				
10152G1002	Programming Design and Development				
10152G1001	Programming Foundations				
21009G1000	Robotic Systems				
<p>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.</p> <p>** 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.</p>					

Cybersecurity and Infrastructure Program (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)	In Demand Occupations
10997G1001	Career Pathway Project in Information Technology	<ul style="list-style-type: none"> • Certiport Information Technology Specialist (ITS) Cloud Computing • Certiport Information Technology Specialist (ITS) Cybersecurity • Certiport Information Technology Specialist (ITS) Networking • Cisco Certified Network Associate (CCNA) Routing & Switching • CompTIA IT Fundamentals • CompTIA Linux+ • CompTIA Network+ • CompTIA Security+ • FAA Part 107 • Fiber Optics – Skills for Success • Microsoft 365 Fundamentals • Microsoft Azure Data Fundamentals • Microsoft Azure Fundamentals • Microsoft Dynamics 365 Fundamentals CRM • Microsoft Dynamics 365 Fundamentals ERP • Microsoft Power Platform Fundamentals • Microsoft Security, Compliance, and Identity Fundamentals • TestOut Network Pro • TestOut Security Pro 	<ul style="list-style-type: none"> • Cloud Architect • Cloud Engineer • Cloud Infrastructure Engineer • Cloud System Administrator • Data Engineer • DevOps Cloud Engineer • UI Developer
10102G1014	Cloud and Virtualization		
10997G1002	CTE Lab in Information Technology		
10020G1011	Cybersecurity I		
10020G1012	Cybersecurity II		
10020G1013	Cybersecurity III		
10109G1001	Foundations of Operating Systems		
10001G1000	Information Technology Fundamentals		
10109G1000	Linux Fundamentals		
10112G1001	Network Fundamentals		
10112G1002	Network Systems Administration		
10152G1001	Programming Foundations		

Information Technology Support and Service Program (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)	In Demand Occupations
10997G1001	Career Pathway Project in Information Technology	<ul style="list-style-type: none"> • Certified Electronics Technician (CETA) • Certiport Information Technology Specialist (ITS) – Device Configuration and Management • Certiport Information Technology Specialist (ITS) – Network Security • CompTIA A+ • C-Tech Copper Network Cabling Specialist • C-Tech Fiber Network Cabling Specialist • Microsoft 365 Fundamentals • Microsoft Azure Data Fundamentals • Microsoft Azure AI Fundamentals • Microsoft Dynamics 365 Fundamentals CRM • Test Out PC Pro • TestOut IT Fundamentals Pro • TestOut Linux Pro • TestOut Routing and Switching Pro 	<ul style="list-style-type: none"> • Customer Support Representative • Help Desk Tech Support • IT Support Specialist • Technical Support Analyst • Technical Support Engineer • Technical Support Technician
10102G1014	Cloud and Virtualization		
10252G1001	Computer Maintenance and Troubleshooting		
10997G1002	CTE Lab in Information Technology		
10109G1001	Foundations of Operating Systems		
10001G1000	Information Technology Fundamentals		
10109G1000	Linux Fundamentals		
10112G1001	Network Fundamentals		
10152G1001	Programming Foundations		
10253G1001	Technology Support and Services		

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.		
Course Number	Career Pathway Program Courses	Career Readiness Indicator (CRI)	In Demand Occupations
14155G1001	SREB Data and Use	<ul style="list-style-type: none"> • Certified Internet Web (CIW) – Database Design Specialist • Certiport Information Technology Specialist (ITS) – Databases • Oracle Certified Associate, Database 	<ul style="list-style-type: none"> • Chief Medical Information Officer (CMIO) • Data Scientist • Director of Clinical Information Systems • Health Informatics Consultant • Professor of Health Informatics • Researcher
14155G1004	SREB Problems and Solutions		
14155G1002	SREB Transforming Data into Information		
14155G1003	SREB Transforming Information into Knowledge		
*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.		
Course Number	Career Pathway Program Courses	Career Readiness Indicator (CRI)	In Demand Occupations
10054G1014	SREB Computers, Networks and Databases	<ul style="list-style-type: none"> • Certified Internet Web (CIW) – Database Design Specialist • Certiport Information Technology Specialist (ITS) – Databases • CompTIA Security+ • Oracle Certified Associate, Database • TestOut Network Pro 	<ul style="list-style-type: none"> • Bio Informaticist • Chemical Informaticist • Data Mapper • Database Designer • Digital Artist • Human-Computer Interface Designer • Information Architect • Interaction Designer • Project Manager • Software Engineer • System Integrator • Usability Analyst • Web Designer
10054G1034	SREB Databases in the Cloud		
10054G1024	SREB Design for the Digital World		
10054G1044	SREB 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)	In Demand Occupations
10157E1000	Computer Science A, AP	<ul style="list-style-type: none"> • Certified Internet Web (CIW) – JavaScript Specialist • Certiport Information Technology Specialist (ITS) Cybersecurity • Certiport Information Technology Specialist (ITS) HTML5 Application Development • Certiport Information Technology Specialist (ITS) Java • Certiport Information Technology Specialist (ITS) JavaScript • Certiport Information Technology Specialist (ITS) Python • Certiport Information Technology Specialist (ITS) Software Development • CompTIA Security+ • FAA Part 107 • Fiber Optics – Skills for Success • Microsoft Security, Compliance, and Identity Fundamentals • Oracle Certified Associate (OCA) – Java Programmer • TestOut Security Pro 	<ul style="list-style-type: none"> • Administrator Test Engineer • Applications Software Developer • Computer Engineer • Computer Science Teacher • Game Developer • Information Security Analyst • Programmer Analyst • Programmer Analyst • Project Lead Specialist • Project Manager • Software Engineer • System Administrator
10019E1000	Computer Science Principles, AP		
10013G1000	Computer Science Essentials - PLTW		
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	<p style="text-align: center;"><u>*Project Lead The Way (PLTW) – Gateway Computer Science Units</u></p> <p style="text-align: center;">Grades 6-8</p> <p>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.</p>
Course Number	Courses
10099G6800	App Creators - PLTW
10099G6801	Computer Science for Innovators and Makers - PLTW
<p>*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.</p>	

2023 – 2024 Subject and Personnel Codes
Information Technology Cluster

Information Technology Cluster Courses	
Course Number	Course Name
22161G1001	Artificial Intelligence
10997G1001	Career Pathway Project – Information Technology
10102G1014	Cloud and Virtualization
10205G1001	Computer Game and Simulation Programming
10252G1001	Computer Maintenance and Troubleshooting
10157E1000	Computer Science A, AP
10013G1000	Computer Science Essentials - PLTW
10159E10HL	Computer Science, HL, IB
10019E1000	Computer Science Principles, AP
10159E10SL	Computer Science, SL, IB
10997G1002	CTE Lab in Information Technology
10020G1011	Cybersecurity I
10020G1012	Cybersecurity II
10020G1013	Cybersecurity III
10016G1000	Cybersecurity - PLTW
10012G1001	Exploring Computer Science
10109G1001	Foundations of Operating Systems
10001G1000	Information Technology Fundamentals
10012G1002	Introduction to Computer Science - TEALS
10112G1001	Network Fundamentals
10112G1002	Network Systems Administration
10152G1003	Object-Oriented Programming I
10152G1004	Object-Oriented Programming II
10152G1002	Programming Design and Development
10152G1001	Programming Foundations
21009G1000	Robotic Systems
10054G1014	SREB Computers, Networks and Databases
14155G1001	SREB Data and Use
10054G1034	SREB Databases in the Cloud
10054G1024	SREB Design for the Digital World
10054G1044	SREB Developing a Cloud Presence
14155G1004	SREB Problems and Solutions
14155G1002	SREB Transforming Data into Information
14155G1003	SREB Transforming Information into Knowledge
10253G1001	Technology Support and Services

Information Technology Middle School	
10099G6800	App Creators - PLTW
10012G0608	Computer Science Discoveries
10099G6801	Computer Science for Innovators and Makers - PLTW
10012G0808	Computer Science and Society
10012G0606	Computer Science Endeavors
10013G0808	CS Makers
10001G1001	Exploring Information Technology Careers
10020G0808	Introduction to Cybersecurity

Shared Courses			
Course Number	Course Name	Cluster(s)	Required Year to Implement COS
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
10206G1001	Mobile Application Development	Business Management and Administration	2022-2023

General Note: Course descriptions and content standards for most courses are located on the Alabama Department of Education website at:

<https://www.alabamaachievers.org/career-and-technical-education/cte-courses-of-study/>.

College and Career Readiness Indicator Course Matrix

Program Name	Cybersecurity and Infrastructure	Information Technology and Support Service	Computer Science
Foundation Course(s)	Information Technology Fundamentals Programming Foundation	Information Technology Fundamentals Programming Foundations	Information Technology Fundamentals Programming Foundations Exploring Computer Science Introduction to Computer Science-TEALS Introduction to Digital Literacy and Computer Science-ACCESS
Concentrator Course(s)	Cloud and Virtualization Cybersecurity I Cybersecurity II Cybersecurity III Foundations of Operating Systems Linux Fundamentals Network Fundamentals Network Systems Administration	Cloud and Virtualization Computer Maintenance and Troubleshooting Foundations of Operating Systems Linux Fundamentals Network Fundamentals Technology Support and Services	Artificial Intelligence Computer Game and Simulation Programming Computer Science A, AP Computer Science Principles, AP Computer Science, HL, IB Computer Science, SL, IB Mobile Application Development Object-Oriented Programming I Object-Oriented Programming II Programming Design and Development Robotic Systems
Capstone Course(s)	Career Pathway Project in Information Technology CTE Lab in Information Technology	Career Pathway Project in Information Technology CTE Lab in Information Technology	Career Pathway Project in Information Technology CTE Lab in Information Technology

Program Name	SREB AC Health Informatics	SREB AC Informatics	Project Lead The Way (PLTW) Computer Science
Foundation Course(s)			Computer Science Essentials – PLTW
Concentrator Course(s)	SREB Data and Use SREB Problems and Solutions SREB Transforming Data into Information SREB Transforming Information into Knowledge	SREB Computers, Networks and Databases SREB Databases in the Cloud SREB Design for the Digital World SREB Developing a Cloud Presence	AP Computer Science A AP Computer Science Principles
Capstone Course(s)			Cybersecurity - PLTW

To meet the CCR Indicator as a CTE completer, a student must earn three (3.0) credits with the grade of a “C” or higher in CTE courses that are part of an approved CTE program of study. Additional requirements are outlined in [Memorandum FY22-2065](#).

This matrix is intended for general guidance on the CCR completer status and is subject to change. For all CTE programming information, please refer to the CTE Cluster specific Program Guide. It contains a list of approved CTE programs, valid course numbers, required prerequisite courses, approved Career Readiness Indicators (CRIs) and in demand occupations.

***Courses are listed in alphabetical order, not in sequential order.**