

Cooper River Center for Advanced Studies



Program of Study

1088 East Montague Avenue, North Charleston, SC 29405

WELCOME

Dear CCSD Stakeholders,

Cooper River Center is determined to transform our community by offering students authentic educational experiences that will prepare them for college and skilled careers.

We welcome you and thank you for reviewing our Program of Study. Our educational philosophy is based on high-quality instruction, a culture of high expectations, a belief that all students can excel, and a “whatever it takes” attitude. Every member of our team has pledged to ensure that our students secure the academic knowledge and employability skills needed to excel in college and to become highly skilled professionals. We believe the training our students receive will create opportunities for them to pursue high-wage career fields and make an indelible contributions to our community by filling the need in high demand career fields.

We have a heightened sense of urgency to help our students each day; plan, prepare, and pursue careers for the 21st century global economy.

Sincerely,



Vanessa P. Brown, M.A.T, M.Ed
Principal



EQUITY STATEMENT

Cooper River Center for Advanced Studies is committed to providing access to all students ensuring equitable opportunity to high-wage, high-demand technical career fields. We understand that equity work means providing access to training and individualized support to each student through a network of community and business partners for academic, industry, and workforce certifications.

VISION STATEMENT

Cooper River is a regional career and technical education center preparing students for professional certifications. Industry expert instructors provide training, guidance and support allowing students to pursue competitive wage and high demand college and career fields through a network of community and business partnerships.

MISSION STATEMENT

Plan. Prepare. Pursue.
Developing Highly Trained Professionals

MOTTO

Developing Highly Trained Professionals

CORE VALUES

Innovation, Perseverance,
Integrity, Advocacy, Respect

Cooper River Center for Advanced Studies is a career and technical education center serving high school students from four local high schools: Burke High, Military Magnet Academy, North Charleston High, and R.B. Stall High. Cooper River CAS is designed to ensure all students are college and/or career ready. The center trains students for industries such as: Manufacturing, Automotive Collision and Repair, Health Sciences, and Engineering. Students gain real work experience through job shadowing, internships, fellowships and apprenticeships.



Cooper River Ethical A's

Cooper River CAS

Internship Site

e-Learning

Attitude

- Have a Growth-Mindset
- Have a Positive Outlook
- Be a Problem Solver
- Be Cooperative
- Be Productive
- Be Polite
- Be Mannerable

- Have a Growth-Mindset
- Have a Positive Outlook
- Be a Problem Solver
- Be Cooperative
- Be Coachable
- Be Polite
- Be Mannerable

- Have a Growth-Mindset
- Be Cooperative
- Be an Active Participant
- Be Polite
- Be Mannerable

Accountability

- Communicate Professionally
- Arrive Early
- Perform Your Duty
- Be Trustworthy
- Do Your Best Work
- Adhere to Deadlines

- Arrive Early
- Be Responsible
- Communicate Professionally
- Adhere to Deadlines

- Arrive Early
- Turn Camera On
- Be an Active Participant
- Turn in Assignments/Projects On Time
- Adhere to Deadlines
- Do Your Best Work

Appearance

- Dress in Compliance with CCSD Dress Code
- Dress Professionally and Maintain Good Personal Hygiene At All Times
- Wear Appropriate Personal Protective Equipment According to OSHA Standards
- Wear Appropriate Program Specific Dress as Designated by Instructor

- Dress Professionally and Maintain Good Personal Hygiene At All Times
- Wear Appropriate Industry Dress
- Wear Appropriate Personal Protective Equipment According to OSHA Standards

- Dress in Compliance with CCSD Dress Code
- Dress Professionally and Maintain Good Personal Hygiene At All Times

Appropriate

- Be Mannerable
- Be Responsible
- Be Respectful of Self, Others, Property, and Conversations
- Show Integrity by Being Dependable, Honest, Trustworthy and Punctual
- Take Initiative
- Perform Quality Work

- Be Respectful of Self, Others, Property, and Conversations
- Take Initiative
- Perform Quality Work
- Show Integrity by Being Dependable, Honest, Trustworthy and Punctual
- Be Mannerable

- Turn Camera On
- Have Microphone Muted Unless Speaking
- Be Respectful of Self, Others, Property, and Conversations
- Show Integrity by Being Dependable, Honest, Trustworthy and Punctual
- Be Mannerable

Aptitude

- Learn From Mistakes
- Take Initiative to Explore New Ideas
- Enhance Your Skill Sets
- Ask for Help When Needed
- Have a Growth Mindset
- Be Licensed and/or Certified

- Learn From Mistakes
- Take Initiative to Explore New Ideas
- Enhance Your Skill Sets
- Ask for Help When Needed
- Have a Growth Mindset
- Be Licensed and/or Certified

- Embrace Virtual Learning
- Learn From Mistakes
- Take Initiative to Explore New Ideas
- Enhance Your Skill Sets
- Ask for Help When Needed
- Have a Growth Mindset
- Be Licensed and/or Certified

SOUTH CAROLINA GRADUATION REQUIREMENTS

South Carolina Board of Education (SBE) Regulation 43-234 lists course requirements for public high school students to graduate with a South Carolina High School Diploma.

SUBJECT AREA	CREDITS REQUIRED	CREDIT REQUIREMENTS FOR CLASSES OF 2027 AND BEYOND
ENGLISH / LANGUAGE ARTS	4	4
MATHEMATICS	4	4
NATURAL SCIENCE	3** & ***	3** & ***
U.S. HISTORY	1	1
ECONOMICS	0.5****	0.5****
U.S. GOVERNMENT	0.5	0.5
OTHER SOCIAL STUDIES ELECTIVE	1	1
PHYSICAL EDUCATION OR JROTC	1	1
COMPUTER SCIENCE	1	1
WORLD LANGUAGE OR CAREER & TECHNOLOGY EDUCATION ELECTIVE	1**	1**
ELECTIVES	7*&**	6.5
PERSONAL FINANCE	n/a	.5
TOTAL	24	24

*Must include a program of instruction in health as outlined in the Comprehensive Health Education Act of 1988 and the regulation of the S.C. Board of Education.

**Additional requirements may apply in Natural Science, Foreign Language and Fine Arts for students planning to attend a four-year college. Those are noted below in the section outlining S.C. College and University Admission Requirements.

***The Student must pass a high school credit course in science in which an end-of-course examination is administered. For state accountability purposes, every student must take an end-of-course examination in Biology.

****Based upon state legislation, beginning in 2023, high school students will be required to take a one-semester, half credit personal finance class in order to graduate. The SC Department of Education is developing regulations to update graduation requirements in the fall of 2022. The language of the legislation appears to indicate it will begin for 9th graders in the 2022-2023 academic year who will be graduating in 2026. Once additional requirement details are provided by the state, content will be update for the 2023-2024 Guide.

For students interested in entering a South Carolina four-year public college or university, page 30 lists courses that are required upon graduation. Please ask your school counselor for specific information regarding your individual high school course pathways.

PROFILE OF THE SOUTH CAROLINA GRADUATE

WORLD-CLASS KNOWLEDGE

Rigorous standards in language arts and math for career and college readiness

Multiple languages, science, technology, engineering, mathematics (STEM), arts and social sciences



WORLD-CLASS SKILLS

Creativity and Innovation

Critical Thinking and Problem Solving

Collaboration and Teamwork

Communication, Information, Media and Technology

Knowing How to Learn

LIFE AND CAREER CHARACTERISTICS

Integrity | Self Direction | Global Perspective | Perseverance | Work Ethic | Interpersonal Skills

© SCASA Superintendents' Roundtable

Adopted by: SC Arts in Basic Curriculum Steering Committee, SC-ASCD, SC Chamber of Commerce, SC Council on Competitiveness, SC Education Oversight Committee, SC State Board of Education, SC State Department of Education, Transform SC Schools and Districts



An Initiative of



COLLEGE AND CAREER READINESS INDICATORS

South Carolina recognizes the value of a variety of measures for college and career readiness to achieve the Profile of the South Carolina Graduate. Students have multiple pathways to college and careers based upon their individual goals. Students should demonstrate they are "ready" for the next level (*i.e. two-year college, four-year college or careers*) by meeting any one of the measures used by the state and by not requiring remediation or significant on-the-job training to enter their post-secondary choice. In South Carolina, a student is considered college and career-ready by meeting at least one of the marks listed below.



To be **COLLEGE-READY**, a student must meet one of the following:

- Scores a composite score of 20 or higher on the ACT

OR

- Scores a composite score of 1020 or higher on the SAT

OR

- Scores a 3 or higher on an Advanced Placement (AP) exam

OR

- Scores a 4 or higher on an International Baccalaureate (IB) assessment (Only higher learning (HL) exams may count)

OR

- Completes at least six (6) credit hours in dual-enrollment courses with a grade of C or higher.



To be **CAREER-READY**, a student must meet one of the following:

- Is a CTE completer and earns a national or state industry credential as determined by the business community

OR

- Earns a Silver, Gold or Platinum National Career Readiness Certificate on the state-approved career readiness assessment

OR

- Earns a scale score of 31 or higher on the ASVAB

OR

- Successfully completes a state-approved work-based learning program

OR

- Is identified as a student with a disability who successfully completes the South Carolina High School Employability Credential according to their Individualized Education Plan (IEP)

A **CTE Concentrator** is a secondary student with an assigned CIP code who has completed at least two identified courses in a state recognized CTE program or program of study.

CIP Codes identify specific CTE programs. Every student identified as a CTE Concentrator must be assigned a CIP code approved by the OCTE.

A **CTE Completer** is a concentrator who has earned all of the required units in a state recognized CTE program identified by the assigned CIP code.

AUTOMOTIVE COLLISION & REPAIR

The Transportation, Distribution, and Logistics Cluster incorporates career opportunities in all aspects of Automotive Collision, Automotive Technology, Diesel Technology, Small Engine Technology, Warehousing, Material Handling, and Distribution and Logistics. Students are engaged in the planning, management, and movement of people, materials, and goods by road, pipeline, air, rail, and water.

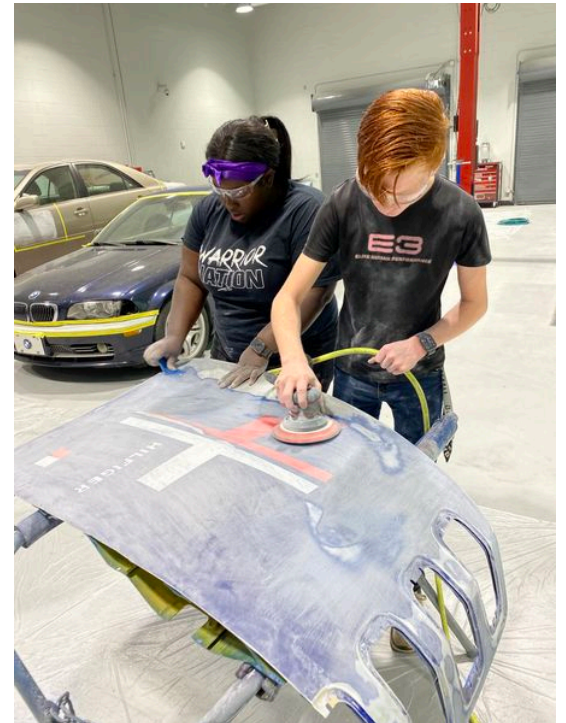
The standards listed are intended to serve as guides to assist teachers and administrators in providing an instructional program that is current and relevant. Transportation, Distribution, and Logistics skill standards address what a worker needs to know and are able to do to contribute to a safe, productive, and effective work environment. Students will be properly prepared for their careers when the standards are integrated with quality instructional techniques. The standards provide a secure foundation for future training in the student's career.

COURSE OFFERINGS

AUTOMOTIVE COLLISION REPAIR TECHNOLOGY 1 - 4

The Automotive Collision Repair Technology program is designed to prepare students to repair automobiles and light commercial vehicles under the supervision of an experienced automotive collision repair technician. Automotive Collision Repair Technology students receive instruction in frame alignment, surface finishing, and shop management. Upon successful completion of the program standards, the student will have the opportunity to acquire I-CAR Pro Level 1, be prepared for postsecondary education, and entry-level automotive collision repair-related careers. Program standards are based on Vehicle Manufacturers, and I-CAR industry standards.

[Standards](#)



CERTIFICATIONS

- [I-CAR Pro Level 1](#)

GLOBAL LOGISTICS AND SUPPLY CHAIN MANAGEMENT



Global logistics and supply chain management connect the internal functions of an organization with other institutions around the globe. It is vital to understand the roles of logistics and supply chain management in a global economy where individuals and organizations have access to markets across the world. This field requires critical thinking and problem-solving skills to coordinate the movement of goods and services that may be separated by a few feet or thousands of miles. In an industry always striving for optimization, decision-making skills are paramount. The AC Global Logistics & Supply Chain Management (GLSCM) pathway enables students

to practice innovative and critical thinking skills as they develop solutions to authentic logistics problems businesses regularly face both locally and internationally. Students will learn the complexities businesses deal with in securing raw materials from distant locations, moving them across multiple borders, receiving them in various ports, transporting them to warehouses accessible through multiple modes of transportation, storing them efficiently or employing the just-in-time model, and then distributing them to customers through networks that properly balance transit time with a cost. Logistics is indispensable for the U.S. economy, constituting nearly 9 percent of the gross domestic product (GDP). Completers of the GLSCM pathway master extensive field related technical content that prepares them for a wide array of opportunities after high school.

COURSE OFFERINGS

INTRODUCTION TO LOGISTICS

This course engages students in solving contextual problems related to the concepts of supply chains, warehouse location, contingency planning, insourcing and outsourcing, and expanding existing supply chains. These concepts form the basis of global logistics and supply chain management and help students understand how professionals examine options to maximize the use of resources across distribution networks

FUNCTIONAL AREAS IN LOGISTICS

This course compels students to explore deeper understandings of the concepts they discovered in the previous course as they navigate projects on warehouse design, inventory management, transportation optimization, information technology, emergency responsiveness, and the supply chain for manufacturing. Students use their experiences in this course to discover ways that professionals minimize the outlay of resources while improving efficiency and ability in the global market.

GLOBAL LOGISTICS MANAGEMENT

This advanced course offers challenging projects that require students to look at the global implications of the industry in more earnest as they experiment with decisions over intermodal transportation, route selection, international shipping regulations, emergency preparedness, cultural awareness, business ethics, and international trade restrictions related to a distribution strategy. Students develop their understanding of the industry in this course and truly build their awareness of the challenges of doing business in a world with multiple borders that must be traversed.

LOGISTICS AND SUPPLY CHAIN MANAGEMENT

This advanced course allows students to see the implications of all the concepts they learned in the previous three courses as they consider environmental impact, selecting business partners in a global and domestic chain, information technology, and decisions regarding e-commerce. Students explore the ongoing need to balance dependability and resource outlay in meeting customer demands around the world. Projects will expand students' decision-making skills as they tackle issues related to transportation, distribution networks, and manufacturing.



ARCHITECTURE & CONSTRUCTION

Architecture and construction courses can introduce students to the construction industry and related career fields in construction management, architecture, building construction inspection, and planning

and design. Many students move quickly from basic construction training into estimating, and project management with high paying jobs. The course standards answer the question "What does a worker



need to know and be able to do to contribute to the delivery of skills to the architecture and construction industry". The following courses of study prepare students for nationally recognized industry credentials, which increase dramatically the chances of high paying careers. Students with industry credentials are always considered first by employers.

COURSE OFFERINGS

BUILDING CONSTRUCTION 1 - 4

The Construction Technology program offers students practical training in the entire range of residential and light commercial building techniques including estimating building costs, carpentry, residential wiring, residential plumbing, blueprint reading, construction, building codes, and safety. Classroom knowledge is enhanced through multiple hands-on projects. Successful completion of the program curriculum will provide students with the opportunity to become eligible for

industry-recognized credentials and certifications.

[Standards](#)

PROJECT LEAD THE WAY BIOMEDICAL SCIENCE

Working with the same equipment and tools used by lab professionals, PLTW Biomedical Science students are empowered to explore and find solutions to some of today's most pressing medical challenges. Through scaffolded activities that connect learning to life, students step into the roles of biomedical science professionals and investigate topics including human medicine, physiology, genetics, microbiology, and public health. Students work together in teams to find unique solutions, and in the process, learn in-demand, transferable skills like critical thinking and communication.

[PLTW BIOMEDICAL SCIENCE INFORMATION](#)

COURSE OFFERINGS

PRINCIPLES OF BIOMEDICAL SCIENCE

In this course, students explore concepts of biology and medicine as they take on the roles of different medical professionals to solve real-world problems. Throughout this course, students are challenged in various scenarios including investigating a crime scene to solve a mystery, diagnosing and proposing treatment to patients in a family medical practice, tracking down and containing a medical outbreak at a local hospital, stabilizing a patient during an emergency, and collaborating with others to design solutions to local and global medical problems.

[Standards](#)

HUMAN BODY SYSTEMS

Students examine the interactions of human body systems as they explore identity, power, movement, protection, and homeostasis in the body. Exploring science in action, students build organs and tissues on a skeletal Maniken®; use data acquisition software to monitor body functions such as muscle movement, reflex and voluntary action, and respiration; and take on the roles of biomedical professionals to solve real-world medical cases.

[Standards](#)

MEDICAL INTERVENTIONS

Medical Interventions (MI) allows students to investigate the variety of interventions involved in the prevention, diagnosis, and treatment of disease as they follow the lives of a fictitious family. A “How-To” manual for maintaining overall health and homeostasis in the body, the course will explore how to prevent and fight infection, how to screen and evaluate the code in our DNA, how to prevent, diagnose, and treat cancer, and how to prevail when the organs of the body begin to fail. Through these scenarios, students will be exposed to a wide range of interventions related to immunology,



surgery, genetics, pharmacology, medical devices, and diagnostics. Each family case scenario will introduce multiple types of interventions, reinforce concepts learned in the previous two courses, and present new content. Interventions may range from simple diagnostic tests to treatment of complex diseases and disorders. These interventions will be showcased across the generations of the family and will provide a look at the past, present, and future of biomedical science. Lifestyle choices and preventive measures are emphasized throughout the course, as well as the important role that scientific thinking and engineering design play in the development of interventions of the future.

[Standards](#)

BIOMEDICAL INNOVATION

In the Biomedical Innovation course, students will be asked to apply what they have learned in the previous three courses to solve unique problems in science, medicine, and healthcare. Students will work systematically through required problems before completing optional directed problems or independent work. Each problem is staged as a mission – a unique set of tasks the students must work through to achieve their desired objective. Students are presented with each problem in a Mission File – a document that includes a case brief, a list of completion tasks, links to available resources, as well as a reflection section. Working through the missions not only exposes students to current issues in biomedical science, but it also provides skills-based instruction in research and experimentation – tools students will use to design innovative solutions to real-world problems. Students will use what they learn in these missions as they develop and implement their independent project at the end of the year.

[Standards](#)

CERTIFICATIONS

- OSHA Health Science Safety Certification
- First Aid CPR/AED
- Stop the Bleed

HEALTH SCIENCE

The mission of South Carolina secondary health science education programs is to prepare high school students with broad foundational knowledge and skills needed by all healthcare professionals. Programs are tailored to meet the needs of individual students and postsecondary education requirements. Through HOSA Future Health Professionals, a career and technical student organization that supports the health



science career cluster, students have opportunities to develop their leadership skills, participate in community service, and apply for scholarship awards. Community resources and healthcare industry partnerships strengthen the delivery of the health science program of study that integrates academics, specific health science courses, and portfolio development, along with a variety of work-based learning opportunities. Work-based learning experiences may include job shadowing, internships, and other clinical experiences that allow students to observe and learn from healthcare professionals. Students enrolled in a health science program of study leave high school better prepared for further education and/or immediate employment in the healthcare field.



COURSE OFFERINGS

MEDICAL TERMINOLOGY

Medical terminology is designed to develop a working knowledge of the language of health professions. Students acquire word-building skills by learning prefixes, suffixes, roots, combining forms, and abbreviations. Utilizing a body systems approach, students will define, interpret, and pronounce medical terms relating to structure and function, pathology, diagnosis, clinical procedures, and pharmacology. Students will use problem-solving techniques to assist in developing an understanding of course concepts.

[Standards](#)

HEALTH SCIENCE 1

Health Science 1, Foundations of Healthcare Professions, is an introductory course designed to provide students with an overview of healthcare careers and foundational skills to begin their journey toward the future as healthcare professionals.

[Standards](#)

HEALTH SCIENCE 2

Health Science 2, Advanced Healthcare Applications. The course is designed to provide for the development of advanced knowledge and skills related to a wide variety of health careers. Students will employ hands-on experience for continued knowledge and skill development.

[Standards](#)

HUMAN STRUCTURE, FUNCTION, AND DISEASE

Health Science Human Structure, Function, and Disease acquaints students with basic anatomy and physiology of the human body. Students learn how the human body is structured and the function of each of the 12 body systems. Students will study the relationship that body systems have with disease from the healthcare point of view. This is a very “hands-on” course, and students will learn through projects and activities in the classroom. Skill procedures and foundation standards are reviewed and integrated throughout the program. Job shadowing is encouraged. This course does not count as a lab science.

[Standards](#)

CERTIFICATIONS

- OSHA Workplace Safety - General Industry
- Stop the Bleed
- BLS
- HIPPA

- FAST
- CCMA

INFORMATION TECHNOLOGY

Information Technology cluster includes courses and/or programs related to designing, developing, managing, and operating communication and information technology networks and related hardware and software for the recording, storage, transformation, transmission, and distribution of voice, video, images, and data including both telecommunications and computing services. Information Technology careers involve the design, development, support, and management of hardware, software, multimedia, and systems integration services. Technological



advances and global competition have transformed the nature of work. Tomorrow's jobs will require more knowledge, better skills, and more flexible workers than ever before. Tomorrow's workers must be prepared to change jobs and careers several times.

COURSE OFFERINGS

INTRO TO COMPUTER PROGRAMMING

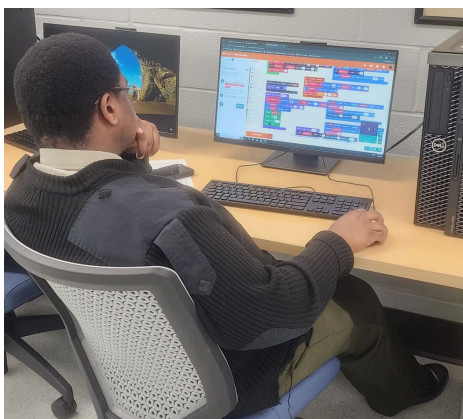
This course is designed to emphasize the fundamentals of computer programming. Topics include computer software, program design and development, and practical experience in programming using modern, text-based programming languages.

[Standards](#)

INTERMEDIATE COMPUTER PROGRAMMING

This course is designed to expand upon the fundamental programming skills acquired in Introduction to Computer Programming (Computer Programming 1). Topics include intermediate program design and development techniques, security and ethics, and practical experience in programming using a modern, text-based programming language.

[Standards](#)



ADVANCED COMPUTER PROGRAMMING

This course is the capstone course in the Programming and Software Development program. Students are expected to use advanced skills and knowledge from Introduction and Intermediate Computer Programming. The purpose of the course is to allow students to develop a project that demonstrates accumulated skills in time management, research, problem-solving, human interaction, organization, and public speaking as related to computer science and that has a meaningful impact on industry and community stakeholders.

[Standards](#)

DATABASE DESIGN AND PROGRAMMING SQL

This course is geared to meet the learning needs of a variety of students, from those interested in gaining broad exposure to business and technical skills to students planning on pursuing a technical education or career. This course utilizes an Oracle-hosted, state-of-the-art lab environment to build database design and programming skills. Students analyze case studies to identify data patterns and connections to design relational databases. Students create entity relationship diagrams (ERDs) while building collaboration and problem-solving skills. Students build and modify databases using structured query language (SQL), the industry-standard database programming language.

[Standards](#)

CERTIFICATIONS

- OSHA
- Python Certification
- Java Certification
- PCEP Certification
- Oracle Foundations of Database Design Certification

In Fundamentals of CyberSecurity, the first course in the Computer and Information Systems Security/Information Assurance program, students examine the core concepts and terminology of cybersecurity and information assurance, integrating the importance of cyber threats and vulnerabilities, computer and network architecture, network security, operating systems, operational security, cryptography, system security, incident handling, and other topics that prepare students for the Advanced Cyber Security course. Upon successful completion of this first course, students will be prepared to earn an entry-level career-ready certification.

COURSE OFFERINGS

PLTW COMPUTER SCIENCE ESSENTIALS

PLTW CSE introduces students to coding fundamentals through an approachable, block-based programming language where they will have early success in creating usable apps. As students sharpen their computational thinking skills, they will transition to programming environments that reinforce coding fundamentals by displaying block programming and text-based programming side-by-side. Finally, students learn the power of text-based programming as they are introduced to the Python programming language.

This course engages students in computational thinking practices and collaboration strategies, as well as industry standard tools authentic to how computer science professionals work. Students will learn about professional opportunities in computer science and how computing can be an integral part of all careers today.

[Standards](#)

CYBERSECURITY FUNDAMENTALS

This course introduces students to basic cybersecurity concepts and inspires interest in cybersecurity careers. The focus of instruction will include the implementation and monitoring of security on network and computer systems. Students will investigate strategies to identify and protect against security threats such as hackers, eavesdropping, and network attacks. The basics of cryptography and logical reasoning will be explored. Hands-on labs in the Cyber.org Range provide practice in the configuration and mitigation of system vulnerabilities. Each unit integrates current events and related cyber ethics and law.

[Standards](#)



PLTW CYBERSECURITY

PLTW Cybersecurity strongly connects to the National Cybersecurity Workforce Framework (also known as the NICE Framework or NCWF). Created by the National Institute of Standards and Technology (NIST), this framework identifies standards developed by numerous academic, industry, and government organizations. The framework objectives address topics that span K-12 education and guide learning progressions. PLTW Cybersecurity gives students a broad exposure to the many aspects of digital and information security while encouraging socially responsible choices and ethical behavior. It inspires algorithmic thinking, computational thinking, and especially, "outside-the-box" thinking. Students explore the many educational and career paths available to cybersecurity experts, as well as other careers that comprise the field of information security.

[Standards](#)

ADVANCED CYBERSECURITY

In Advanced Cyber Security, the second course in the Computer and Information Systems Security/Information Assurance program, students will examine the advanced concepts and terminology of cyber security and information assurance, secure systems and networks against threats, attacks, and vulnerabilities by implementing appropriate architecture and design, implementation of security protocols and controls, operations and incident responses, governance, risk management and compliance. Upon completion of the two courses, students will be prepared to earn industry professional certification(s).

[Standards](#)

CERTIFICATIONS

- OSHA
- 275-Cloud Essentials+
- CodeHS Cyber Security Level 1
- CodeHS Cyber Security Level 2

MECHATRONICS

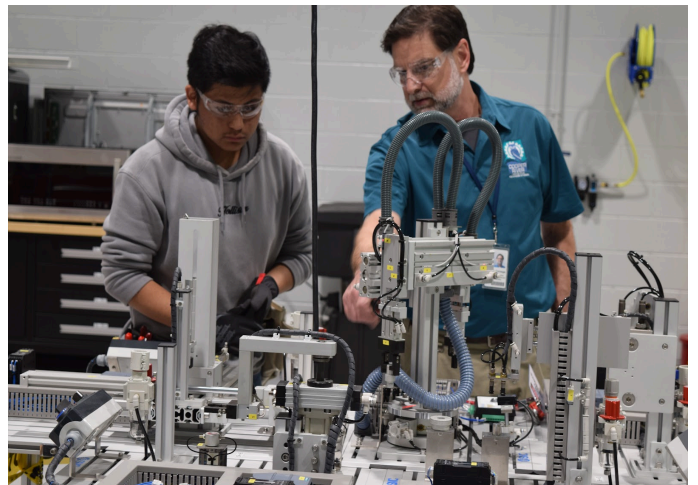
Many Manufacturing jobs are so specialized, they require high levels of skills and training. Manufacturing is a highly competitive industry that continues to grow in South Carolina. The standards listed are intended to serve as guides to assist teachers and administrators in providing an instructional program that is current and relevant.

The Manufacturing skill standards address what a worker needs to know and be able to do to contribute to a safe, productive, and effective work environment. Students will be properly prepared for their careers when the standards are integrated with quality instructional techniques. The standards provide a secure foundation for future training in the student's career. (Standards, Certifications, and Textbooks used are listed below).

COURSE OFFERINGS

MECHATRONICS 1 - EC AND IS

Mechatronics is an interdisciplinary field involving electrical, mechanical, instrumentation, electronics, robotics/automation, computer components, and control systems. The intent of the program is to prepare students with entry-level industrial skills for



the workforce or to prepare them for entry into post-secondary programs. Mechatronics 1 focuses on safety, A/C and D/C circuits, hand and power tools, and precision measurements. Also, students will have the opportunity to acquire industry-recognized certifications such as OSHA within this course. [Standards](#)

MECHATRONICS 2 - MECH COMPONENTS

Mechatronics 2 is the second course in the Mechatronics program of study. This course focuses on programmable logic controllers (PLC), electrical industrial controls, fluid power (pneumatics), and motor controls and starters.

[Standards](#)

MECHATRONICS 3 - ELECTRO PNEUM AND HYDRA

The focus of Mechatronics 3 includes motor controls and starters, hydraulics, electrical test equipment, and professional development.

[Standards](#)

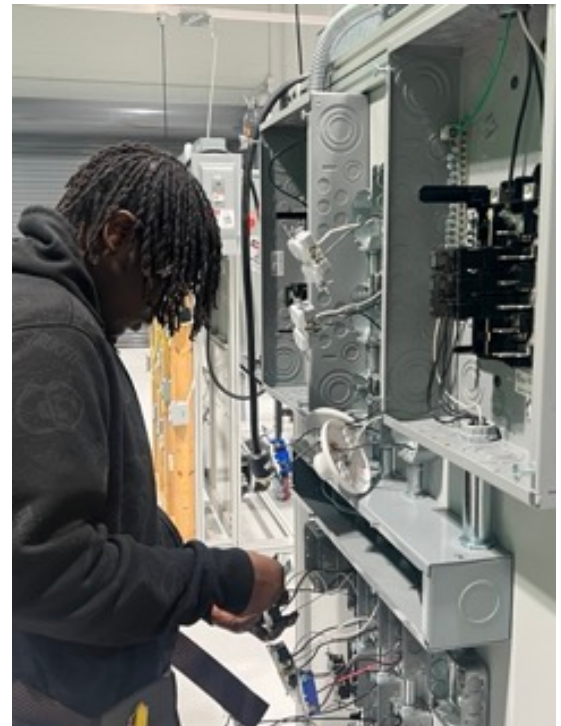
MECHATRONICS 4 - DF AND PC

Mechatronics 4 focuses on advanced levels of mechatronic skills, such as PLCs robotics, mechanical drive systems and A/C circuits. Students may have the opportunity to participate in school-to-work opportunities such as apprenticeship or internship. When in the classroom, students work independently or collaboratively on specialized projects integrating career-ready skills in preparation for entering the workforce or post-secondary institution.

[Standards](#)

Specific topic coverage includes:

- o OSHA and Industry Specific Safety Practices
- o Industry Ethical and Legal Practices
- o Professional Qualities and Employability Skills
- o Professional Reading, Writing, and Communication Skills
- o Soldering and Assembly Techniques
- o Metric and Imperial Mathematical Skills
- o Hand and Power Tool Use and Care
- o Construction and Electrical Drawings
- o National Electrical Code and Power Consumption Calculation
- o Direct and Alternating Current Electronics
- o Electrical Test Equipment
- o Mechanical Components and Electrical Drives
- o Gasoline Powered Engines and Mechanical Applications
- o Electro-Pneumatics and Electro-Hydraulics
- o Digital Fundamentals and Programmable Logic Controllers (PLCs)
- o Industrial and Robotic Control Systems
- o Electrical Motors: Theory and Application



ELECTRONICS TECHNOLOGY 1 - 4

This course is infused with the industry-recognized program for career and technical education: [The National Center for Construction Education and Research \(NCCER\)](#). In the Electronic Systems program, students will be trained in a variety of skill areas. Capable of working in the residential, commercial, and industrial settings. Students will be tasked with demonstrating knowledge of electrical and electronics theory in hands-on practical applications that incorporate a solid background of physical science, algebraic, and geometric reasoning. The skills and duties of Electronic Systems

Technicians (EST) are broad, varied, and in high demand. Upon successful completion of the Electronic Systems Technician program, students will be career and college ready with in-demand, industry-recognized skills and credentials.

Standards

Specific topic coverage includes:

- o OSHA and Industry Specific Safety Practices
- o Industry Ethical and Legal Practices
- o Professional Qualities and Employability Skills
- o Professional Reading, Writing, and Communication Skills
- o Soldering and Assembly Techniques
- o Metric and Imperial Mathematical Skills
- o Hand and Power Tool Use and Care
- o Construction and Electrical Drawings
- o National Electrical Code and Power Consumption Calculation
- o Direct and Alternating Current Electronics
- o Electrical Test Equipment
- o Semiconductor Devices and Digital Electronics
- o Industrial Control Systems
- o Advanced Electronics Technology and Theory
- o Programmable Logic Controllers (PLCs)

MEDIA TECHNOLOGY

Media Technology students will explore the general field of communications focused primarily on media production industries. Students will get hands-on experience in basic production techniques for audio, video, and film. They will work collaboratively while writing, producing, directing, and editing projects of increasing complexity, using industry-standard software and equipment. Students will also learn about related fields such as graphic design, broadcast journalism, animation, sound design and



engineering, special effects, online media development, marketing, and corporate communications.

The competency listings are intended to serve as guides to assist teachers and administrators in providing an instructional program that is current and relevant. Arts, AV Technology, and Communications skill standards address what a worker needs to know and are able to do and contribute to a safe, productive, and effective work environment. Students will be properly prepared for their careers when the standards listed are integrated with quality instructional techniques. The standards provide a secure foundation for future training in the student's career.

COURSE OFFERINGS

MEDIA TECHNOLOGY 1

Media Technology 1 is the first course in the Media Technology program. In this course, students will explore the general field of communications focused primarily on media production industries. Students will get hands-on experience in basic production techniques for audio and video. They will work collaboratively writing, producing, directing, and editing projects using industry-standard software and equipment. Safety is emphasized in this course and students will have the opportunity

to acquire an industry recognized safety certification. Students will also learn about related fields such as graphic design, broadcast journalism, animation, sound design and engineering, special effects, online media development, marketing, and corporate communications.

[Standards](#)

MEDIA TECHNOLOGY 2

Media Technology 2 is the second course in the Media Technology program. In this course, students continue to explore the general field of communications focused primarily on media production industries. Students will get hands-on experience in production techniques for audio and video. They will work collaboratively writing, producing, directing, and editing projects using industry-standard software and equipment. Safety is emphasized in this course and students will have the opportunity

to acquire an industry-recognized safety certification. Students will also learn about related fields such as graphic design, broadcast journalism, animation, sound design and engineering, special effects, online media development, marketing, and corporate communications

[Standards](#)

MEDIA TECHNOLOGY 3

Media Technology 3 is the third course in the Media Technology program. In this course, students continue their in-depth exploration of the general field of communications focused primarily on media production

industries. Students will get hands-on experience in production techniques for audio and video. They will work collaboratively writing, producing, directing, and editing increasingly complex projects using industry-standard software and equipment. A professional media production skill set is emphasized in this course and students are expected to consistently apply these skills to their projects. They will create and refine the necessary professional materials necessary for entry level employment in the media industries. Lastly, students will have the opportunity to acquire industry-recognized certifications.

[Standards](#)

MEDIA TECHNOLOGY 4

Media Technology 4 is the final course in the Media Technology program. In this course, students are expected to demonstrate mastery of media production skill sets and consistently apply these skills to their projects. They will work both independently and collaboratively to produce advanced level projects using industry-standard software and equipment as well as emerging technologies. This course will incorporate work-based learning opportunities, when appropriate and where available. Students are expected to finalize professional materials necessary for entry-level employment in the media industries including attainment of industry-recognized certifications.

[Standards](#)

CERTIFICATIONS

- Osha 10 General Industry
- Adobe Certified Professional in Visual Design
- Visual Design Using Adobe Photoshop
- Digital Video Using Adobe Premiere Pro



- IMDb
- Stop the Bleed

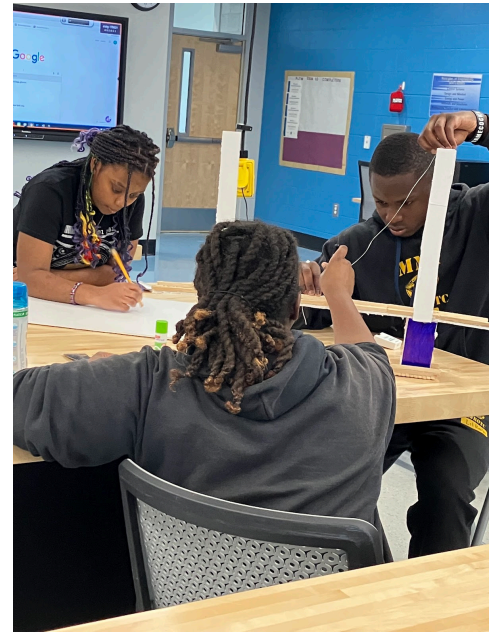
PROJECT LEAD THE WAY ENGINEERING

The Science, Technology, Engineering, and Mathematics Cluster incorporate career opportunities in all aspects of engineering and engineering technologies. Students are engaged in courses such as Introduction to Engineering Design, Principles of Engineering, Digital Electronics, Computer Integrated Manufacturing, Engineering Design and Development, Aerospace Engineering, Biotechnical Engineering, Civil Engineering and Architecture, Gateway to Technology, and Industrial Technology Education that will expose them to scientific research and development and professional and technical services in engineering, including laboratory and testing services.

COURSE OFFERINGS

INTRODUCTION TO ENGINEERING DESIGN

Students dig deep into the engineering design process, applying math, science, and engineering standards to hands-on projects. They work both individually and in teams to design solutions to a variety of problems using 3D modeling software, and use an engineering notebook to document their work.

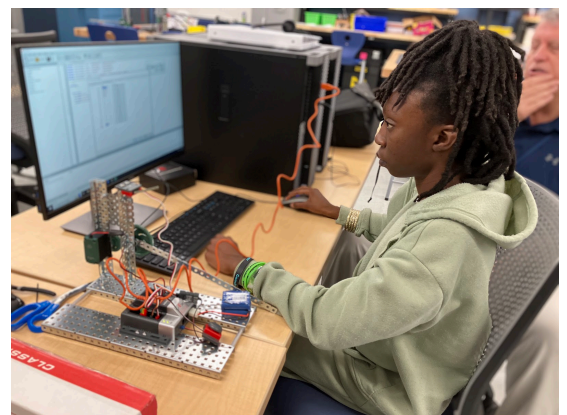


PRINCIPLES OF ENGINEERING DESIGN

Through problems that engage and challenge, students explore a broad range of engineering topics, including mechanisms, the strength of structures and materials, and automation. Students develop skills in problem-solving, research, and design while learning strategies for design process documentation, collaboration, and presentation.

DIGITAL ELECTRONICS

From smartphones to appliances, digital circuits are all around us. This course provides a foundation for students who are interested in electrical engineering, electronics, or circuit design. Students study topics such as combinational and sequential logic and are exposed to circuit design tools used in industry, including logic gates, integrated circuits, and programmable logic devices.



CIVIL ENGINEERING AND ARCHITECTURE

Students learn important aspects of building and site design and development. They apply math, science, and standard engineering practices to design both residential and commercial projects and document their work using 3D architecture design software.

The following pages contain all course offerings for the 2024-2025 school year. Courses may change based on student requests.

Program Name - Level	Course Name	Course Number
Auto Col Repair Tech - 1	Auto Col Repair Tech 1	602000CW
Auto Col Repair Tech - 2	Auto Col Repair Tech 2	602100CW
Auto Col Repair Tech - 3	Auto Coll Rep Tech 3	602200CW
Auto Col Repair Tech - 4	Auto Col Repair 4	602300CW
Biomedical Sciences - 1	PLTW Principles of Biomedical Sciences H	558000HW
Biomedical Sciences - 2	PLTW Human Body Systems H	558100HW
Biomedical Sciences - 3	PLTW Medical Interventions H	558200HW
Biomedical Sciences - 4	PLTW Biomedical Innovation H	558300HW
Building Constr - 1	Building Constr 1	606000CW
Building Constr - 2	Building Constr 2	606100CW
Building Constr - 3	Building Constr 3	606200CW
Building Constr - 4	Building Constr 4	606300CW
Computer Programming - 1	Intro to Computer Programming	505000CW
Computer Programming - 2	Interm Computer Programming	505100CW
Computer Programming - 3	Advanced Computer Programming	537600CW
Computer Programming - 4	Database Design and Programming SQL	532400CW
Cyber Security - 1	PLTW Computer Science Essentials H	637200HW
Cyber Security - 2	Cyber Security Fundamentals	537000CW
Cyber Security - 3	PLTW Cybersecurity H	637800HW
Cyber Security - 4	Advanced Cyber Security	537200CW
Electronics Technology - 1	Electronics Technology 1	613300CW
Electronics Technology - 2	Electronics Technology 2	613400CW
Electronics Technology - 3	Electronics Technology 3	613500CW
Electronics Technology - 4	Electronics Technology 4	613600CW
Engineering - 1	PLTW Intro to Engineer Des H	605100HW
Engineering - 2	PLTW Principles of Engineer H	605000HW
Engineering - 3	PLTW Digital Electronics H	605200HW
Engineering - 4	PLTW Civ Eng and Arch H	605800HW
Health Science - 1	Medical Terminology	554000CW
Health Science - 2	Health Science 1	555000CW
Health Science - 3	Health Science 2	555100CW
Health Science - 4	Human Structure, Function, and Disease	555200CW

Logistics - 1	Introduction to Logistics	619100CW
Logistics - 2	Functional Areas in Logistics	619200CW
Logistics - 3	Global Logistics Management	619300CW
Logistics - 4	Logistics and Supply Chain Management	619400CW
Mechatronics - 1	Mechatronics 1 - EC and IS	621000CW
Mechatronics - 2	Mechatronics 2 - Mech Components	621100CW
Mechatronics - 3	Mechatronics 3 - Electro Pneum and Hydra	621200CW
Mechatronics - 4	Mechatronics 4 - DF and PC	621300CW
Media Technology - 1	Media Technology 1	612400CW
Media Technology - 2	Media Technology 2	612500CW
Media Technology - 3	Media Technology 3	612600CW
Media Technology - 4	Media Technology 4	612700CW

