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**2023-2024**

**PROGRAM GUIDE FOR:**

**STEM CLUSTER**

**AND**

**STEM MIDDLE SCHOOL**

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CAREER AND TECHNICAL EDUCATION  
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## STEM Cluster Program Guide

The STEM cluster course of study is designed to address the challenges of a changing, technological, diverse, and global society. Students develop their abilities to analyze, communicate, manage, and lead. The rigorous content standards contained in these courses require students to use creative and innovative, critical-thinking skills. Experiences should be project-based and require higher-order thinking, communication, management, and leadership skills.

**\*\*Courses highlighted in yellow are shared with other clusters. See “Shared Courses” table on page 8 for additional details.**

Career Pathway Program	<b>CTE Engineering Program</b> <b>(Must teach three courses from this program list within two years.)</b> The CTE STEM curriculum should emphasize the integration of academics. To achieve the solution to a given problem, students must possess an adequate foundation in communication skills for reading, writing, speaking, listening, viewing, and presenting; knowledge and skills in mathematics, science, and social studies; and knowledge of current and emerging technologies.		
	Course Number	Career Pathway Program Courses	Career Readiness Indicator (CRI)  In Demand Occupations
	21002G1000	Applications of Engineering and Technology	<ul style="list-style-type: none"> <li>Autodesk – AutoCAD Certified User</li> <li>Autodesk – Fusion 360 Certified User</li> <li>Autodesk – Inventor Certified User</li> <li>Autodesk – Revit Certified User</li> <li>Certiport Information Technology Specialist (ITS) – Databases</li> <li>Certiport Information Technology Specialist (ITS) – HTML &amp; CSS</li> <li>Certiport Information Technology Specialist (ITS) – HTML5 Application Development</li> <li>Certiport Information Technology Specialist (ITS) – Java</li> <li>Certiport Information Technology Specialist (ITS) – JavaScript</li> <li>Certiport Information Technology Specialist (ITS) – Python</li> <li>Certiport Information Technology Specialist (ITS) – Software Development</li> <li>FAA Part 107</li> <li>FANUC CERT – Handling Tool Operations and Programming</li> <li>Microsoft Office – Access Expert 2019/O365</li> <li>Microsoft Office – Excel Expert 2019/O365</li> <li>Oracle Certified Associate (OCA) – Java Programmer</li> <li>SolidEdge Certified Associate</li> <li>SolidWorks Associate</li> </ul>
	21015G1000	Basic Programming for Engineers	
	21047G1000	Capstone of Engineering and Technology	
	21047G1001	Career Pathway Project in STEM	
	21015G1001	Computer Engineering and Technology	
	21997G1000	CTE Lab in STEM	
	21014G1000	Environmental Engineering	
	21005G1000	Foundations of Engineering and Technology	
	21009G1000	Robotics Systems	
			<ul style="list-style-type: none"> <li>Aerospace Engineer/Tech</li> <li>Aesthetics Specialist</li> <li>Architectural Engineer/Tech</li> <li>Civil Engineer/Tech</li> <li>Control Systems Engineer/Tech</li> <li>Electrical Engineer/Tech</li> <li>Engineer/Technician all Disciplines</li> <li>Environmental Scientist/Specialist</li> <li>Ergonomics Specialist</li> <li>Industrial Engineer/Tech</li> <li>Manufacturing Engineer/Tech</li> <li>Materials Engineer/Tech</li> <li>Mechanical Engineer/Tech/Mgr.</li> <li>Petroleum Engineer/Tech</li> <li>Robotics Engineer/Tech</li> </ul>

Career Pathway Program	<b>Greenpower Program</b> The Greenpower challenge – to design and build an electric car to race at Greenpower events. Students build age-appropriate kit cars according to regulations and then race them at motorsport venues around the state/country. The Greenpower challenge harnesses the excitement of motorsport to inspire more than 10,000 participants a year to excel in STEM.		
Course Number	Career Pathway Program Courses	Career Readiness Indicator (CRI)	In Demand Occupations
21047G1001	Career Pathway Project in STEM	<ul style="list-style-type: none"> <li>Autodesk – AutoCAD Certified User</li> <li>Autodesk – Fusion 360 Certified User</li> <li>Autodesk – Inventor Certified User</li> <li>Autodesk – Revit Certified User</li> <li>Certiport Information Technology Specialist (ITS) – Databases</li> <li>Certiport Information Technology Specialist (ITS) – HTML &amp; CSS</li> <li>Certiport Information Technology Specialist (ITS) – HTML5 Application Development</li> <li>Certiport Information Technology Specialist (ITS) – Java</li> <li>Certiport Information Technology Specialist (ITS) – JavaScript</li> <li>Certiport Information Technology Specialist (ITS) – Python</li> <li>Certiport Information Technology Specialist (ITS) – Software Development</li> <li>FAA Part 107</li> <li>FANUC CERT – Handling Tool Operations and Programming</li> <li>Microsoft Office – Access Expert 2019/O365</li> <li>Microsoft Office – Excel Expert 2019/O365</li> <li>Oracle Certified Associate (OCA) – Java Programmer</li> <li>SolidEdge Certified Associate</li> <li>SolidWorks Associate</li> </ul>	<ul style="list-style-type: none"> <li>Aerospace Engineer/Tech</li> <li>Aesthetics Specialist</li> <li>Architectural Engineer/Tech</li> <li>Civil Engineer/Tech</li> <li>Control Systems Engineer/Tech</li> <li>Electrical Engineer/Tech</li> <li>Engineer/Technician all Disciplines</li> <li>Environmental Scientist/Specialist</li> <li>Ergonomics Specialist</li> <li>Industrial Engineer/Tech</li> <li>Manufacturing Engineer/Tech</li> <li>Materials Engineer/Tech</li> <li>Mechanical Engineer/Tech/Mgr.</li> <li>Petroleum Engineer/Tech</li> <li>Robotics Engineer/Tech</li> </ul>
21997G1000	CTE Lab in STEM		
21105G1001	Greenpower F24 Eng Design & Race Ch I		
21105G1002	Greenpower F24 Eng Design & Race Ch II		
21105G1003	Introduction to Greenpower (HS)		
21105G0708	Introduction to Greenpower (MS)		

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<p style="text-align: center;"><b>*Project Lead The Way (PLTW) Engineering Program</b>  <b>(Must teach three courses from this program list within two years.)</b></p>			
<b>Career Pathway Program</b>	<p>From launching space explorations to delivering safe, clean water to communities, engineers find solutions to pressing problems and turn their ideas into reality. PLTW Engineering empowers students to step into the role of an engineer, adopt a problem-solving mindset, and make the leap from dreamers to doers. The program's courses engage students in compelling, real-world challenges that help them become better collaborators and thinkers. Students take from the courses in-demand knowledge and skills they will use in high school and for the rest of their lives, on any career path they take.</p>		
<b>Course Number</b>	<b>Career Pathway Program Courses</b>	<b>Career Readiness Indicator (CRI)</b>	<b>In Demand Occupations</b>
21019G1000	Aerospace Engineering – PLTW	<ul style="list-style-type: none"> <li>Autodesk – AutoCAD Certified User</li> <li>Autodesk – Fusion 360 Certified User</li> <li>Autodesk – Inventor Certified User</li> <li>Autodesk – Revit Certified User</li> <li>Certiport Information Technology Specialist (ITS) – Databases</li> <li>Certiport Information Technology Specialist (ITS) – HTML &amp; CSS</li> <li>Certiport Information Technology Specialist (ITS) – HTML5 Application Development</li> <li>Certiport Information Technology Specialist (ITS) – Java</li> <li>Certiport Information Technology Specialist (ITS) – JavaScript</li> <li>Certiport Information Technology Specialist (ITS) – Python</li> <li>Certiport Information Technology Specialist (ITS) – Software Development</li> <li>FAA Part 107</li> <li>FANUC CERT – Handling Tool Operations and Programming</li> <li>Microsoft Office – Access Expert 2019/O365</li> <li>Microsoft Office – Excel Expert 2019/O365</li> <li>Oracle Certified Associate (OCA) – Java Programmer</li> <li>SolidEdge Certified Associate</li> <li>SolidWorks Associate</li> </ul>	<ul style="list-style-type: none"> <li>Aerospace Engineer/Tech</li> <li>Aesthetics Specialist</li> <li>Architectural Engineer/Tech</li> <li>Civil Engineer/Tech</li> <li>Control Systems Engineer/Tech</li> <li>Electrical Engineer/Tech</li> <li>Engineer/Technician all Disciplines</li> <li>Environmental Scientist/Specialist</li> <li>Ergonomics Specialist</li> <li>Industrial Engineer/Tech</li> <li>Manufacturing Engineer/Tech</li> <li>Materials Engineer/Tech</li> <li>Mechanical Engineer/Tech/Mgr.</li> <li>Petroleum Engineer/Tech</li> <li>Robotics Engineer/Tech</li> </ul>
21047G1001	Career Pathway Project in STEM		
21021G1000	Civil Engineering and Architecture – PLTW		
21022G1000	Computer Integrated Manufacturing – PLTW		
10013G1000	Computer Science Essentials – PLTW		
21997G1000	CTE Lab in STEM		
21023G1000	Digital Electronics – PLTW		
21025G1000	Engineering Design and Development – PLTW		
21026G1000	Engineering Essentials – PLTW		
21024G1000	Environmental Sustainability – PLTW		
21017G1000	Introduction to Engineering Design – PLTW		
21018G1000	Principles of Engineering – PLTW		
<p><b>*NOTE:</b> 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>			

Career Pathway Program	<b>*SREB AC Aerospace Engineering Program</b> <b>(Must teach three courses from this program list within two years.)</b> Schools are challenged to better prepare students for a wide array of postsecondary options. The workforce of today and tomorrow demands a higher level of skill — people who grasp complex problems, understand technology and troubleshoot problems. Advanced Career (AC) answers both of these needs. By fusing a rigorous academic core with challenging project work and advanced technology in a career pathway program of study, AC courses give students a greater depth of knowledge and skills and prepare them for more options after high school.		
	Course Number	Career Pathway Program Courses	Career Readiness Indicator (CRI) In Demand Occupations
	21013G1022	Advanced Aerospace Technology – SREB AC	<ul style="list-style-type: none"> <li>Autodesk – AutoCAD Certified User</li> <li>Autodesk – Fusion 360 Certified User</li> <li>Autodesk – Inventor Certified User</li> <li>Autodesk – Revit Certified User</li> <li>Certiport Information Technology Specialist (ITS) – Databases</li> <li>Certiport Information Technology Specialist (ITS) – HTML &amp; CSS</li> <li>Certiport Information Technology Specialist (ITS) – HTML5 Application Development</li> <li>Certiport Information Technology Specialist (ITS) – Java</li> <li>Certiport Information Technology Specialist (ITS) – JavaScript</li> <li>Certiport Information Technology Specialist (ITS) – Python</li> <li>Certiport Information Technology Specialist (ITS) – Software Development</li> <li>FAA part 107</li> <li>FANUC CERT-Handling Tool Operations and Programming</li> <li>Microsoft Office – Access Expert 2019/O365</li> <li>Microsoft Office – Excel Expert 2019/O365</li> <li>Oracle Certified Associate (OCA) – Java Programmer</li> <li>SolidEdge Certified Associate</li> <li>SolidWorks Associate</li> </ul>
	21013G1001	Aeronautics Engineering Applications – SREB AC	
	21013G1002	Astronautics Engineering Applications – SREB AC	
	21047G1001	Career Pathway Project in STEM	
	21997G1000	CTE Lab in STEM	
	21013G1012	Fundamentals of Aerospace Technology – SREB AC	
			<ul style="list-style-type: none"> <li>Aerospace Engineer/Tech</li> <li>Aesthetics Specialist</li> <li>Architectural Engineer/Tech</li> <li>Civil Engineer/Tech</li> <li>Control Systems Engineer/Tech</li> <li>Electrical Engineer/Tech</li> <li>Engineer/Technician all Disciplines</li> <li>Environmental Scientist/Specialist</li> <li>Ergonomics Specialist</li> <li>Industrial Engineer/Tech</li> <li>Manufacturing Engineer/Tech</li> <li>Materials Engineer/Tech</li> <li>Mechanical Engineer/Tech/Mgr.</li> <li>Petroleum Engineer/Tech</li> <li>Robotics Engineer/Tech</li> </ul>
<b>*NOTE:</b> LEAs must contact <a href="#">SREB</a> for additional information prior to utilizing any of the course codes listed above with a SREB suffix, as it does require commitment to the conditions in a MOU and participation in mandatory training provided by the provider.			

Career Pathway Program	<b>*SREB AC Innovations in Science and Technology Program</b> <b>(Must teach three courses from this program list within two years.)</b> Schools are challenged to better prepare students for a wide array of postsecondary options. The workforce of today and tomorrow demands a higher level of skill — people who grasp complex problems, understand technology and troubleshoot problems. Advanced Career (AC) answers both of these needs. By fusing a rigorous academic core with challenging project work and advanced technology in a career pathway program of study, AC courses give students a greater depth of knowledge and skills and prepare them for more options after high school.		
	Course Number	Career Pathway Program Courses	Career Readiness Indicator (CRI) In Demand Occupations
	21047G1001	Career Pathway Project in STEM	<ul style="list-style-type: none"> <li>Autodesk – AutoCAD Certified User</li> <li>Autodesk – Fusion 360 Certified User</li> <li>Autodesk – Revit Certified User</li> <li>Autodesk – Inventor Certified User</li> <li>Certiport Information Technology Specialist (ITS) – Databases</li> <li>Certiport Information Technology Specialist (ITS) – HTML &amp; CSS</li> <li>Certiport Information Technology Specialist (ITS) – HTML5 Application Development</li> <li>Certiport Information Technology Specialist (ITS) – Java</li> <li>Certiport Information Technology Specialist (ITS) – JavaScript</li> <li>Certiport Information Technology Specialist (ITS) – Python</li> <li>Certiport Information Technology Specialist (ITS) – Software Development</li> <li>FAA part 107</li> <li>FANUC CERT – Handling Tool Operations and Programming</li> <li>Microsoft Office – Access Expert 2019/O365</li> <li>Microsoft Office – Excel Expert 2019/O365</li> <li>Oracle Certified Associate (OCA) – Java Programmer</li> <li>SolidEdge Certified Associate</li> <li>SolidWorks Associate</li> </ul>
	21990G1002	Core Applications of Science and Technology – SREB AC	
	21990G1004	Creativity and Innovations – SREB AC	
	21997G1000	CTE Lab in STEM	
	21990G1003	Impacts of Science and Technology – SREB AC	
	21990G1001	The Nature of Science and Technology – SREB AC	
			<ul style="list-style-type: none"> <li>Aerospace Engineer/Tech</li> <li>Aesthetics Specialist</li> <li>Architectural Engineer/Tech</li> <li>Civil Engineer/Tech</li> <li>Control Systems Engineer/Tech</li> <li>Electrical Engineer/Tech</li> <li>Engineer/Technician all Disciplines</li> <li>Environmental Scientist/Specialist</li> <li>Ergonomics Specialist</li> <li>Industrial Engineer/Tech</li> <li>Manufacturing Engineer/Tech</li> <li>Materials Engineer/Tech</li> <li>Mechanical Engineer/Tech/Mgr.</li> <li>Petroleum Engineer/Tech</li> <li>Robotics Engineer/Tech</li> </ul>
<b>*NOTE:</b> LEAs must contact <a href="#">SREB</a> for additional information prior to utilizing any of the course codes listed above with a SREB suffix, as it does require commitment to the conditions in a MOU and participation in mandatory training provided by the provider.			

Career Pathway Program	<b>SREB AC Clean Energy Program</b> <b>(Must teach three courses from this program list within two years)</b> Schools are challenged to better prepare students for a wide array of postsecondary options. The workforce of today and tomorrow demands a higher level of skill — people who grasp complex problems, understand technology, and troubleshoot problems. Advanced Career (AC) answers both needs. By fusing a rigorous academic core with challenging project work and advanced technology in a career pathway program of study, AC courses give students a greater depth of knowledge and skills and prepare them for more options after high school. Clean Energy is for students who want to apply their science and math skills and apply engineering processes as they tackle the world's energy needs within a green point of view.		
	Course Number	Career Pathway Program Courses	Workforce Careers
	18506G1014	<b>SREB AC – Clean Energy Systems – Required Foundation Course</b>	<ul style="list-style-type: none"> <li>• Control Systems Engineer/Tech</li> <li>• Electrical Engineer/Tech</li> <li>• Environmental Engineer</li> <li>• Environmental Scientist/Specialist</li> </ul>
	21047G1001	Career Pathway Project in STEM	
	21990G1000	CTE Lab in STEM	
	18506G1024	SREB AC – Clean Energy Application	
	18506G1044	SREB AC – Clean Energy Innovations	
	18506G1034	SREB AC – Clean Energy Strategies	
		<ul style="list-style-type: none"> <li>• Autodesk Inventor Certified User</li> <li>• Autodesk – AutoCAD Certified User</li> <li>• Autodesk – Fusion 360 Certified User</li> <li>• Autodesk – Revit Certified User</li> <li>• Certiport Information Technology Specialist (ITS) – Databases</li> <li>• Certiport Information Technology Specialist (ITS) – HTML &amp; CSS</li> <li>• Certiport Information Technology Specialist (ITS) – HTML5 Application Development</li> <li>• Certiport Information Technology Specialist (ITS) – Java</li> <li>• Certiport Information Technology Specialist (ITS) – JavaScript</li> <li>• Certiport Information Technology Specialist (ITS) – Python</li> <li>• Certiport Information Technology Specialist (ITS) – Software Development</li> <li>• Construction and Skilled Trade Assessment (CAST)</li> <li>• FAA Part 107</li> <li>• FANUC CERT – Handling Tool Operations and Programming</li> <li>• Microsoft Office – Access Expert 2019/O365</li> <li>• Microsoft Office – Excel Expert 2019/O365</li> <li>• NCCER Core (Module 6 is an elective and not required for CRI)</li> <li>• Oracle Certified Associate (OCA) – Java Programmer</li> <li>• SolidEdge Certified Associate</li> <li>• SolidWorks Associate</li> </ul>	

Career Pathway Program	<b>Middle School STEM Technologies Program</b> STEM Technologies provide students with knowledge and processes needed to begin their attainment of technological literacy and awareness of careers in science, technology, engineering, and mathematics. Students gain knowledge and skills in the application, design, production, and assessment of products, services, and systems in a variety of areas.		
	Course Number	Career Pathway Program Courses	In Demand Occupations
	21052G0608	STEM Technologies I	<ul style="list-style-type: none"> <li>• Aerospace Engineer/Tech</li> <li>• Aesthetics Specialist</li> <li>• Architectural Engineer/Tech</li> <li>• Civil Engineer/Tech</li> <li>• Control Systems Engineer/Tech</li> <li>• Electrical Engineer/Tech</li> <li>• Engineer/Technician all Disciplines</li> <li>• Environmental Scientist/Specialist</li> <li>• Ergonomics Specialist</li> <li>• Industrial Engineer/Tech</li> <li>• Manufacturing Engineer/Tech</li> <li>• Materials Engineer/Tech</li> <li>• Mechanical Engineer/Tech/Mgr.</li> <li>• Petroleum Engineer/Tech</li> <li>• Robotics Engineer/Tech</li> </ul>
	21052G0708	STEM Technologies II	
	21052G0808	STEM Technologies III	

Career Pathway Program	*PLTW Middle School (PLTW Gateway) Program		
	From launching space explorations to delivering safe, clean water to communities, engineers find solutions to pressing problems and turn their ideas into reality. PLTW Engineering empowers students to step into the role of an engineer, adopt a problem-solving mindset, and make the leap from dreamers to doers. The program's courses engage students in compelling, real-world challenges that help them become better collaborators and thinkers. Students take from the courses in-demand knowledge and skills they will use in high school and for the rest of their lives, on any career path they take.		
Course Number	Career Pathway Program Courses	Career Readiness Indicator (CRI)	In Demand Occupations
10099G6800	App Creators-PLTW	N/A	<ul style="list-style-type: none"><li>• Aerospace Engineer/Tech</li><li>• Aesthetics Specialist</li><li>• Architectural Engineer/Tech</li><li>• Civil Engineer/Tech</li><li>• Control Systems Engineer/Tech</li><li>• Electrical Engineer/Tech</li><li>• Engineer/Technician all Disciplines</li><li>• Environmental Scientist/Specialist</li><li>• Ergonomics Specialist</li><li>• Industrial Engineer/Tech</li><li>• Manufacturing Engineer/Tech</li><li>• Materials Engineer/Tech</li><li>• Mechanical Engineer/Tech/Mgr.</li><li>• Petroleum Engineer/Tech</li><li>• Robotics Engineer/Tech</li></ul>
21009G0708	Automation and Robotics – PLTW		
10099G6801	Computer Science for Innovators and Makers – PLTW		
21007G0708	Design and Modeling – PLTW		
21024G0708	Energy and the Environment – PLTW		
21019G0708	Flight and Space – PLTW		
21024G0608	Green Architecture – PLTW		
21023G0708	Magic of Electrons – PLTW		
14001G0608	Medical Detectives – PLTW		
21051G0708	Science and Technology – PLTW		
<b>*NOTE:</b> This is a purchased curriculum. <u>LEAs must contact PLTW for additional information prior to utilizing the course codes listed above with a PLTW suffix</u> , 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	<b>*We Build It Better Middle School Program</b> This program, delivered through seven We Build It Better innovation kits, will introduce inventive technologies, expose students to techniques that help build new skill sets, provide hours of curriculum and activities, offer unique resources, and promote career awareness. Aimed at middle school students, the overall objective of the program is to weave 21st century work skills with higher level thinking skills such as measurement, product design, tools, electrical wiring, fiber optics and coding to encourage students to design inventions on their own.		
Course Number	Career Pathway Program Courses	Career Readiness Indicator (CRI)	In Demand Occupations
21052G6800	We Build It Better	N/A	<ul style="list-style-type: none"><li>• Aerospace Engineer/Tech</li><li>• Aesthetics Specialist</li><li>• Architectural Engineer/Tech</li><li>• Civil Engineer/Tech</li><li>• Control Systems Engineer/Tech</li><li>• Electrical Engineer/Tech</li><li>• Engineer/Technician all Disciplines</li><li>• Environmental Scientist/Specialist</li><li>• Ergonomics Specialist</li><li>• Industrial Engineer/Tech</li><li>• Manufacturing Engineer/Tech</li><li>• Materials Engineer/Tech</li><li>• Mechanical Engineer/Tech/Mgr.</li><li>• Petroleum Engineer/Tech</li><li>• Robotics Engineer/Tech</li></ul>
<b>*NOTE:</b> This is a purchased curriculum. <u>LEAs</u> must contact WBIB for additional information prior to utilizing the course codes listed above, as it requires participation in mandatory training and purchase of specific training equipment.			



**2023 – 2024 Subject and Personnel Codes**  
**STEM Engineering Cluster and Middle School Program**

Course Number	Course Name
21013G1022	Advanced Aerospace Technology-SREB AC
21013G1001	Aeronautics Engineering Applications-SREB AC
21019G1000	Aerospace Engineering-PLTW
21002G1000	Applications of Engineering and Technology
21013G1002	Astronautics Engineering Applications-SREB AC
21015G1000	Basic Programming for Engineers
21047G1000	Capstone of Engineering and Technology
21047G1001	Career Pathway Project in STEM
21021G1000	Civil Engineering and Architecture-PLTW
21015G1001	Computer Engineering and Technology
21022G1000	Computer Integrated Manufacturing-PLTW
21990G1002	Core Applications of Science and Technology-SREB AC
21990G1004	Creativity and Innovations-SREB AC
21997G1000	CTE Lab in STEM
21023G1000	Digital Electronics-PLTW
21025G1000	Engineering Design and Development-PLTW
21026G1000	Engineering Essentials-PLTW
21014G1000	Environmental Engineering
21024G1000	Environmental Sustainability-PLTW
21005G1000	Foundations of Engineering and Technology
21013G1012	Fundamentals of Aerospace Technology-SREB AC
21105G1001	Greenpower F24 Eng Design & Race Ch I
21105G1002	Greenpower F24 Eng Design & Race Ch II
21990G1003	Impacts of Science and Technology-SREB AC
21017G1000	Introduction to Engineering Design-PLTW
21018G1000	Principles of Engineering-PLTW
21009G1000	Robotics Systems
21990G1001	The Nature of Science and Technology-SREB AC
<b>Middle School Courses</b>	
10099G1001	App Creators – PLTW
21009G0708	Automation and Robotics – PLTW
10012G0608	Computer Science Discoveries
10099G6801	Computer Science for Innovators and Makers – PLTW
21007G0708	Design and Modeling – PLTW
21024G0708	Energy and the Environment – PLTW
21019G0708	Flight and Space – PLTW
21024G0608	Green Architecture – PLTW
21105G0708	Introduction to Greenpower
21023G0708	Magic of Electrons – PLTW
14001G0608	Medical Detectives – PLTW
21051G0708	Science and Technology – PLTW
21052G0608	STEM Technologies I
21052G0708	STEM Technologies II
21052G0808	STEM Technologies III
21052G6800	We Build It Better

<b>Shared Courses</b>			
Course Number	Course Name	Cluster(s)	Required Year to Implement COS
10099G6806	App Creators – PLTW	Information Technology	N/A
10012G0608	Computer Science Discoveries	Business Middle School Information Technology	N/A
10099G6801	Computer Science for Innovators and Makers – PLTW	Information Technology	N/A
21009G1000	Robotics Systems	Information Technology	2021-2022

## College and Career Readiness Indicator Course Matrix

Program Name	CTE Engineering	Project Lead The Way (PLTW) Engineering	SREB AC Aerospace Engineering	SREB AC Innovations in Science and Technology
<b>Foundation Course(s)</b>	Foundations of Engineering and Technology	Engineering Essentials – PLTW	Fundamentals of Aerospace Technology – SREB AC	The Nature of Science and Technology – SREB AC
<b>Concentrator Course(s)</b>	Applications of Engineering and Technology Basic Programming for Engineers Computer Engineering and Technology Environmental Engineering Robotics Systems	Aerospace Engineering – PLTW Civil Engineering and Architecture – PLTW Computer Integrated Manufacturing – PLTW Computer Science Essentials – PLTW Digital Electronics – PLTW Engineering Design and Development – PLTW Environmental Sustainability – PLTW Introduction to Engineering Design – PLTW Principles of Engineering – PLTW	Advanced Aerospace Technology – SREB AC Aeronautics Engineering Applications – SREB AC	Core Applications of Science and Technology – SREB AC Impacts of Science and Technology – SREB AC
<b>Capstone Course(s)</b>	Capstone of Engineering and Technology Career Pathway Project in STEM CTE Lab in STEM	Career Pathway Project in STEM CTE Lab in STEM	Career Pathway Project in STEM CTE Lab in STEM Aeronautics Engineering Applications – SREB AC	Career Pathway Project in STEM CTE Lab in STEM Creativity and Innovations – SREB AC

Program Name	SREB AC Clean Energy Program	Greenpower
<b>Foundation Course(s)</b>	SREB AC – Clean Energy Systems	Introduction to Greenpower
<b>Concentrator Course(s)</b>	SREB AC – Clean Energy Application	Greenpower F24 Eng Design & Race Ch I
	SREB AC – Clean Energy Innovations	Greenpower F24 Eng Design & Race Ch II
<b>Capstone Course(s)</b>	Career Pathway Project in STEM	Career Pathway Project in STEM
	CTE Lab in STEM	CTE Lab in STEM
	SREB AC – Clean Energy Strategies	

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.**