

Introduction

West Virginia College- and Career-Readiness Programs of Study/Standards for CTE have been developed with the goal of preparing students for a wide range of high-quality postsecondary opportunities within a Simulated Workplace environment. Specifically, college- and career-readiness refers to the knowledge, skills and dispositions needed to be successful in obtaining an entry-level job and continued training in a specific craft and/or higher education that all lead to gainful employment. The West Virginia College- and Career-Readiness Programs of Study/Standards for CTE establish a set of knowledge and skills that all individuals need to transition into the workplace or higher education, as both realms share many expectations. All students throughout their educational experience should develop a full understanding of the career opportunities available and the education necessary to be successful in their chosen pathway and a plan to attain their goals.

West Virginia College- and Career-Readiness Programs of Study/Standards for CTE are organized around two major components of a standards based curriculum: knowledge objectives and performance objectives. The knowledge objectives are broad based descriptions of what all students must know and the performance objectives specify what the students will be able to do at the conclusion of the instructional sequence. Students will develop problem solving and critical thinking skills independently and collaboratively as they engage in these two major components. College- and Career-Readiness Programs of Study/Standards are supported in all CTE pathways, allowing students to acquire and further develop their abilities to be critical thinkers and problem solvers as they continue their educational journey.

Committees of educators and representatives from business and industry from across West Virginia were convened to revise the specific CSS standards and objectives for each CTE program of study. The overarching goal was to build a rigorous, dynamic and challenging CTE standards that would prepare students for the 21st century. The committees focused their efforts in shaping the CSS standards to align with industry standards, industry-recognized certifications, research and best practice in the field of CTE. The contribution of these professionals was critical in creating CSS standards that further define the College- and Career-Readiness Programs of Study/Standards and are meaningful to classroom teachers.

Policy 2520.13 is organized around 12 Career Ready Practices that educators should seek to develop in all students; the College- and Career-Readiness Programs of Study/Standards are organized around the 16 National Career Clusters and supporting Career Pathways.

The use of the College- and Career-Readiness Programs of Study/Standards will assure the delivery of a rigorous and relevant CTE standards to all West Virginia students within a Simulated Workplace environment. These elements, when used to guide the instructional process and when delivered with the creativity and instructional expertise of West Virginia teachers, will become a powerful resource for preparing students to meet the challenges of the 21st century.

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CTE– Alpha Listing of State-Approved Programs of Study, Clusters and Pathways

Program of Study	POS #	Cluster	Pathway
Accounting and Finance	FI1410	Finance	Business Financial Management
Aerospace Engineering (AC)	ST2200	Science, Technology, Engineering and Mathematics	Engineering & Technology
Agribusiness Systems	AG0120	Agriculture, Food and Natural Resources	Agribusiness Systems
Allied Health Sciences	HE0715	Health Science	Therapeutic Services
Animal Processing	AG0230	Agriculture, Food and Natural Resources	Food Products & Processing Systems
Animal Systems	AG0220	Agriculture, Food and Natural Resources	Animal Systems
Automotive Technology	TR1620	Transportation, Distribution and Logistics	Facility & Mobile Equipment Maintenance
Baking and Pastry	HO1015	Hospitality and Tourism	Restaurants & Food/ Beverage Services
Barbering	HU2305	Human Services	Personal Care Services
Biomedical Science (PLTW)	HE0780	Health Science	Biotechnology Research & Development
Broadcasting Technology	AV1680	Arts, A/V Technology and Communications	Journalism & Broadcasting
Building Maintenance and Operations	AR1800	Architecture and Construction	Maintenance/Operations
Career and Work Skills Training (CWST)	BM0510	Business Management and Administration	Administrative Support
Career Integrated Experiential Learning (CIEL)	WV5501	West Virginia Specific Career	Career Integrated Experiential Learning
Careers in Education	ED1300	Education and Training	Teaching/Training
Carpentry	AR1820	Architecture and Construction	Construction
Chemical Energy and Mechanical Technologies	AG2185	Agriculture, Food and Natural Resources	Natural Resources Systems
Cisco Networking Academies	IT1640	Information Technology	Network Systems
Clean Energy Technology (AC)	ST2225	Science, Technology, Engineering and Mathematics	Engineering & Technology
Coding, App and Game Design	IT1442	Information Technology	Interactive Media
Collision Repair Technology	TR1670	Transportation, Distribution and Logistics	Facility & Mobile Equipment Maintenance
Computer Aided Drafting and Design	AR1720	Architecture and Construction	Design/Pre-construction
Computer Science (PLTW)	IT2215	Information Technology	Computer Programming & Software Development
Computer Systems Repair Technology	IT1680	Information Technology	Network Systems
Diagnostics Services	HE0718	Health Science	Diagnostic Services

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Program of Study	POS #	Cluster	Pathway
Diesel Equipment Technology	TR1740	Transportation, Distribution and Logistics	Facility & Mobile Equipment Maintenance
Electrical Technician	AR1760	Architecture and Construction	Construction
Electronics Technician	MA1780	Manufacturing	Maintenance, Installation, & Repair
Emergency and Firefighting Management Services	LA2200	Law, Public Safety, Corrections and Security	Emergency and Firefighting Management Services
Energy and Power (AC)	ST2175	Science, Technology, Engineering and Mathematics	Engineering & Technology
Forest Industry	AG0130	Agriculture, Food and Natural Resources	Natural Resources Systems
Foundational CTE Courses			
Global Logistics and Supply Chain Management (AC)	TR2215	Transportation, Distribution and Logistics	Transportation Systems / Infrastructure Planning, Management & Regulation
Graphic Communications	AV1830	Arts, A/V Technology and Communications	Printing Technology
Graphic Design	AV1850	Arts, A/V Technology and Communications	Visual Arts
Health Informatics	HE0742	Health Science	Health Informatics
Hospitality and Tourism	HO1210	Hospitality and Tourism	Travel & Tourism
Human Services	HU1025	Human Services	Family & Community Services
HVAC Technician	AR1600	Architecture and Construction	Maintenance/Operations
Individual Work Ready Competencies (IWRC)	WV5502	West Virginia Specific Career	Individual Work Ready Competencies
Industrial Equipment Maintenance	MA1870	Manufacturing	Maintenance, Installation, & Repair
Informatics (AC)	IT2210	Information Technology	Information Support & Services
Information Management	IT1450	Information Technology	Interactive Media
Innovations in Science and Technology (AC)	ST2205	Science, Technology, Engineering and Mathematics	Engineering & Technology
Integrated Production Technologies (AC)	MA2235	Manufacturing	Manufacturing Production Process Development
JROTC	GO1070	Government and Public Administration	National Security
Law and Public Safety	LA1020	Law, Public Safety, Corrections and Security	Law Enforcement Services
Machine Tool Technology	MA1900	Manufacturing	Production
Management and Administrative Support	BM1465	Business Management and Administration	Administrative Support
Marketing Management	MK0420	Marketing	Marketing Management

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Program of Study	POS #	Cluster	Pathway
Masonry	AR1910	Architecture and Construction	Construction
Millwork and Cabinetmaking	MA2120	Manufacturing	Production
Multimedia Publishing	AV1684	Arts, A/V Technology and Communications	Journalism & Broadcasting
Natural Resources Management	AG0170	Agriculture, Food and Natural Resources	Natural Resources Systems
Paralegal Assistant	LA1490	Law, Public Safety, Corrections and Security	Legal Services
Personal Fitness and Wellness Training	HE1095	Health Science	Therapeutic Services
Pet Grooming	AG0223	Agriculture, Food and Natural Resources	Animal Systems
Plant Systems	AG0210	Agriculture, Food and Natural Resources	Plant Systems
Plumbing	AR2140	Architecture and Construction	Construction
Power Equipment Systems	TR1960	Transportation, Distribution and Logistics	Facility & Mobile Equipment Maintenance
Power, Structural and Technical Systems	AG0110	Agriculture, Food and Natural Resources	Power, Structural & Technical Systems
Pre-Cosmetology	HU2310	Human Services	Personal Care Services
Pre-Engineering – Project Lead the Way	ST2460	Science, Technology, Engineering and Mathematics	Engineering & Technology
ProStart Restaurant Management	HO1010	Hospitality and Tourism	Restaurants & Food/ Beverage Services
Robotics	MA1630	Manufacturing	Manufacturing Production Process Development
Therapeutic Services	HE0723	Health Science	Therapeutic Services
Virtual Simulation and Game Development	IT1445	Information Technology	Interactive Media
Welding	MA1980	Manufacturing	Production

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ACE – Alpha Listing of State-Approved Programs of Study, Clusters and Pathways

Program of Study	POS #	Cluster	Pathway
Accounting	BM9202	Business Management and Administration	Business Finance and Accounting
Administrative and Business Support	BM9201	Business Management and Administration	Administrative Support
Automotive Technology	TR9801	Transportation, Distribution and Logistics	Facility and Mobile Equipment Maintenance
Barbering Apprenticeship	HU9501	Human Services	Personal Care Services
Cabling Technology	MA9702	Manufacturing	Maintenance, Installation and Repair
Certified Nursing Assistant	HE9308	Health Science	Therapeutic Services
CISCO Networking Academies	IT9901	Information Technology	Network Systems
Coding, App and Game Design	IT9903	Information Technology	Interactive Media
Computer Systems Repair Technology	IT9902	Information Technology	Network Systems
Cosmetology	HU9505	Human Services	Personal Care Services
Culinary Arts	HO9401	Hospitality and Tourism	Restaurants and Food/Beverages Services
Dental Assisting	HE9306	Health Science	Therapeutic Services
Dental Laboratory Technology	HE9309	Health Science	Therapeutic Services
Diesel Equipment Technology	TR9802	Transportation, Distribution and Logistics	Facility and Mobile Equipment Maintenance
Drafting	AR9104	Architecture and Construction	Design/Pre-Construction
Electrical Technician	AR9101	Architecture and Construction	Construction
Electrocardiograph Technician	HE9302	Health Science	Diagnostic Services
Electromechanical Technology	MA9701	Manufacturing	Maintenance, Installation and Repair
Emergency and Firefighting Management Services	LA9601	Law, Public Safety, Corrections and Security	Emergency and Fire Management Services
Health Informatics	HE9303	Health Science	Health Informatics
Heavy Equipment Operations and Preventative Maintenance	AR9106	Architecture and Construction	Maintenance/Operations Pathway
HVAC Technician	AR9105	Architecture and Construction	Maintenance/Operations Pathway
Legal Office	LA9602	Law, Public Safety, Corrections and Security	Legal Services
Machine Tool Technology	MA9703	Manufacturing	Production
Masonry	AR9102	Architecture and Construction	Construction

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Program of Study	POS #	Cluster	Pathway
Massage Therapy	HE9314	Health Science	Therapeutic Services
Medical Administrative Assistant	HE9304	Health Science	Health Informatics
Medical Assisting	HE9307	Health Science	Therapeutic Services
Paralegal Assistant	LA9603	Law, Public Safety, Corrections and Security	Legal Services
Pharmacy Technician	HE9310	Health Science	Therapeutic Services
Phlebotomy Technician	HE9301	Health Science	Diagnostic Services
Plumbing	AR9103	Architecture and Construction	Construction
Practical Nursing	HE9311	Health Science	Therapeutic Services
Respiratory Therapy	HE9312	Health Science	Therapeutic Services
Surgical Technology	HE9313	Health Science	Therapeutic Services
Truck Driving	TR9803	Transportation, Distribution and Logistics	Transportation Operations
Veterinary Technology	HE9305	Health Science	Therapeutic Services
Welding	MA9704	Manufacturing	Production

Explanation of Terms

Advanced Career Education (ACE) is a 13th year initiative that has been established to assist high school graduates in achieving advanced certifications and licenses, while earning potential college credits towards an associates of applied science degree.

Advisory Councils are required by the Carl D. Perkins Act and are charged with advising the WVDE and state-approved CTE programs of study on the development, administration, and evaluation of policies and standards relating to CTE. The Advisory Council is comprised of high-level contacts and volunteers from business and industry, labor, postsecondary education, the nonprofit sector and students. Advisory Council meetings are required to take place a minimum of two times during the school year with agenda and minutes documentation.

Approved CTE Standards List identifies the state-approved programs of study for individual schools as required by the Carl D. Perkins Act.

Career Technical Education (CTE) Schools must provide students with access to programs in a minimum of five of the 16 approved WV Career Clusters.

Career Technical Standards are a set of rigorous, high-quality standards that define what students should know and be able to do after completing instruction in a related CTE program.

Career Ready Practices describe the career ready skills that educators should seek to develop in all students. These practices are not exclusive to a Career pathway, CTE program, or course. Career ready practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

Career Clusters are broad groupings of related careers as defined by the United States Department of Education (ED) and United States Department of Labor – Occupational Classification.

Career Integrated Experiential Learning (CIEL) is a personalized CTE program of study developed to meet student needs by providing them marketable job skills and opportunities to test for multiple nationally recognized certifications.

Career Pathways are subcategories of closely related careers under each of the 16 Career Clusters.

Career Technical Student Organizations (CTSO) are CTE organizations primarily based in high schools, comprehensive high schools and career technical centers. CTOS are integrated into programs of study as co-curricular activities and designated as nonprofit organizations. CTOS are authorized by the U.S. Congress in the Carl D. Perkins Career Technical Education Act.

Certification is a designation earned by a person to assure qualification to perform a particular job or task and is approved by a recognized credentialing agency.

Civil Rights Pursuant to the Guidelines for Eliminating Discrimination and Denial of Services on the Basis of Race, Color, National Origin, Sex, and Handicap in Vocational Education Programs (34 CFR. Part 100,

Appendix B) (Guidelines), state CTE agencies (formerly referred to as vocational education agencies) are required to conduct civil rights compliance reviews of selected sub recipients, and to report these compliance activities periodically to the Office for Civil Rights (OCR), U.S. Department of Education. OCR's September 1996 *Memorandum of Procedures*, developed in partnership with state CTE agencies, requires state agencies to conduct on-site compliance reviews of 2.5% of their sub recipients each year, and to report to OCR biennially. In a December 1998 *Dear Colleague* letter to all MOA Coordinators, which was also developed in partnership with state CTE agencies, OCR provided additional instructions to state agencies about the format and content of the biennial reports.

Content Skill Sets (CSS) are the culminating collection of specific technical skills students should be able to accomplish after completing instruction from a state-approved CTE program of study, to include the particular category of craft knowledge, abilities and experience required to perform the necessary tasks within a specific profession.

CTE (Participant) is a student who takes a minimum of one state-approved CTE required, elective, or foundation course in a CTE program of study.

CTE Completer is a student who completes the four state-approved sequence of courses and participates in a state-approved technical assessment within a specific CTE program of study.

CTE Completer (Dual) is a student who completes the four required state-approved sequence of courses within more than one CTE program of study and participates in a state-approved technical assessment.

CTE Completer (State Certified) is a student who completes the four state-approved sequence of courses with a "C" or higher and meets the industry benchmark on the state-approved technical assessment.

CTE Elective Courses are state-approved courses which provide enhanced opportunities to build upon the required four core courses and functions to meet student needs, interests, abilities, and goals. CTE Electives also respond to actual or anticipated opportunities for employment, advanced education, and practical life application.

CTE Portfolio a collection of personal documents, showcasing an individual's learning experiences, goals, and achievements. Student portfolios are created and controlled by the student, facilitated by the instructor and evaluated by outside entities.

CTE Program Categories:

- Local CTE Concentration is a locally approved sequence of four CTE courses.
- State-approved CTE program of study is an approved sequence of a minimum of four CTE courses which align to a CTE cluster and pathway, impacts state economic labor market needs as verified by Workforce data and leads to an industry-recognized credential or certificate or opportunity for continuing into postsecondary education.

CTE School Types

- CTE in High School is a high school offering four or less career clusters.
- Comprehensive High School is a high school offering five or more career clusters.
- County Career Center is a career center that services students from the county in which it is located.

- Multi-County Career Center is a career center that service students from multiple counties.
- CTE in Specialized Facilities is a state-approved facility, (i.e., West Virginia School for the Deaf and Blind) offering students CTE opportunities.

Earn a Degree-Graduate Early (EDGE) provides students the opportunity to earn community and technical college credit, free-of-charge , for the duplicated secondary and postsecondary courses that are identified during a standards alignment process, i.e., Welding 1 (secondary CTE) earns credit for Welding 1 taught at a community and technical college.

Federal Perkins Accountability Measures are the outlined provisions within the Carl D. Perkins Career Technical Education Act. These provisions are the state-approved levels of performance, which incorporate: 1) Academic attainment on state-approved assessment; 2) Technical skill attainment; 3) Program of study completion; 4) Graduation rate; 5) Job placement, Continuing Education or Military; 6) Non-traditional participation; and 7) Non-traditional completion.

Foundational CTE Course is a non-occupational CTE course offering approved by the WVDE.

Individual Work Ready Competencies (IWRC) is a state-approved CTE career pathway which provides students who have a disability and a current Individualized Education Program (IEP) the opportunity to gain valuable work readiness and occupational skills. Students must have originally been enrolled in a typical state-approved CTE program of study, where it was determined through classroom assessment measures conducted by CTE staff that the student was not on track to master ALL skill sets associated with the four state -approved sequence of courses.

Internship is an experience that allows students the opportunity to merge and apply the knowledge from their CTE coursework into a meaningful and relevant on-the-job experience. The internship should immerse the student into a learning atmosphere outside of the regular school environment. The outside environment must be agreed upon by the county, school, teacher, student and parent/guardian. An outline of goals and outcomes to be achieved by the student should be developed and signed off on by the teacher, student and parent/guardian. The goals and outcomes must align directly to the CTE standards skill sets and be able to illustrate how they assist the student in furthering his/her education and/or entering the workforce. Through working with an adult mentor at the worksite, students should have the opportunity to develop a foundation of general workplace skills and to acquire information and skills in their chosen career program of study. Students will develop materials to supplement their CTE portfolios.

Personal Protective Equipment (PPE) appropriate industrial quality eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact, shall be required to be worn by every student, instructor or other persons in educational programs, laboratory or shops operated in the public schools of West Virginia when the instructional or observational activities are such that students, instructors or other persons are exposed to:

- a. flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation;
- b. air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, the

- primary objective shall be to prevent atmospheric contamination;
- c. powered milling, sawing, turning, shaping, cutting, sanding, grinding or stamping of any solid materials;
- d. hazards such as those from skin absorption of harmful substances; severe cuts or lacerations; severe abrasions; punctures; chemical burns; thermal burns; and harmful temperature extremes;
- e. foot injuries due to falling or rolling objects, or objects piercing the sole, or when the use of protective footwear will protect the affected employee from an electrical hazard, such as a static-discharge or electric-shock hazard, that remains after the employer takes other necessary protective measures;
- f. potential for injury to the head from falling objects, a protective helmet must be worn;
- g. heat treatment, tempering or kiln firing of any metal or other materials;
- h. gas or electric arc welding or other forms of welding processes and injurious radiations or other hazards not enumerated; and
- i. caustic or explosive materials and hot liquids or solids.

Safety Assessment is a program instructor developed and administered general and equipment specific safety exam. The general safety exam covers generalities across the spectrum for each program and is a written exam. The equipment specific exam has both a written and performance component for each piece of equipment to which the student has access. EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.

Simulated Workplace is an instructional strategy that creates high-quality business and industry learning environments, providing students opportunities to earn industrial state and national certifications.

Supervised Agricultural Experience Program (SAE) is a unique aspect of agricultural education, providing students with the opportunity to apply knowledge and skills gained in the classroom to real-life work experiences outside of classroom time in the areas of Exploratory, Research, Work Placement and Entrepreneurship. Every student enrolled in an agriculture program of study is required to develop an SAE and to complete the program of study, the student must implement an SAE and keep online financial records of all transactions using the Agricultural Experience Tracker (AET) system. To supervise the student SAE process, WV Agricultural Education teachers have extended teaching contracts (240 days preferably) so they are able to visit students after school and during the summer months.

Technical Assessment is a measure of student attainment of career-related technical skills.

West Virginia Department of Agriculture Endorsement is a certification given to all Agriculture, Food and Natural Resources programs of study completers finishing Introduction to Agriculture, a core content and a specialization course, and two years of a Supervised Agricultural Experience Program (SAE) within a specific agricultural program of study.

Work-Based Integration and Transition is a course designed to give students the opportunity to integrate theory and practice by interacting with industry professionals. Students will study various requirements for employability including ethics, communication, teamwork and professionalism. Students will participate in hands-on, digital or work-based experiences related to industry settings in order to practice skill sets and to transition from student to employee. A supervised project will be developed in one or more of the following categories: Entrepreneurship (ownership or operation of a

business); Placement (employment or internship); Research and Experimentation (planning and/or conducting a scientific experiment); Exploration (exploration of related careers through activities such as shadowing employees in various work settings, conducting online research, attending professional development learning activities, etc.). Students will develop materials to supplement their CTE portfolios.

Virtual Programs is a E-Learning/Distance Learning course available to assure consistent, high-quality education for the students of West Virginia through courses delivered via technology that promotes efficacy and equity in course offerings and provide options for implementation across the public school system. These programs help bridge the barriers of time, distance and inequities for all West Virginia students by providing access to resources that are either not offered in the local schools, or where scheduling conflicts will allow completion of a required course virtually.

Simulated Workplace – Student empowered education

All state-approved CTE programs require a classroom shift to a workplace environment for students enrolled in the 3rd and 4th required program courses that implement the following protocols:

- Student Led Companies,
- Application/Interview Structure,
- Formal Attendance System,
- Drug Free Work Zone,
- 6S Environments,
- Safe Work Areas,
- Work Place Teams,
- Project-Based Learning/Student Engagement,
- Company Name and Handbook,
- Company Meetings,
- Onsite Business Reviews, and
- Accountability (data review, report, and technical assessments).

Governor’s Workforce Credential

A credential awarded by West Virginia’s Governor to CTE completers who achieve a rigorous set of standards within their state-approved CTE program of study and demonstrate exemplary performance within the emerging workforce.

Graduating seniors must successfully meet the established criteria as referenced in the Guidance Document of Policy 2520.13

College- and Career-Readiness Programs of Study/Standards

The Career Technical Standards includes a set of broad standards for each of the 16 Career Clusters and their corresponding Career Pathways that define what students should know and be able to do after completing instruction in a CTE program of study. All of the West Virginia, state-approved CTE programs fall under one of the 16 Career Pathways. Guidelines to assist teachers in designing instruction that leads to student proficiency in the technical core areas can be accessed on the WVDE’s CTE website.

Accountability Measures

The means to assess the effectiveness of the state, district, school and program of study in achieving progress on Perkins performance indicators in CTE, and to optimize the return of investment in

CTEactivities.

- Portfolio
 - A collection of personal documents, which showcase an individual's learning experiences, goals and achievements
- Technical Assessments
 - Evaluation of technical skill attainment through benchmarks and audits as they align to industry recognized standards
- Industry Recognized Credentials/Certifications
 - Those certifications, licenses or certificates that industry groups recognize as being valuable within the industry and illustrate an individual's understanding and/or mastery of subject knowledge
- Positive Job Placement
 - CTE completers who secure a job, continue their education or join the military

Safety Testing Requirement

Every student must pass all safety exams with a score of 100%before having access to available equipment.

Safety Environment Requirement

Equipment and devices shall meet or exceed the minimum requirements under Section 6 of the Occupational Safety and Health Standards Act of 1970, specifically Subpart I of 29-CFR1910 and the appropriate standards published by the American National Standards Institute, the National Fire Prevention Association and the National Institute for Occupational Safety and Health. The selection, maintenance and use of this equipment shall be governed as incorporated under Section 6 of the Act (OSHA).

Agriculture, Food & Natural Resources Career Cluster™ (AG)

Agribusiness Systems Career Pathway Standards

1. Apply management planning principles in AG businesses.
2. Use record keeping to accomplish AG business objectives, manage budgets, and comply with laws and regulations.
3. Manage cash budgets, credit budgets and credit for an AG business using generally accepted accounting principles.
4. Develop a business plan for an AG business.
5. Use sales and marketing principles to accomplish AG business objectives.
6. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities.

Notes:

- *Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.*
- *EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.*
- *Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.*

WV CTE Program of Study:	AG0120 Agribusiness Systems
Program Required Courses:	<p>0101 Introduction to Agriculture, Food and Natural Resources or</p> <p>0161 CASE Introduction to Agriculture, Food and Natural Resources</p> <p>0102 The Science of Agriculture</p> <p>0134 Agricultural Experience Program <i>Students shall receive ½ credit per academic year based on completion of approved SAE and submission of approved documentation. Two years must be completed to meet requirement. Refer to Guidelines to Awarding SAE Credit document for more information.</i></p> <p>(+Specialization)</p>
Specialization Courses:	<p><i>Must select one:</i></p> <p>0183 Forest Management</p> <p>0162 CASE Principles of AG Science – Animal</p> <p>0164 CASE Animal and Plant Biotechnology</p> <p>0166 CASE Principles of AG Science - Plant</p> <p>0212 Horticulture</p> <p>0136 Advanced Principles of Agriculture</p> <p>0140 Animal Production and Management</p> <p>0112 Fundamentals of Agriculture Mechanics</p> <p>0139 Fundamentals of Animal Processing</p> <p>0200 Natural Resource Management</p> <p>0132 Agricultural Biotechnology</p> <p>0110 Agriculture Entrepreneurship</p> <p>0111 Food Science Technology</p>

Animal Systems Career Pathway Standards

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<ol style="list-style-type: none"> 1. Analyze historic and current trends impacting the animal systems industry. 2. Utilize best-practice protocols based upon animal behaviors for animal husbandry and welfare. 3. Design and provide proper animal nutrition to achieve desired outcomes for performance, development, reproduction and/or economic production. 4. Apply principles of animal reproduction to achieve desired outcomes for performance, development and/or economic production. 5. Evaluate environmental factors affecting animal performance and implement procedures for enhancing performance and animal health. 6. Classify, evaluate and select animals based on anatomical and physiological characteristics. 7. Apply principles of effective animal health care. 8. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities. <p>Notes:</p> <ul style="list-style-type: none"> • <i>Successful program of study completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.</i> • <i>EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.</i> • <i>Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.</i> 	
WV CTE Program of Study:	AG0220 Animal Systems
Program Required Courses:	<p>0101 Introduction to Agriculture, Food and Natural Resources or 0161 CASE Introduction to Agriculture, Food and Natural Resources 0140 Animal Production and Management or 0162 CASE Principals of Agriculture Science – Animal 0134 Agricultural Experience Program <i>Students shall receive ½ credit per academic year based on completion of approved SAE and submission of approved documentation. Two years must be completed to meet requirement. Refer to Guidelines to Awarding SAE Credit document for more information.</i></p> <p>(+Specialization)</p>
Specialization Courses:	<p><i>Must select one:</i></p> <p>0230 Livestock Production 0149 Companion Animal Care 0141 Aquaculture 2007 Equine Science 0170 Introduction to Pet Grooming, Boarding and Obedience 0163 CASE Agriculture Business, Research and Development 0164 CASE Animal and Plant Biotechnology 0165 CASE Food Science and Safety</p>
WV CTE Program of Study:	AG0223 Pet Grooming
Program Required Courses:	<p>0170 Introduction to Pet Grooming, Boarding and Obedience 0173 Pet Grooming, Boarding and Obedience Entrepreneurship 0171 Pet Grooming and Understanding Personalities</p> <p>(+Specialization)</p>
Specialization Courses:	<p><i>Must select one:</i></p>

	<p>1180 Advanced Pet Grooming and Understanding Personalities</p> <p>1181 Pet Boarding and Obedience</p>
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Food Products & Processing Systems Career Pathway Standards

1. Develop and implement procedures to ensure safety, sanitation and quality in food product and processing facilities.
 2. Apply principles of nutrition, biology, microbiology, chemistry and human behavior to the development of food products.
 3. Select and process food products for storage, distribution and consumption.
 4. Explain the scope of the food industry and the historical and current developments of food products and processing.
 5. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities.
- Notes:**
- *Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.*
 - *EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.*
 - *Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.*

WV CTE Program of Study:	AG0230 Animal Processing
Program Required Courses:	<p>0101 Introduction to Agriculture, Food and Natural Resources or</p> <p>0161 CASE Introduction to Agriculture, Food and Natural Resources</p> <p>0139 Fundamentals of Animal Processing</p> <p>0134 Agricultural Experience Program</p> <p><i>Students shall receive ½ credit per academic year based on completion of approved SAE and submission of approved documentation. Two years must be completed to meet requirement. Refer to Guidelines to Awarding SAE Credit document for more information.</i></p> <p>(+Specialization)</p>
Specialization Courses:	<p><i>Must select one:</i></p> <p>0151 Animal Processing - Retail</p> <p>0160 Animal Processing - Plant</p>

Natural Resources Systems Career Pathway Standards

1. Plan and conduct natural resource management activities that apply logical, reasoned and scientifically based solutions to natural resource issues and goals.
 2. Analyze the interrelationships between natural resources and humans.
 3. Develop plans to ensure sustainable production and processing of natural resources.
 4. Demonstrate responsible management procedures and techniques to protect or maintain natural resources.
 5. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities.
- Notes:**
- *Successful completers will demonstrate their technical skills attainment through the CTE portfolio*

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<p><i>and state-approved technical assessment processes.</i></p> <ul style="list-style-type: none"> • <i>EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.</i> • <i>Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.</i> 	
WV CTE Program of Study:	AG2185 Chemical Energy and Mechanical Technologies
Program Required Courses:	<p>2497 Basic Production Mechanics</p> <p>2496 Advanced Production Mechanics</p> <p>(+2 Specializations)</p>
Specialization Courses:	<i>Must select two:</i>
	<p>2493 Electrical Maintenance for Energy/Mining Extraction</p> <p>1871 Electrical Maintenance</p> <p>0112 Fundamentals of Agricultural Mechanics</p> <p>0114 Agriculture Equipment and Repair</p> <p>2449 Chemical Process Control</p> <p>1808 Electronic Instrumentation</p> <p>2450 Fundamentals of Energy Systems</p>
WV CTE Program of Study:	AG0130 Forest Industry
Program Required Courses:	<p>0182 Fundamentals of Forestry</p> <p>0183 Forest Management</p> <p>0184 Timber Management</p> <p>0185 Advanced Principals of Forestry</p>
WV CTE Program of Study	AG0170 Natural Resources Management
Program Required Courses	<p>0101 Introduction to Agriculture, Food and Natural Resources or</p> <p>0161 CASE Introduction to Agriculture, Food and Natural Resources.</p> <p>0200 Natural Resources Management</p> <p>0134 Agricultural Experience Program</p> <p><i>Students shall receive ½ credit per academic year based on completion of approved SAE and submission of approved documentation. Two years must be completed to meet requirement. Refer to Guidelines to Awarding SAE Credit document for more information.</i></p> <p>(+Specialization)</p>
Specialization Courses:	<i>Must select one:</i>
	<p>0183 Forest Management</p> <p>0190 Fish and Wildlife Management</p> <p>2494 Land Management and Surveying</p> <p>2498 Arboriculture and Urban Forestry</p>

Plant Systems Career Pathway Standards

1. Develop and implement a crop management plan for a given production goal that accounts for environmental factors.
2. Apply the principles of classification, plant anatomy and plant physiology to plant production and management.
3. Propagate, culture and harvest plants and plant products based on current industry standards.
4. Apply principles of design in plant systems to enhance an environment (i.e., floral, forest,

landscape and farm). 5. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities. Notes: <ul style="list-style-type: none"> • <i>Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.</i> • <i>EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.</i> • <i>Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.</i> 	
WV CTE Program of Study:	AG0210 Plant Systems
Program Required Courses:	0101 Introduction to Agriculture, Food and Natural Resources or 0161 CASE Introduction to Agriculture, Food and Natural Resources 0212 Horticulture or 0166 CASE Principles of Agricultural Science -Plant 0134 Agricultural Experience Program <i>Students shall receive ½ credit per academic year based on completion of approved SAE and submission of approved documentation. Two years must be completed to meet requirement. Refer to Guidelines to Awarding SAE Credit document for more information.</i> (+Specialization)
Specialization Courses:	<i>Must select one:</i> 0220 Fruit and Vegetable Production 0214 Greenhouse Production and Management 0213 Floriculture 0240 Turf and Landscape Systems 0164 CASE Animal and Plant Biotechnology 0165 CASE Food Science and Safety 0163 Agriculture Business, Research and Development

Power, Structural & Technical Systems Career Pathway Standards	
1. Apply physical science principles and engineering applications to solve problems and improve performance in AG power, structural and technical systems. 2. Operate and maintain AG mechanical equipment and power systems. 3. Service and repair AG mechanical equipment and power systems. 4. Plan, build and maintain AG structures. 5. Use control, monitoring, geospatial and other technologies in AG power, structural and technical systems. 6. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities. Notes: <ul style="list-style-type: none"> • <i>Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.</i> • <i>EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.</i> 	

<ul style="list-style-type: none"> Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13. 	
WV CTE Program of Study:	AG0110 Power, Structural and Technical Systems
Program Required Courses:	<p>0101 Introduction to Agriculture, Food and Natural Resources or</p> <p>0161 CASE Introduction to Agriculture, Food and Natural Resources</p> <p>0112 Fundamentals of Agriculture Mechanics</p> <p>0134 Agricultural Experience Program <i>Students shall receive ½ credit per academic year based on completion of approved SAE and submission of approved documentation. Two years must be completed to meet requirement. Refer to Guidelines to Awarding SAE Credit document for more information.</i></p> <p>(+Specialization)</p>
Specialization Courses:	<p><i>Must select one:</i></p> <p>0113 Agriculture Structures</p> <p>0114 Agriculture Equipment and Repair</p>

Architecture & Construction Career Cluster™ (AR)

Construction Career Pathway Standards	
<ol style="list-style-type: none"> Describe contractual relationships between all parties involved in the building process. Describe the approval procedures required for successful completion of a construction project. Implement testing and inspection procedures to ensure successful completion of a construction project. Apply scheduling practices to ensure the successful completion of a construction project. Apply practices and procedures required to maintain jobsite safety. Manage relationships with internal and external parties to successfully complete construction projects. Compare and contrast the building systems and components required for a construction project. Demonstrate the construction crafts required for each phase of a construction project. Safely use and maintain appropriate tools, machinery, equipment and resources to accomplish construction project goals. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities. 	
Notes:	
<ul style="list-style-type: none"> Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes. EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment. Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13. 	
WVDE requirements to be eligible to sit for the Electrical Journeyman License:	
<ul style="list-style-type: none"> Attain an overall grade of "B" or better in the four required state-approved CTE Electrical Technician Program of Study required courses AND the four specialization courses used to meet the 1080 hours needed to sit for the Journeyman's License as stated in the Electrician Licensing 	

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<p><i>Rules from the West Virginia State Fire Marshall's office:</i></p> <ul style="list-style-type: none"> • <i>Attain a verified school attendance record of no more than 6 days absent in a 1 year - 1,080 hour program or 12 days absent in a two year - 1,080 hour program;</i> • <i>Earn the OSHA 10 certification;</i> • <i>Pass a minimum of TWO (2) documented drug screenings; and</i> • <i>Score at or above the Workforce Entry-Level cut score on the industry-recognized written ANDsatisfactorily pass a performance audit.</i> 	
WV CTE Program of Study:	AR1820 Carpentry
Program Required Courses:	1842 Carpentry I 1843 Carpentry II 1844 Carpentry III 1845 Carpentry IV
WV CTE Program of Study:	AR1760 Electrical Technician
Program Required Courses:	1756 Electrical Trades I 1757 Electrical Trades II 1758 Electrical Trades III 1759 Electrical Trades IV
Journeyman Required Courses:	<p><i>Must complete at least four of the below listed courses to meet the 1080 hour requirement and be recommended to sit for the Journeyman Electrician License exam :</i></p> 1762 Blueprint Reading For Electricians 1765 Industrial and Commercial Wiring 1766 Integrated Electrical Lab 1767 National Electrical Code 1769 Residential Wiring 1771 Rotating Devices and Control Circuitry
WV CTE Program of Study:	AR1910 Masonry
Program Required Courses:	1846 Masonry I 1847 Masonry II 1848 Masonry III 1849 Masonry IV
WV CTE Program of Study:	AR2140 Plumbing
Program Required Courses:	2081 Plumbing I 2082 Plumbing II 2083 Plumbing III 2084 Plumbing IV

Design/Pre-construction Career Pathway Standards

1. Justify design solutions through the use of research documentation and analysis of data.
2. Use effective communication skills and strategies (listening, speaking, reading, writing and graphic communications) to work with clients and colleagues.
3. Describe the requirements of the integral systems that impact the design of buildings.
4. Apply building codes, laws and rules in the project design.
5. Identify the diversity of needs, values and social patterns in project design, including accessibility standards.
6. Apply the techniques and skills of modern drafting, design, engineering and construction to projects.

<p>7. Employ appropriate representational media to communicate concepts and project design.</p> <p>8. Apply standards, applications and restrictions pertaining to the selection and use of construction materials, components and assemblies in the project design.</p> <p>9. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities.</p> <p>Notes:</p> <ul style="list-style-type: none"> • <i>Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.</i> • <i>EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.</i> • <i>Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.</i> 	
WV CTE Program of Study:	AR1720 Computer Aided Drafting and Design
Program Required Courses:	<p>1729 Fundamentals of Drafting</p> <p>1727 Drafting Techniques</p> <p>1725 Mechanical Drafting</p> <p>1721 Architectural Drafting</p>

Maintenance/Operations Career Pathway Standards	
<p>1. Recognize and employ universal construction signs and symbols to function safely in the workplace.</p> <p>2. Use troubleshooting procedures when solving a maintenance problem in buildings.</p> <p>3. Apply construction skills when repairing, restoring or renovating existing buildings.</p> <p>4. Determine work required to repair or renovate an existing building.</p> <p>5. Plan and practice preventative maintenance activities to service existing buildings.</p> <p>6. Maintain and inspect building systems to achieve safe and efficient operation of buildings.</p> <p>7. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities.</p> <p>Notes:</p> <ul style="list-style-type: none"> • <i>Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.</i> • <i>EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.</i> • <i>Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.</i> 	
WV CTE Program of Study:	AR1800 Building Maintenance and Operations
Program Required Courses:	<p>1774 Building Maintenance and Operations I</p> <p>1775 Building Maintenance and Operations II</p> <p>1776 Building Maintenance and Operations III</p> <p>1777 Building Maintenance and Operations IV</p>
WV CTE Program of Study:	AR1600 HVAC Technician
Program Required Courses:	<p>1752 HVAC I</p> <p>1753 HVAC II</p> <p>1754 HVAC III</p> <p>1755 HVAC IV</p>

Arts, A/V Technology & Communications Career Cluster™ (AV)

Journalism & Broadcasting Career Pathway Standards

1. Describe the diversity of functions within the Journalism & Broadcasting Career Pathway.
2. Demonstrate writing processes used in journalism and broadcasting.
3. Plan and deliver a media production (i.e., broadcast, video, Internet, mobile).
4. Demonstrate technical support related to media production (i.e., broadcast, video, Internet, mobile).
5. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities.

Notes:

- *Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.*
- *EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.*
- *Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.*

WV CTE Program of Study:	AV1680 Broadcasting Technology
Program Required Courses:	1681 Fundamentals of Broadcasting 1683 Radio Broadcasting Presentations 1685 Television Production Applications (+Specialization)
Specialization Courses:	<i>Must Select One:</i> 1687 Broadcast Operations 1689 Producing Live TV 1684 Video Editing
WV CTE Program of Study:	AV1684 Multimedia Publishing
Program Required Courses:	1514 Building Maintenance and Operations I 1515 Building Maintenance and Operations II 1516 Building Maintenance and Operations III 1517 Building Maintenance and Operations IV

Printing Technology Career Pathway Standards

1. Manage the printing process, including customer service and sales, scheduling, production and quality control.
2. Demonstrate the production of various print, multimedia or digital media products.
3. Perform finishing and distribution operations related to the printing process.
4. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities.

Notes:

- *Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.*
- *EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.*
- *Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.*

WV CTE Program of Study:	AV1830 Graphic Communications
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Program Required Courses:	1835 Fundamentals of Graphic Communications 1833 Electronic Imaging 1839 Image Assembly and Plate Making 1841 Offset Press and Bindery
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Visual Arts Career Pathway Standards

1. Describe the history and evolution of the visual arts and its role in and impact on society.
2. Analyze how the application of visual arts elements and principles of design communicate and express ideas.
3. Analyze and create two and three-dimensional visual art forms using various media.
4. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities.

Notes:

- *Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.*
- *EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.*
- *Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.*

WV CTE Program of Study:	AV1850 Graphic Design
Program Required Courses:	1857 Fundamentals of Graphic Design 1851 Fundamentals of Illustration 1859 Graphic Design Applications 1861 Illustration

Business Management & Administration Career Cluster™ (BM)

Administrative Support Career Pathway Standards

1. Plan, staff, lead and organize human resources to enhance employee productivity and satisfaction.
2. Access, evaluate and disseminate information for business decision making.
3. Plan, monitor and manage day-to-day business activities.
4. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities.

Notes:

- *Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.*
- *EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.*
- *Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.*

WV CTE Program of Study:	BM0510 Career and Work Skills Training (CWST)
Program Required Courses	0511 Career and Work Skills Training I 0512 Career and Work Skills Training II 0513 CWST Work Experience I 0514 CWST Work Experience II

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WV CTE Program of Study	BM1465 Management and Administrative Support 1411 Business Computer Applications I 1439 Business and Marketing Essentials <i>(+2 Specializations)</i>
Specialization Courses	<i>Must Select Two:</i>
	1401 Accounting Principles I 1409 Business Communications 1413 Business Computer Applications II 1421 Business Recordkeeping 1449 Office Management 1451 Personal Finance

Education & Training Career Cluster™ (ED)

Teaching/Training Career Pathway Standards	
<ol style="list-style-type: none"> 1. Use foundational knowledge of subject matter to plan and prepare effective instruction and design courses or programs. 2. Employ knowledge of learning and developmental theory to describe individual learners. 3. Use content knowledge and skills of instruction to develop standards-based goals and assessments. 4. Identify materials and resources needed to support instructional plans. 5. Establish a positive climate to promote learning. 6. Identify motivational, social and psychological practices that guide personal conduct. 7. Demonstrate organizational and relationship building skills used to manage instructional activities and related procedures. 8. Demonstrate flexibility and adaptability in instructional planning. 9. Utilize assessment and evaluation tools and data to advance learner achievement and adjust instructional plans. 10. Evaluate teaching and training performance indicators to determine and improve effectiveness of instructional practices and professional learning. 11. Implement strategies to maintain relationships with others to increase support for the organization. 12. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities. <p>Notes:</p> <ul style="list-style-type: none"> • <i>Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.</i> • <i>EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.</i> • <i>Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.</i> • <i>**Course 1135 shall be taken as the final course within the program of study to ensure student competency of all other program information prior to the seminar.</i> 	
WV CTE Program of Study:	ED1300 Careers in Education
Program Required Courses:	1301 Foundation in Education 1302 Student Learning, Development, and Diversity

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	1135 Teacher Preparation: Seminar in Educational Practice **
Specialization Courses:	<i>(Must select one specialization area and enroll in the course to be a completer):</i> Early Childhood 1003 Early Childhood Education or Elementary 8016 Elementary Literacy Awareness or Secondary 1304 Secondary Literacy Awareness

Finance Career Cluster™ (FI)

Business Financial Management Career Pathway Standards	
	<ol style="list-style-type: none"> 1. Describe and follow laws and regulations to manage business operations and transactions. 2. Utilize accounting tools, strategies and systems to plan, monitor, manage and maintain the use of financial resources. 3. Process, evaluate and disseminate financial information to assist business decision making. 4. Utilize career-planning concepts, tools and strategies to explore, obtain and/or develop an accounting and finance careers. 5. Describe and follow laws and regulations to manage accounting operations and transactions. 6. Manage the use of financial resources to ensure business stability. 7. Employ risk-management strategies and techniques in corporate finance to minimize business loss. 8. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities.
	<p>Notes:</p> <ul style="list-style-type: none"> • Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes. • EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment. • Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.
WV CTE Program of Study:	BM1410 Accounting and Finance
Program Required Courses:	1401 Accounting Principles I 1403 Accounting Principles II 1451 Personal Finance (+Specialization)
Specialization Courses:	<i>Must Select One:</i> 1411 Business Computer Applications I 1413 Business Computer Applications II 1417 Business Law & Ethics 1439 Business and Marketing Essentials 1470 Introduction to Finance

Government & Public Administration Career Cluster™ (GO)**National Security Career Pathway Standards**

1. Instruct persons who will perform tasks relating to national homeland security.
2. Describe the appropriate duties, responsibilities and authority of a national security agency's personnel at all levels.
3. Describe the leadership characteristics necessary to ensure compliance with rules of engagement and applicable ethical standards.
4. Collect and analyze information from within and outside the United States (U.S.) to assess threats and opportunities regarding national security.
5. Develop strategies to defend against and respond to the effects of chemical, biological, radiological, nuclear (CBRN) or other emergent events.
6. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities.

Notes:

- *JROTC is a cooperative effort between the U.S. Department of Defense and the WVDE.*
- *JROTC cadets who successfully pass JROTC I and JROTC II courses will fulfill the 1 credit Physical Education graduation requirement.*
- *Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.*
- *EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.*
- *Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.*

WV CTE Program of Study:	GO1070	JROTC
Program Required Courses:	1065	JROTC I
	1066	JROTC II
	1080	JROTC III
	1081	JROTC IV

Health Science Career Cluster™ (HE)**Biotechnology Research & Development Career Pathway Standards**

1. Summarize the goals of biotechnology research and development within legal and ethical protocols.
2. Apply the fundamentals of biochemistry, cell biology, genetics, mathematical concepts, microbiology, molecular biology, organic chemistry and statistics to conduct effective biotechnology research and development of products.
3. Demonstrate basic knowledge of recombinant DNA, genetic engineering, bioprocessing, monoclonal antibody production, nanotechnology, bioinformatics, genomics, proteomics and transcriptomics to conduct biotechnology research and development.
4. Demonstrate the principles of solution preparation, sterile techniques, contamination control, and measurement and calibration of instruments used in biotechnology research.
5. Determine processes for product design and production and how that work contributes to an understanding of the biotechnology product development process.

<p>6. Summarize and explain the larger ethical, moral and legal issues related to biotechnology research, product development and use in society.</p> <p>7. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities.</p> <p>Notes:</p> <ul style="list-style-type: none"> • <i>Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.</i> • <i>EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.</i> • <i>Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.</i> 	
WV CTE Program of Study:	HE0780 Biomedical Science (PLTW)
Program Required Courses:	<p>0727 Principles of Biomedical Science</p> <p>0766 Human Body Systems</p> <p>0780 Medical Interventions</p> <p>0795 Biomedical Innovation</p> <p>(Capstone)</p>

Diagnostic Services Career Pathway Standards	
<p>1. Communicate key diagnostic information to healthcare workers and patients in an accurate and timely manner.</p> <p>2. Assess and report patient's/client's health status in order to monitor and document patient progress.</p> <p>3. Demonstrate the principles of body mechanics for positioning, transferring and transporting of patients/clients, and perform them without injury to the patient/client or self.</p> <p>4. Explain procedures and goals to the patient/client accurately and effectively, using strategies to respond to questions and concerns.</p> <p>5. Select, demonstrate and interpret diagnostic procedures.</p> <p>6. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities.</p> <p>Notes:</p> <ul style="list-style-type: none"> • <i>Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.</i> • <i>EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.</i> • <i>Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.</i> <p><i>*Foundations of Health Science (0711) is a prerequisite for Advanced Principles of Health Science (0715). These two courses provide the introductory core for all Health Science programs of study.</i></p> <p><i>*Admission to Advanced Principles of Health Science (0715) requires a minimum course completion score of 80% in Foundations of Health Science (0711).</i></p> <p><i>**These courses require 100% drug testing prior to entering clinical experiences.</i></p>	
WV CTE Program of Study:	HE0718 Diagnostic Services
Program Required Courses:	<p>0711 Foundations of Health Science*</p> <p>0715 Advanced Principles of Health Science*</p> <p>(+Specialization)</p>
Specialization Courses:	<i>(Must select one specialization area and enroll in the two courses to be</i>

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	<p><i>a completer</i>):</p> <p>Medical Laboratory Technician</p> <p>0755 Medical Laboratory and Diagnostic Procedures</p> <p>0756 Medical Laboratory Diagnostic Procedures and Applications **</p> <p>or Clinical Diagnostics</p> <p>0810 Electrocardiograph Technician</p> <p>0825 Phlebotomy Skills **</p>
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Health Informatics Career Pathway Standards

1. Communicate health information accurately and within legal and regulatory guidelines, upholding the strictest standards of confidentiality.
2. Describe the content and diverse uses of health information.
3. Demonstrate the use of systems used to capture, retrieve and maintain confidential health information from internal and external sources.
4. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities.

Notes:

- *Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.*
- *EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.*
- *Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.*

**Foundations of Health Science (0711) is a prerequisite for Advanced Principles of Health Science (0715). These two courses provide the introductory core for all Health Science programs of study.*

**Admission to Advanced Principles of Health Science (0715) requires a minimum course completion score of 80% in Foundations of Health Science (0711).*

***These courses require 100% drug testing prior to entering clinical experiences.*

WV CTE Program of Study:	HE0742 Health Informatics
Program Required Courses:	<p>0711 Foundations of Health Science - must be taken prior to any specialization*</p> <p>0715 Advanced Principals of Health Science*</p> <p>1443 Medical Office Management</p> <p>(+1 Specializations)</p>
Specialization Courses:	<p><i>Must Select One:</i></p> <p>0769 Introduction to Health Informatics</p> <p>0768 Health Care Statistics</p> <p>0777 Electronic Health Record Specialty</p> <p>0789 Clinical Specialty I **</p>

Therapeutic Services Career Pathway Standards

1. Utilize communication strategies to answer patient/client questions and concerns on planned procedures and goals.
2. Communicate patient/client information among healthcare team members to facilitate a team approach to patient care.
3. Utilize processes for assessing, monitoring and reporting patient's/clients' health status to the

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- treatment team within protocol and scope of practice.
4. Evaluate patient/client needs, strengths and problems in order to determine if treatment goals are being met.
 5. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities.

Notes:

- *Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.*
- *EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.*
- *Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.*

**Foundations of Health Science (0711) is a prerequisite for Advanced Principles of Health Science (0715). These two courses provide the introductory core for all Health Science programs of study.*

**Admission to Advanced Principles of Health Science (0715) requires a minimum course completion score of 80% in Foundations of Health Science (0711).*

***These courses require 100% drug testing prior to entering clinical experiences.*

WV CTE Program of Study:	HE0715 Allied Health Sciences
Program Required Courses:	0711 Foundations of Health Science* 0715 Advanced Principles of Health Science* (+Specialization)
Specialization Courses:	<i>(Must select one specialization area and enroll in the two courses to be a completer):</i> Dental Assisting 0746 Dental Science 0743 Dental Assisting Clinical Science** or Emergency Services 0792 Emergency Services 1 0732 Emergency Services 2** or Medical Assisting 0737 Medical Assistant Laboratory and Diagnostic Procedures 0733 Medical Assistance Clinical** or Pre-Nursing 0771 PTCB Prep 0615 Certified Nursing Assistant** orPTCP Prep 0771 PTCB Preparation 0772 PTCB Clinical Applications** <i>0730 Health Science Clinical Experience may be scheduled in conjunction with 0772, 0615, 0733 and 0732 as an elective to create a 2-credit block</i>
WV CTE Program of Study:	HE1095 Personal Fitness and Wellness Training
Program Required Courses:	1051 Foundations of Wellness 1052 Models of Wellness Training 1053 Wellness Coaching Skills 1054 Practical Applications of Wellness Training
WV CTE Program of Study:	HE0723 Therapeutic Services

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<p>Program Required Courses:</p>	<p>0711 Foundations of Health Science*</p> <p>0715 Advanced Principles of Health Science* <i>Select 1 (from the specialties below)</i></p> <p>0789 Clinical Specialties I** <i>Select 1 (from the specialties below)</i> <i>0730 Health Science Clinical Experience may be scheduled in conjunction with 0789 or 0790 to create a 2-credit block</i></p> <p>0790 Clinical Specialties II** <i>Select 1 (from the specialties below)</i> <i>0730 Health Science Clinical Experience may be scheduled as an elective in conjunction with 0789 or 0790 to create a 2-credit block</i></p>
<p>Specialty:</p>	<p><i>(Must select one specialty):</i></p> <ul style="list-style-type: none"> ▪ Advanced Health Seminar ▪ Certified Nursing Assistant ▪ Certified ECG Technician ▪ Certified Health Unit Coordinator ▪ Certified Patient Care Technician ▪ Certified Phlebotomy Technician ▪ Community Emergency Response Team ▪ Dental Aide ▪ Dietary Aide ▪ Direct Care Worker ▪ Electronic Health Record Specialist ▪ Environmental Services ▪ Orientation to Practical Nursing ▪ Laundry Aide ▪ Physical Therapy Aide ▪ Pre-Pharmacy Technician ▪ Imagery Aide ▪ Veterinary Science Aide

Hospitality & Tourism Career Cluster™ (HO)

Restaurants & Food/ Beverage Services Career Pathway Standards

1. Describe ethical and legal responsibilities in food and beverage service facilities.
2. Demonstrate safety and sanitation procedures in food and beverage service facilities.
3. Use information from cultural and geographical studies to guide customer service decisions in food and beverage service facilities.
4. Demonstrate leadership qualities and collaboration with others.
5. Research costs, pricing, market demands and marketing strategies to manage profitability in food and beverage service facilities.
6. Explain the benefits of the use of computerized systems to manage food service operations and guest service.
7. Utilize technical resources for food services and beverage operations to update or enhance present practice.
8. Implement standard operating procedures related to food and beverage production and guest

<p>service.</p> <p>9. Describe career opportunities and qualifications in the restaurant and food service industry.</p> <p>10. Apply listening, reading, writing and speaking skills to enhance operations and customer service in food and beverage service facilities.</p> <p>11. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities.</p> <p>Notes:</p> <ul style="list-style-type: none"> • <i>Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.</i> • <i>EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.</i> • <i>Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.</i> 	
WV CTE Program of Study:	HO1015 Baking and Pastry
Program Required Courses:	<p>1980 Baking & Pastry Foundations</p> <p>1024 Baking and Pastry I</p> <p>1025 Baking and Pastry II</p> <p>1026 Baking and Pastry Advanced</p>
WV CTE Program of Study:	HO1010 ProStart Restaurant Management
Program Required Courses:	<p>1013 Restaurant and Culinary Foundations</p> <p>1014 Restaurant Management Essentials</p> <p>1019 Advanced Principles in Food Production</p> <p>1020 Restaurant Professional</p>

Travel & Tourism Career Pathway Standards	
<p>1. Apply information about time zones, seasons and domestic and international maps to create or enhance travel.</p> <p>2. Apply unit and time conversion skills to develop travel schedules and compute cost, distance and time (including travel time) factors.</p> <p>3. Analyze cultural diversity factors to enhance travel planning.</p> <p>4. Assess the potential (real and perceived) hazards related to multiple environments, and recommend appropriate safety, health and security measures for travelers.</p> <p>5. Develop a safety and security plan containing proactive and reactive solutions to manage emergency situations for travelers and staff.</p> <p>6. Use common travel and tourism terminology used to communicate within the industry.</p> <p>7. Customize travel with diverse transportation, lodging, cruise and food options.</p> <p>8. Compare and contrast services and products from related industries to understand and evaluate how they impact the delivery of travel and tourism products and services to customers.</p> <p>9. Identify the community elements necessary to maintain cooperative tourism development efforts.</p> <p>10. Develop a travel product that matches customer needs, wants and expectations.</p> <p>11. Design promotional packages to effectively market travel and tourism.</p> <p>12. Select the most effective communication technique and media venue to convey travel marketing information to a target audience.</p> <p>13. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities.</p> <p>Notes:</p>	

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<ul style="list-style-type: none"> • <i>Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.</i> • <i>EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.</i> • <i>Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.</i> 	
WV CTE Program of Study:	HO1210 Hospitality and Tourism
Program Required Courses:	1211 Introduction to Hospitality and Tourism 7663 Travel West Virginia (+Specialization Pathway)
Specialization Courses:	<i>(Must select one specialization area and complete two of the specialization courses to be a completer):</i> Event Planning 1115 Event Planning Essentials 1212 Event and Project Planning and Management 1210 Hospitality and Tourism Internship orRecreation and Adventure Tourism 0438 Adventure Tourism 1086 Outdoor Education 1125 Parks and Recreation Program Management 1210 Hospitality and Tourism Internship orHospitality and Travel 1015 Hospitality Products and Services 0437 Hospitality and Tourism Marketing 1220 Hospitality and Entrepreneurship Applications 1210 Hospitality and Tourism Internship orLodging Management 1203 Front Office Foundations 1205 Lodging Leadership Management 1210 Hospitality and Tourism Internship

Human Services Career Cluster™ (HU)

Family & Community Services Career Pathway Standards	
<ol style="list-style-type: none"> 1. Use formal and informal assessment practices to create and evaluate a prevention and/or treatment plan. 2. Identify community resources to provide family and community services. 3. Communicate effectively to gain support from the client's family and other support groups. 4. Comply with laws and procedures that govern abuse, neglect, confidentiality and other health and safety situations. 5. Evaluate crisis prevention, intervention and resolution techniques to formulate emergency plans. 6. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities. 	
Notes:	
<ul style="list-style-type: none"> • <i>Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.</i> 	

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<ul style="list-style-type: none"> • <i>EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.</i> • <i>Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.</i> 	
WV CTE Program of Study:	HU1025 Human Services
Program Required Courses:	0928 Fundamentals of Human Services 0903 Parenting and Strong Families
Specialization Courses:	<i>(Must select one specialization area and complete the two specialization courses to be a completer):</i> Human Development 1070 Practical Applications of Human Services 1071 Seminar in Human Services or Prevention Support 1070 Essentials of Addiction and Prevention 1071 Practical Applications of Preservation Assistance

Personal Care Services Career Pathway Standards	
<ol style="list-style-type: none"> 1. Analyze basic principles of biology, chemistry and human anatomy for safe and effective utilization and selection of personal care products and services. 2. Evaluate an individualized personal care plan that reflects client preferences, needs and interests for a course of treatment/action. 3. Utilize data and information to maintain electronic records of client services and make recommendations for personal care services. 4. Demonstrate policies and procedures to achieve a safe and healthy environment for personal care services. 5. Develop organizational policies, procedures and regulations that establish personal care organization priorities, accomplish the mission, and provide high-quality service to a diverse set of clients and families. 6. Identify personal care business opportunities enhanced by community involvement, self-improvement and current trends. 7. Apply methods of obtaining feedback to understand expectations and promote high-quality personal care services standards. 8. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities. 	
Notes:	
<ul style="list-style-type: none"> • <i>Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.</i> • <i>EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.</i> • <i>Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.</i> 	
WV CTE Program of Study:	HU2035 Barbering
Program Required Courses:	1737 Barbers and Cosmetology Foundations 1150 Barbering Science I 1151 Barbering Science II 1152 Barbering Professional I
Specialization Courses:	<i>Select the five courses listed below to complete the Minimum</i>

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	<p><i>Requirements for Barbers by the Board of Barbers and Cosmetologists:</i></p> <p>1155 Barbering Science Advanced 1153 Barbering Professional II 1156 Barbering Professional III 1157 Barbering Professional IV 1758 Barbering Professional Advanced</p>
WV CTE Program of Study:	HU2310 Pre-Cosmetology
Program Required Courses:	1737 Barbering and Cosmetology Foundations
Specializations:	<p>Aesthetics</p> <p>1732 Skin Sciences I 1731 Aesthetics Science 1714 General Aesthetics I</p> <p>Nail Technology</p> <p>1716 Nail Technology Science and Procedure 1717 Art of Nail Technology 1719 Nail Technology Clinical Experience</p> <p>Hair Stylist</p> <p>1734 Cosmetology Professional I 1735 Cosmetology Professional II 1736 Cosmetology Professional Advanced</p>
Advanced Specialization Courses:	<p><i>Select the four courses listed below to complete the Minimum Requirements for Hair Stylist by the Board of Barbers and Cosmetologists:</i></p> <p>1738 Cosmetology Science I 1740 Cosmetology Science II 1730 Cosmetology Chemical 1750 Cosmetology Chemicals II</p> <p><i>Select the course listed below to complete the Minimum Requirements for Aesthetics by the Board of Barbers and Cosmetologists:</i></p> <p>1739 General Aesthetics II</p>

Information Technology Career Cluster™ (IT)

Computer Programming & Software Development Career Pathway Standards

1. Analyze customer software needs and requirements.
2. Demonstrate the use of industry standard strategies and project planning to meet customer specifications.
3. Analyze system and software requirements to ensure maximum operating efficiency.
4. Demonstrate the effective use of software development tools to develop software applications.
5. Apply an appropriate software development process to design a software application.
6. Program a computer application using the appropriate programming language.
7. Demonstrate software testing procedures to ensure quality products.
8. Perform quality assurance tasks as part of the software development cycle.
9. Perform software maintenance and customer support functions.
10. Design, create and maintain a database.
11. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based

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service projects to enhance leadership opportunities.

Notes:

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WV CTE Program of Study:	IT2215 Computer Science (PLTW)
Program Required Courses:	1408 Computer Science Essentials (PLTW) 2806 Computer Science Principles (PLTW) 2801 Computer Science Applications (PLTW) (+Specialization)
Specialization Courses:	<i>Must Select One:</i> 1414 Simulation and Modeling (PLTW) 1416 Artificial Intelligence (PLTW) 1418 Cybersecurity (PLTW) 1420 Capstone Course: Computational Problem Solving (PLTW)

Information Support & Services Career Pathway Standards

1. Provide technology support to maintain service.
2. Manage operating systems and software applications, including maintenance of upgrades, patches and service packs.
3. Apply appropriate troubleshooting techniques in resolving computer hardware, software and configuration problems.
4. Perform installation, configuration and maintenance of operating systems.
5. Demonstrate the use of networking concepts to develop a network.
6. Evaluate the effectiveness of an information system.
7. Employ system installation and maintenance skills to setup and maintain an information system.
8. Employ system administration and control skills to monitor the performance of an information system.
9. Employ technical writing and documentation skills in support of an information system.
10. Apply quality assurance processes to maximize information system operation.
11. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities.

Notes:

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WV CTE Program of Study:	IT2210 Informatics (AC)
Program Required Courses:	1550 AC Informatics I 1551 AC Informatics II 1552 AC Informatics III 1553 AC Informatics IV

Interactive Media Pathway Standards

1. Analyze customer requirements to design and develop a Web or digital communication product.
2. Apply the design and development process to produce user-focused Web and digital communications solutions.
3. Write product specifications that define the scope of work aligned to customer requirements.
4. Demonstrate the effective use of tools for digital communication production, development and project management.
5. Develop, administer and maintain Web applications.
6. Design, create and publish a digital communication product based on customer needs.
7. Evaluate the functionality of a digital communication product using industry accepted techniques and metrics.
8. Implement quality assurance processes to deliver quality digital communication products and services.
9. Perform maintenance and customer support functions for digital communication products.
10. Comply with intellectual property laws, copyright laws and ethical practices when creating Web/digital communications.
11. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities.

Notes:

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WV CTE Program of Study:	IT1442 Coding, App and Game Design
Program Required Courses:	1431 Digital Imaging / Multimedia I 1456 Coding, App and Game Design I (+ Specialization)
Specialization Courses:	<i>Must Select one specialization area and enroll in the two courses to be a completer:</i> Game Developer: 1432 Digital Imaging/Multimedia II 1457 Coding, App and Game Design II or Stack Development: 1459 Platform App Builder 1458 App Administrator
Specialization Courses:	<i>Must Select one specialization area and enroll in the two courses to be a completer:</i> Game Developer: 1432 Digital Imaging/Multimedia II 1457 Coding, App and Game Design II or Stack Development 1459 Platform App Builder 1458 App Administrator
WV CTE Program of Study:	IT1450 Information Management

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Program Required Courses:	(Must select four courses):
	1411 Business Computer Applications I 1413 Business Computer Applications II 1429 Desktop Publishing 1431 Digital Imaging / Multimedia I 1432 Digital Imaging / Multimedia II(<i>Prerequisite: 1431 Digital Imaging / Multimedia I</i>) 1455 Webpage Publishing
WV CTE Program of Study:	IT1445 Virtual Simulation and Game Development
Program Required Courses:	1431 Digital Imaging/Multimedia I (A) 1455 Web Page Publishing (B) 1465 Game Design I Virtual (C) 1466 Game Design II Virtual (D)
Virtual School Courses:	(A) Digital Photography I (0.5) Digital Photography II (0.5) (B) Web Page Publishing - Semester 1 (0.5) Web Page Publishing - Semester 2 (0.5) (C) Web Design (0.5) Game Design I (0.5) (D) Foundations of Programming (1.0)

Network Systems Career Pathway Standards

- Analyze customer or organizational network system needs and requirements.
- Analyze wired and wireless network systems to determine if they meet specifications (i.e., IEEE, power, security).
- Design a network system using technologies, tools and standards.
- Perform network system installation and configuration.
- Perform network administration, monitoring and support to maintain a network system.
- Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities.

Notes:

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WV CTE Program of Study:	IT1640 CISCO Networking Academies
Program Required Courses:	1642 CCENT1 1644 CCENT2 1646 CCENT3 1648 CCENT4
WV CTE Program of Study:	IT1680 Computer Systems Repair Technology

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Program Required Courses:	1664 CompTIA A+220-901 1665 CompTIA A+220-902 1694 Networking+N10-006 (+Specialization)
Specialization Courses:	<i>Must Select One:</i> 1695 Server + 1696 Security + 1698 Linux Essentials

Law, Public Safety, Corrections & Security Career Cluster™ (LA)

Emergency and Firefighting Management Services Career Pathway Standards	
<ol style="list-style-type: none"> 1. Compare and contrast relevant aspects of different career fields available for professionals in fire and emergency management, 2. Execute protocols for handling emergency situations that range from minor medical and fire emergencies to area-wide incidents to demonstrate the application and enhancement of key skills used to respond effectively in such instances. 3. Execute operational and repair requirements when using equipment in order to maintain functional equipment ready for use in fire and medical emergency situations. 4. Examine equipment and summarize the various applications for equipment commonly used in emergency and fire management services. 5. Design and implement an appropriate Incident Command System to assure the effective management of logistical procedures at an incident scene. 6. Recognize materials as hazardous using common codes and icons used in the fire and emergency management environment. 7. Analyze and summarize hazardous materials transportation modes in order to assure the safe transport of substances from fire and emergency scenes. 8. Implement public relations plans involving key community audiences and the local fire and emergency management facilities in order to enhance public awareness and safety in fire and emergency situations. 9. Examine and summarize the various elements and issues involved in using Preparedness and Response Systems during disaster situations in order to demonstrate understanding of the systems available for managing large scale disasters. 10. Examine and summarize the key functions and techniques of critical infrastructure protection to assure protection of potential targets for terrorism and/or natural disasters. 11. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities. <p>Notes:</p> <ul style="list-style-type: none"> • <i>Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.</i> • <i>EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.</i> • <i>Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.</i> 	
WV CTE Program of Study:	LA2200 Emergency and Firefighting Management Services
Program Required Courses:	2203 Fire Fighting I

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	2205 Fire Fighting II (+Specialization)
Specialization Courses:	<p><i>(Must select one specialization area and complete two of the specialization courses to be a completer):</i></p> <p>Industrial Fire Safety 2250 Industrial Incident Command 2251 Industrial Hazardous Material or Emergency Management 0792 Emergency Services 1 0732 Emergency Services 2</p>

Law Enforcement Services Career Pathway Standards

1. Demonstrate knowledge of appropriate techniques for managing crisis situations in order to maintain public safety.
2. Demonstrate knowledge of protocols and procedures designed for handling and managing domestic violence, motor vehicle traffic stops, explosive and hazardous materials incidents, crime scenes, and evidence collection.
3. Describe and perform protocols and procedures designed to safely transport a person in custody.
4. Understand and demonstrate techniques and protocols for effectively and safely responding to crimes in progress in order to ensure individual and public safety.
5. Execute protocols and procedures involved with juvenile victims and offenders in order to protect their rights.
6. Investigate and document a motor vehicle accident in compliance with prescribed procedures.
7. Evaluate situations that require the use of force and demonstrate the appropriate level of force necessary.
8. Demonstrate the ability to recognize the signs and symptoms of possible child abuse and neglect.
9. Examine and summarize the various law enforcement issues involved in Preparedness and Response Systems for disaster and potential terrorist situations.
10. Demonstrate knowledge of Victims' Rights and procedures for protecting them.
11. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities.

- Notes:**
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WV CTE Program of Study:	LA1020 Law and Public Safety
Program Required Courses:	<p>1225 Fundamentals of Public Safety Leadership 1226 Ethical Issues in Public Safety 1039 Practical Applications of Public Safety (+Specialization)</p>
Specialization Courses:	<p><i>Must Select One:</i></p> <p>1034 Seminar in Corrections 1035 Seminar in Law Enforcement 1037 Strategic Security and Protection</p>

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	1031 Seminar in Courts and Legal System
	6044 Forensic Science

Legal Services Career Pathway Standards

1. Execute techniques for effective listening in order to manage receipt of orally communicated information delivered in a legal services environment.
2. Write accomplished materials to demonstrate specific academic writing skills desired from professionals in the legal services environment.
3. Model skills associated with the effective application of information technology tools used to perform daily tasks assigned to legal services professionals.
4. Execute the use of legal terminology in order to effectively communicate within the legal services community of practice.
5. Model the technical knowledge and skills required of legal services professionals in order to pursue the full range of careers in the legal services pathway.
6. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities.

Notes:

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WV CTE Program of Study:	LA1490 Paralegal Assistant
Program Required Courses:	7780 Introduction to the Court Systems and Legal Procedure
	7781 Paralegal Skills
	1413 Business Computer Applications II
	1525 Computerized Legal Office Software

Manufacturing Career Cluster™ (MA)

Maintenance, Installation, & Repair Career Pathway Standards

1. Demonstrate maintenance skills and proficient operation of equipment to maximize manufacturing performance.
2. Demonstrate the safe use of manufacturing equipment to ensure a safe and healthy environment.
3. Diagnose equipment problems and effectively repair manufacturing equipment.
4. Investigate and employ techniques to maximize manufacturing equipment performance.
5. Implement a preventative maintenance schedule to maintain manufacturing equipment, tools and workstations.
6. Implement an effective, predictive and preventive manufacturing equipment maintenance program.
7. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities.

Notes:

- *Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.*

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<ul style="list-style-type: none"> • <i>EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.</i> • <i>Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.</i> 	
WV CTE Program of Study:	MA1780 Electronics Technician
Program Required Courses:	1666 DC Circuit Concepts 1667 AC Circuit Concepts 1668 Analog Circuits and Systems 1669 Digital and Computer Concepts
WV CTE Program of Study:	MA1870 Industrial Equipment Maintenance
Program Required Courses:	1873 Fundamentals of Industrial Equipment Maintenance 1875 Hydraulic and Pneumatic Systems 1871 Electrical Maintenance 1985 Fundamentals of Welding Technology

Manufacturing Production Process Development Career Pathway Standards

1. Produce quality products that meet manufacturing standards and exceed customer satisfaction.
2. Research, design and implement alternative manufacturing processes to manage production of new and/or improved products.
3. Monitor, promote and maintain a safe and productive workplace using techniques and solutions that ensure safe production of products.
4. Implement continuous improvement processes in order to maintain quality within manufacturing production.
5. Develop procedures to create products that meet customer needs.
6. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities.

Notes:

- *Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.*
- *EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.*
- *Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.*

WV CTE Program of Study:	MA2235 Integrated Production Technology (AC)
Program Required Courses:	1575 AC Advanced Manufacturing I 1576 AC Advanced Manufacturing II 1577 AC Advanced Manufacturing III 1578 AC Advanced Manufacturing IV
WV CTE Program of Study:	MA1630 Robotics
Program Required Courses:	1866 Robotics REC 1 1867 Robotics REC 2 (+Specialization)
Specialization Courses:	<i>Must select one specialization area and complete two of the specialization courses to be a completer:</i> Robotics 1868 Robotics REC 3 1869 Robotics REC 4

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	<p><i>or Drones</i></p> <p>1887 FAA 107 Ground Operations</p> <p>1888 FAA 107 Flight Operations</p> <p><i>or FANUC</i></p> <p>1889 FANUC Operator 1</p> <p>1890 FANUC Operator 2</p>
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Production Career Pathway Standards

1. Diagnose production process problems and take corrective action to meet production quality standards.
2. Manage safe and healthy production working conditions and environmental risks.
3. Make continuous improvement recommendations based on results of production process audits and inspections.
4. Coordinate work teams when producing products to enhance production process and performance.
5. Demonstrate the safe use of manufacturing equipment.
6. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities.

- Notes:**
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 - *Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.*

WV CTE Program of Study:	MA1900 Machine Tool Technology
Program Required Courses:	<p>1903 Fundamentals of Machine Tool Technology</p> <p>1905 Fundamentals of Machine Processes</p> <p>1907 Machine Tool Operations</p> <p>1909 Metal Trades Processes and Applications</p>
WV CTE Program of Study:	MA2120 Millwork and Cabinetmaking
Program Required Courses:	<p>2126 Millwork and Cabinetmaking I</p> <p>2127 Millwork and Cabinetmaking II</p> <p>2128 Millwork and Cabinetmaking III</p> <p>2129 Millwork and Cabinetmaking IV</p>
WV CTE Program of Study:	MA1980 Welding
Program Required Courses:	<p>1862 Welding I</p> <p>1863 Welding II</p> <p>1864 Welding III</p> <p>1865 Welding IV</p>

Marketing Career Cluster™ (MK)

Marketing Management Career Pathway Standards

1. Plan, organize, and lead marketing staff to achieve business goals.
2. Plan, manage, and monitor day-to-day marketing management operations.

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<ol style="list-style-type: none"> 3. Plan, manage, and organize to meet the requirements of the marketing plan. 4. Access, evaluate and disseminate information to aid in making marketing management decisions. 5. Determine and adjust prices to maximize return and meet customers' perceptions of value. 6. Obtain, develop, maintain and improve a product or service mix in response to market opportunities. 7. Communicate information about products, services, images and/or ideas. 8. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities. <p>Notes:</p> <ul style="list-style-type: none"> • <i>Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.</i> • <i>EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.</i> • <i>Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.</i> 	
WV CTE Program of Study:	MK0420 Marketing Management
Program Required Courses:	0422 Marketing Principles 0425 Marketing Applications (+ 2 Specializations)
Specialization Courses:	<i>Must select two:</i> 1401 Accounting Principles I 1431 Digital Imaging/ Multimedia I 1439 Business Marketing Essentials 1455 Webpage Publishing 0407 Fashion Marketing 0437 Hospitality And Tourism Marketing 0428 Marketing Work Experience/Internship 0441 Real Estate Marketing 0434 Sports, Entertainment & Rec Marketing

Science, Technology, Engineering & Mathematics Career Cluster™ (ST)

Engineering & Technology Career Pathway Standards	
<ol style="list-style-type: none"> 1. Use STEM concepts and processes to solve problems involving design and/or production. 2. Display and communicate STEM information. 3. Apply processes and concepts for the use of technological tools in STEM. 4. Apply the elements of the design process. 5. Apply the knowledge learned in STEM to solve problems. 6. Apply the knowledge learned in the study of STEM to provide solutions to human and societal problems in an ethical and legal manner. 7. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities. <p>Notes:</p> <ul style="list-style-type: none"> • <i>Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.</i> • <i>EVERY student must pass ALL safety exams with a score of 100% before having access to available</i> 	

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<i>equipment.</i> <ul style="list-style-type: none"> • <i>Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.</i> 	
WV CTE Program of Study:	ST2200 Aerospace Engineering (AC)
Program Required Courses:	1540 AC Aerospace Engineering I 1541 AC Aerospace Engineering II 1542 AC Aerospace Engineering III 1543 AC Aerospace Engineering IV
WV CTE Program of Study:	ST2225 Clean Energy (AC)
Program Required Courses:	1565 AC Clean Energy I 1566 AC Clean Energy II 1567 AC Clean Energy II 1568 AC Clean Energy IV
WV CTE Program of Study:	ST2175 Energy and Power (AC)
Program Required Courses:	2485 AC Energy, Power and Engineered Systems I 2486 AC Energy, Power and Engineered Systems II 2487 AC Energy, Power and Engineered Systems III 2488 AC Energy, Power and Engineered Systems IV
WV CTE Program of Study:	ST2205 Innovations in Science and Technology (AC)
Program Required Courses:	1545 AC Innovations in Science and Technology I 1546 AC Innovations in Science and Technology II 1547 AC Innovations in Science and Technology III 1548 AC Innovations in Science and Technology IV
WV CTE Program of Study:	ST2460 Pre-Engineering – Project Lead the Way
Program Required Courses:	2461 Introduction to Engineering Design (PLTW) 2463 Principles of Engineering (PLTW) (+ 2 Specializations)
Specialization Courses:	<i>Must select two:</i> 2468 Aerospace Engineering (PLTW) 2466 Civil Engineering and Architecture (PLTW) 2465 Computer Integrated Manufacturing (PLTW) 2462 Digital Electronics (PLTW) 2464 Engineering Design and Development (PLTW) 2469 Environmental Sustainability (PLTW) 2806 Computer Science Principles (PLTW)

Transportation, Distribution & Logistics Career Cluster™ (TR)

Facility & Mobile Equipment Maintenance Career Pathway Standards

1. Develop preventative maintenance plans and systems to keep facility and mobile equipment inventory in operation.
2. Design ways to improve facility and equipment system performance.
3. Demonstrate the effective use of computer based equipment (containing embedded computers or processors) to control electromechanical devices commonly used in conducting work within industry.
4. Manage ongoing customer relationships with both internal and external customer groups in order

<p>to maintain ongoing business.</p> <p>5. Assess and implement measures to maintain safe and healthful working conditions within the organization.</p> <p>6. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based service projects to enhance leadership opportunities.</p> <p>Notes:</p> <ul style="list-style-type: none"> • <i>Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.</i> • <i>EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.</i> • <i>Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.</i> 	
WV CTE Program of Study:	TR1620 Automotive Technology
Program Required Courses:	<p>1631 Automotive Technology (Maintenance and Light Repair (MLR)-1</p> <p>1623 Automotive Technology MLR-2</p> <p>1625 Automotive Technology MLR-3</p> <p>1637 Automotive Technology MLR-4</p>
Specialization Courses:	<p><i>Select the four courses listed below to complete the Automotive Service Technician (AST):</i></p> <p>1629 Automotive Technology AST-1</p> <p>1633 Automotive Technology AST-2</p> <p>1635 Automotive Technology AST-3</p> <p>1627 Automotive Technology AST-4</p>
WV CTE Program of Study:	TR1670 Collision Repair Technology
Program Required Courses:	<p>1671 Fundamentals of Collision Repair Technology</p> <p>1675 Non-Structural Analysis and Damage Repair</p> <p>1677 Structural Analysis and Damage Repair</p> <p>1679 Surface Preparation and Refinishing</p>
WV CTE Program of Study:	TR1740 Diesel Equipment Technology
Program Required Courses:	<p>1751 Fundamentals of Diesel Equipment Technology</p> <p>1744 Electronic Engine Control</p> <p>1741 Diesel Engine Components</p> <p>1747 Diesel Support Systems</p>
WV CTE Program of Study:	TR1960 Power Equipment Systems
Program Required Courses:	<p>1962 Fundamentals of Power Equipment I</p> <p>1964 Fundamentals of Power Equipment II</p> <p>1966 Power Equipment Service I</p> <p>1968 Power Equipment Service II</p>

Transportation Systems / Infrastructure Planning, Management & Regulation Career Pathway Standards

1. Develop plans to maintain and/or improve the transportation infrastructure.
2. Assess, plan and manage the implementation of transportation services.
3. Describe ways to improve the system utilization, flow, safety and environmental performance of transportation systems.
4. Participate in a co-curricular CTSO that provides a variety of ongoing school and community-based

<p>service projects to enhance leadership opportunities.</p> <p>Notes:</p> <ul style="list-style-type: none"> • <i>Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.</i> • <i>EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.</i> • <i>Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.</i> 	
WV CTE Program of Study:	TR2215 Global Logistics and Supply Chain Management (AC)
Program Required Courses:	<p>1555 AC Global Logistics and Supply Chain Management I</p> <p>1556 AC Global Logistics and Supply Chain Management II</p> <p>1557 AC Global Logistics and Supply Chain Management III</p> <p>1558 AC Global Logistics and Supply Chain Management IV</p>

West Virginia Career Cluster (WV)

Career Integrated Experiential Learning Career Pathway Standards	
<ol style="list-style-type: none"> 1. Develop skills and practices required for entry-level employment. 2. Demonstrate basic mathematical, reading, writing, critical and creative thinking, decision-making, and problem-solving skills to effectively perform entry-level career tasks. 3. Model positive work behaviors and personal qualities, including displaying a willingness to acquire new knowledge and skills, demonstrating integrity in a work situation, and indicating a willingness to follow rules and procedures. 4. Investigate interpersonal skills, including teamwork, conflict management, and problem solving. 5. CIEL pathway completers will not be considered state -approved completers for career-readiness accountability measures. <p>Notes:</p> <ul style="list-style-type: none"> • <i>Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.</i> • <i>EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.</i> • <i>Students Certifications and CTE elective courses for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13.</i> 	
WV CTE Program of Study:	WV5501 Career Integrated Experiential Learning (CIEL)
CTE Anchor Course(s):	<p>To be a CIEL completer, the personalized program of study must contain, at minimum, one Anchor course outlined in the sixteen nationally recognized career clusters listed within this policy. An Anchor course may be a REQUIRED COURSE or a SPECIALIZATION COURSE that is provided as part of the county's state-approved standards.</p>
CIEL Courses:	<p><i>To be a CIEL completer, the program of study may not include more than three of the following courses:</i></p> <p>0522 Ready to Work 1</p> <p>0524 Ready to Work 2</p> <p>0523 Entrepreneurial Preparedness</p> <p>0520 Work-Based Integration and Transition 1</p>

Individual Work Ready Competencies Career Pathway

1. The *IWRCP* pathway is designed to provide some students with an IEP who are pursuing a standard high school diploma the opportunity to gain work readiness and occupation ready skills related to their desired CTE career programs of study during high school.
2. An IWRRC student must enroll in the four required CTE program of study courses as detailed in this policy and plan to enter the workforce directly after high school with on-the-job-training, apprenticeship or continued technical training as an adult.
Prerequisites: Before selecting IWRRC, students must have initially selected a state-approved CTE program of study option, passed ALL safety exams with a 100%, demonstrated the ability to acquire basic/core CTE skills at an entry level, and were unable to master ALL of the required skill sets associated with their chosen state -approved CTE program of study.
3. The Personalized Education Plan (PEP) and the student’s IEP must be updated to reflect the change from state -approved CTE program of study to state-approved IWRRC.
4. The IEP for the student describes any specially designed instruction, support or accommodations necessary for student success.
5. Students enrolled in the IWRRC pathway must master the agreed upon CTE skill sets within the state-approved WVDE program of study in order to be counted as a CTE completer. IWRRC pathway completers will not be considered State -Approved Completers for Career Readiness accountability measures.

Notes:

- *IWRRC is an option for ALL state-approved CTE programs of study.*
- *Successful completers will demonstrate their technical skills attainment through the CTE portfolio and state-approved technical assessment processes.*
- *EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment.*
- *CTE staff must be represented at students’ IEP Team meetings when the student is a prospective CTE participant.*
- *CTE elective courses for all state-approved programs of study can be located in the Guidance Document of the Policy 2520.13.*
- *CTE instructors must confirm that they have read the most recent IEP in order to document awareness of students’ needs.*

WV CTE Program of Study:	WV5502 Individual Work Ready Competencies (IWRRC)
IWRRC Program Requirements:	<p>Eligibility for participation in IWRRC will be based on the following:</p> <ul style="list-style-type: none"> • Students shall have a current IEP and be pursuing a standard diploma • Students shall be provided accommodations and/or supports as indicated in the IEP • Students must pass ALL safety exams with a score of 100% • Student is unable to master ALL required skill sets of the CTE program of study
Program Evaluation:	<ul style="list-style-type: none"> • <i>The student will follow the state-approved CTE program of study, as well as all specialized courses associated with the program that is available at their local CTE center, comprehensive high school, high school or multi-county center.</i> • <i>The student will follow the IWRRC skill sets established.</i>

	<ul style="list-style-type: none"> The student will complete the appropriate technical assessment for the CTE program of study and the CTE portfolio with accommodations or supports as indicated in the IEP.
Recommended Student Certification(s):	The IWRC student will be eligible to test for all industry certifications upon meeting qualifications.

Career Technical Education: Foundational Standards and Courses

CTE Foundational Course Standards	
1.	Students understand the academic content required for entry into postsecondary education and/or the workforce.
2.	Students understand the principles of effective oral, written and multimedia communication in a variety of formats and contexts.
3.	Students understand how to make effective decisions, use career information and manage personal career plans: <ul style="list-style-type: none"> (a) explore job qualifications, interests, aptitudes, information and skills necessary to succeed in a career; (b) understand the scope of career opportunities and the requirements for education, training and licensure within a career; (c) develop a career plan that is designed to reflect career interests, pathways and postsecondary possibilities; (d) explore strategies for self-promotion in the interviewing process, such as job applications, résumé writing, interviewing skills and preparation of a portfolio.
4.	Students utilize career-planning concepts, tools and strategies to explore, obtain and/or develop a career.
5.	Students understand the use of technological resources as they apply to career preparedness.
6.	Students understand how to develop alternate solutions by integrating critical and creative thinking skills, such as logical reasoning, analytical thinking and problem-solving techniques.
7.	Students demonstrate the proper behaviors associated with workplace etiquette and business processes.
8.	Students understand effective leadership styles, key concepts of group dynamics, team and individual decision-making, the benefits of workforce diversity and conflict resolution.
Notes:	
<ul style="list-style-type: none"> EVERY student must pass ALL safety exams with a score of 100% before having access to available equipment. Student Certifications for all state-approved programs of study can be located in the Guidance Document of Policy 2520.13. 	
The following courses are foundational and are considered non-occupational:	
0290	Exploration in Agriculture (5-8)
0295	Exploring Business, Marketing and Entrepreneurship (5-8)
0700	Exploring Health Professions (5-12)
0901	Life Connections (9-12)
0903	Parenting and Strong Families (8-12)
0922	Life Basics (5-8)
0929	Learning for Independence Family and Employment (9-12)
0941	Applied Design-Housing and Interior Design (9-12)
0954	Foundational Food Preparation (9-12)

0961	Applied Design-Fashion (9-12)
1404	Business Prep (5-8)
1441	Keyboarding (5-12)
1893	Gateway Automation and Robotics
1894	Gateway Design and Modeling
1895	Gateway Energy and Environment
1896	Gateway Flight and Space
1897	Gateway Green Architecture
1898	Gateway Magic of Electrons
1899	Gateway Science of Technology
1900	Gateway Medical Detectives
1918	Gateway Computer Science 1
1920	Gateway Computer Science 2
2406	Middle Exploring Technology 6
2407	Middle Exploring Technology 7
2408	Middle Exploring Technology 8
2409	Middle Exploring Technology 9
7664	Touring West Virginia (5-12)

Advanced Career Education

Advanced Career Education (ACE)

1. All ACE students who enter career technical centers must have a high school diploma or High School Equivalency (HSE) diploma. Persons interested in CTE not possessing a high school diploma or a HSE diploma will be referred to an Adult Learning Center. An ACE student must obtain a diploma or HSE prior to enrollment.
2. All ACE students who enter career technical centers should be assessed prior to enrollment. Pre-assessment requirements will be determined by the institution.
3. The enrollment process for ACE students shall include full disclosure of:
 - exact program of study title and course plan of study/course sequence;
 - number of clock/credit hours of instruction to be provided;
 - tuition, fees and other program costs;
 - course skills sets and instructional outcomes;
 - national certifications/credentials to be earned with disclosure of any waiting periods or work requirements to sit for the exam;
 - articulation agreements available;
 - student performance expectations and graduation requirements; and
 - admission and academic requirements for enrollment.
4. ACE programs of study that are designed to lead to a completion certificate, credential and/or career must be submitted to the WVDE for approval, regardless of funding source.
5. The institution shall maintain records, which include student attendance, grades and academic progress.
6. The institution shall maintain appropriate written policies, procedures and plans in accordance to their accrediting agency.
7. The institution shall be responsible for submitting all state, federal, and accreditation reports, including, but not limited to:
 - Enrollment;

- Periods of Enrollment;
 - Awarded Certifications/Credentials;
 - Graduates/Completers;
 - Community Partnerships;
 - Advisory Council Members; and
 - Tuition and additional fees.
8. Local education agency personnel shall offer ACE training programs in viable occupational areas and work closely with local business and industry to provide high quality training and retraining programs for employees.
 9. CTE centers are encouraged to participate in additional postsecondary articulation agreements with community colleges and universities.
 10. CTE center shall establish an institutional advisory council to provide advice on current workforce needs and the relevancy of programs being offered at the school. Such an advisory council shall be composed of members of the general public, and shall include representatives of business, industry, and labor. In addition, individual advisory committees with representatives of business, industry, and labor are established for each CTE program pathway offered within the institution. Advisory meetings are required to take place a minimum of two times during the school year.
 11. CTE centers may be accredited by an agency recognized by the ED.
 12. CTE centers may participate in financial aid programs.
 13. CTE centers shall offer assessment, remediation, counseling and placement services as components of ACE programs of study.

Funding Sources

1. The WVBE will fund ACE programs of study up to levels of funding available from state and federal sources.
2. CTE centers may charge tuition and fees for educational services provided by the institution. "The board of education of any county shall have authority to provide classes and programs for adult education and to charge tuition for members of such classes and/or programs, such tuitions not to exceed in any case the actual cost of operation of such classes and/or programs." W.Va. Code §18-5-19b.
3. Tuition that is received for ACE programs of study shall be used to start new classes and maintain currently established classes. "Any funds accruing from such tuition shall be credited to adult education in the current expense fund of the county board of education and reported each year as of June thirtieth in the manner required for other financial reports of the board." W.Va. Code §18-5-19b.
4. As described in W.Va. Code §18-9A-2, counties will receive funding through school state aid formula monies for adult students enrolled in secondary career technical programs of study.
5. All West Virginia adults qualify for technical training except under the following circumstance:
 - a) Adults who obtain financial assistance from any federal or state financial aid program, while enrolled under the school aid formula through W.Va. Code §18-9A-2, immediately become ineligible under the school aid formula and are responsible for full payment of tuition and fees.

Architecture & Construction Career Cluster™ (AR)

WV ACE Program of Study:	AR9101 Electrical Technician (ACE)
Program Required Courses:	9001A Electrical Trades I

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	9002A Electrical Trades II 9003A Electrical Trades III 9004A Electrical Trades IV
Recommended Electives:	9005A Blueprint Reading for Electricians 9006A Industrial and Commercial Wiring 9007A Integrated Electrical Lab 9008A National Electrical Code 9009A Residential Wiring 9010A Rotating Devices and Control Circuitry 9011A Work-Based Integration & Transition
Program Notes:	<p><i>WVDE requirements to be eligible to sit for the Electrical Journeyman License:</i></p> <ul style="list-style-type: none"> • <i>Attain an overall grade of "B" or better in the four required state-approved CTE Electrical Technician Program of Study required courses AND the four specialization courses used to meet the 1080 hours needed to sit for the Journeyman's License as stated in the Electrician Licensing Rules from the West Virginia State Fire Marshall's office;</i> • <i>Attain a verified school attendance record of no more than 6 days absent in a 1 year - 1,080 hour program or 12 days absent in a two year - 1,080 hour program;</i> • <i>Earn the OSHA 10 certification;</i> • <i>Pass a minimum of TWO documented drug screenings; and</i> • <i>Score at or above the Workforce Entry-Level cut score on the industry-recognized written AND satisfactorily pass a performance audit.</i>
WV ACE Program of Study:	AR9102 Masonry (ACE)
Program Required Courses:	9012A Masonry I 9013A Masonry II 9014A Masonry III 9015A Masonry IV
Recommended Electives:	9016A Concrete Finishing 9017A Block and Rock Laying 9018A Bricklaying 9019A Advanced Bricklaying Applications 9020A Decorative Masonry Work 9021A Foundations and Footings 9011A Work-Based Integration & Transition
WV ACE Program of Study:	AR9103 Plumbing (ACE)
Program Required Courses:	9022A Plumbing I 9023A Plumbing II 9024A Plumbing III 9025A Plumbing IV
Recommended Electives:	9026A Soldering and Flaring Copper Pipe 9027A Gas Piping 9028A Cast-Iron Piping 9029A Drains, Waste and Vent Systems

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	9030A Plumbing Fixtures 9011A Work-Based Integration & Transition
WV ACE Program of Study:	AR9104 Drafting (ACE)
Program Required Courses:	9031A Architectural Drafting 9032A Mechanical Drafting 9033A Drafting Techniques 9034A Fundamentals of Drafting
Recommended Electives:	9035A Blueprint Reading 9036A Introduction to Computer Aided Drafting 9037A Piping Systems Drafting 9038A Civil Drafting 9039A Structural Steel Drafting 9040A Advanced Computer Aided Drafting 9011A Work-Based Integration & Transition
WV ACE Program of Study:	AR9105 HVAC Technician (ACE)
Program Required Courses:	9041A HVAC Technician I 9042A HVAC Technician II 9043A HVAC Technician III 9044A HVAC Technician IV
Recommended Electives:	9045A Basic Control Circuits 9046A Air Conditioning Applications 9047A Domestic Refrigeration 9048A Fossil Fuel Heating Systems 9049A Heating Systems 9050A Commercial Air Conditioning 9011A Work-Based Integration & Transition
WV ACE Program of Study:	AR9106 Heavy Equipment Operations & Preventative Maintenance (ACE)
Program Required Courses:	9051A Heavy Equipment Safety 9052A Fundamentals of Preventative Maintenance 9053A Fundamentals of Earth Moving 9054A Heavy Equipment Operations

Business Management & Administration Career Cluster™ (BM)

WV ACE Program of Study:	BM9201 Administrative and Business Support (ACE)
Program Required Courses:	9055A Business Computer Applications I 9056A Business Computer Applications II 9057A Accounting Principles I
Recommended Electives:	9058A Business Communications 9059A Accounting Principles II 9060A Keyboarding (5-12) 9061A Digital Imaging/Multimedia I 9062A Desktop Publishing 9063A Business and Marketing Essentials
WV ACE Program of Study:	BM9202 Accounting (ACE)

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Program Required Courses:	9057A Accounting Principles I 9059A Accounting Principles II 9055A Business Computer Applications I 9064A Business Math
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Health Science Career Cluster™ (HE)

WV ACE Program of Study:	HE9301 Phlebotomy Technician (ACE)
Program Required Courses:	9065A Phlebotomy Skills
Recommended Electives:	9066A Introduction to Health Care 9067A Essentials of Addiction and Prevention 9068A Science Clinical Experience
WV ACE Program of Study:	HE9302 Electrocardiograph Technician (ACE)
Program Required Courses:	9069A Electrocardiograph Skills
Recommended Electives:	9066A Introduction to Health Care 9067A Essentials of Addiction and Prevention 9068A Science Clinical Experience
WV ACE Program of Study:	HE9303 Health Informatics (ACE)
Program Required Courses:	9070A Foundations of Health Science 9071A Advanced Principles of Health Science 9072A Clinical Specialty I 9073A Medical Coding and Billing
Recommended Electives:	9074A Body Structures and Functions 9075A Medical Terminology 9076A Nutrition and Wellness 9077A Electronic Health Record Specialist 9078A Computerized Medical Office Software 9067A Essentials of Addiction and Prevention 9068A Science Clinical Experience
WV ACE Program of Study:	HE9304 Medical Administrative Assistant (ACE)
Program Required Courses:	9079A Exploring Health Professions 9075A Medical Terminology 9080A Healthcare Documentation 9077A Electronic Health Record Specialist
WV ACE Program of Study:	HE9305 Veterinary Technology (ACE)
Program Required Courses:	9081A Veterinary Technology I 9082A Veterinary Technology II 9083A Veterinary Technology III 9084A Veterinary Technology IV 9085A Veterinary Technology V 9086A Veterinary Technology VI 9087A Veterinary Technology VII 9088A Veterinary Technology VIII 9089A Veterinary Technology IX
WV ACE Program of Study:	HE9306 Dental Assisting (ACE)
Program Required Courses:	9070A Foundations of Health Science

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	<p>9071A Advanced Principles of Health Science 9090A Dental Assisting I 9091A Dental Assisting II 9092A Dental Assisting III 9093A Dental Assisting IV 9094A Dental Assisting V 9095A Dental Assisting VI 9096A Dental Assisting VII</p>
Recommended Electives:	<p>9097A Dental Assistant Clinical Practice 9098A Dental Assisting Clinical Mentoring 9099A Dental Specialties 9100A Supervised Dental Clinical Experience 9068A Science Clinical Experience 9067A Essentials of Addiction and Prevention</p>
WV ACE Program of Study:	HE9307 Medical Assisting (ACE)
Program Required Courses:	<p>9101A Medical Assisting I 9102A Medical Assisting II 9103A Medical Assisting III 9104A Medical Assisting IV 9105A Medical Assisting V</p>
Recommended Electives:	<p>9066A Introduction to Health Care 9069A Electrocardiograph Skills 9106A Phlebotomy Skills 9107A Medical Assistant Practicum 9074A Body Structures and Functions 9075A Medical Terminology</p>
WV ACE Program of Study:	HE9308 Certified Nursing Assistant (ACE)
Program Required Courses:	9108A Certified Nursing Assistant
Recommended Electives:	<p>9066A Introduction to Health Care 9068A Science Clinical Experience 9067A Essentials of Addiction and Prevention</p>
WV ACE Program of Study:	HE9309 Dental Laboratory Technology (ACE)
Program Required Courses:	<p>9109A Dental Laboratory Technology I 9110A Dental Laboratory Technology II 9111A Dental Laboratory Technology III 9112A Dental Laboratory Technology IV 9113A Dental Laboratory Technology V 9114A Dental Laboratory Technology VI 9115A Dental Laboratory Technology VII</p>
Recommended Electives:	<p>9116A Partial Dentures 9117A Application in Dental Laboratory Technology 9066A Introduction to Health Care 9076A Nutrition and Wellness 9091A Dental Assistant II 9068A Science Clinical Experience 9067A Essentials of Addiction and Prevention</p>
WV ACE Program of Study:	HE9310 Pharmacy Technician (ACE)

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Program Required Courses:	9118A Pharmacy Technician I 9119A Pharmacy Technician II 9120A Pharmacy Technician III 9121A Pharmacy Technician IV 9122A Pharmacy Technician V
Recommended Electives:	9066A Introduction to Health Care 9075A Medical Terminology 9076A Nutrition and Wellness 9068A Science Clinical Experience 9067A Essentials of Addiction and Prevention
WV ACE Program of Study:	HE9311 Practical Nursing (ACE)
Program Required Courses:	9123A Practical Nursing I 9124A Practical Nursing II 9125A Practical Nursing III 9126A Practical Nursing IV 9127A Practical Nursing V 9128A Practical Nursing VI 9129A Practical Nursing VII 9130A Practical Nursing VIII 9131A Practical Nursing IX 9132A Practical Nursing X
Recommended Electives:	9066A Introduction to Healthcare 9068A Science Clinical Experience 9067A Essentials of Addiction and Prevention
WV ACE Program of Study:	HE9312 Respiratory Therapy (ACE)
Program Required Courses:	9133A Respiratory Therapy I 9134A Respiratory Therapy II 9135A Respiratory Therapy III 9136A Respiratory Therapy IV 9137A Respiratory Therapy V 9138A Respiratory Therapy VI 9139A Respiratory Therapy VII 9140A Respiratory Therapy VIII 9141A Respiratory Therapy IX 9142A Respiratory Therapy X 9143A Respiratory Therapy XI 9144A Respiratory Therapy XII 9145A Respiratory Therapy XIII 9146A Respiratory Therapy XIV
Recommended Electives:	9066A Introduction to Healthcare 9067A Essentials of Addiction and Prevention 9068A Science Clinical Experience
WV ACE Program of Study:	HE9313 Surgical Technology (ACE)
Program Required Courses:	9147A Surgical Technology I 9148A Surgical Technology II 9149A Surgical Technology III 9150A Surgical Technology IV

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	9151A Surgical Technology V 9152A Intro to Central Supply & Employability Skills 9153A Surgical Technology VI 9154A Surgical Technology VII
Recommended Electives:	9066A Introduction to Health Care 9068A Science Clinical Experience 9067A Essentials of Addiction and Prevention
WV ACE Program of Study:	HE9314 Massage Therapy (ACE)
Program Required Courses:	9074A Body Structures and Functions 9066A Introduction to Health Care 9155A Massage Therapy I 9156A Massage Therapy II 9157A Massage Therapy III 9158A Massage Therapy IV 9159A Massage Therapy V 9160A Application of Massage Therapy
Recommended Electives:	9067A Essentials of Addiction and Prevention 9068A Science Clinical Experience

Hospitality & Tourism Career Cluster™ (HO)

WV ACE Program of Study:	HO9401 Culinary Arts (ACE)
Program Required Courses:	9161A Culinary Arts 1 9162A Culinary Arts 2 9163A Culinary Arts 3 9164A Culinary Arts 4 9165A Culinary Arts 5 9166A Culinary Arts 6 9167A Culinary Arts 7 9168A Culinary Arts 8 9169A Culinary Arts 9
Recommended Electives:	9011A Work-Based Integration & Transition

Human Services Career Cluster™ (HU)

WV ACE Program of Study:	HU9501 Barbering Apprenticeship (ACE)
Program Required Courses:	9171A Barbering Apprenticeship 1 9172A Barbering Apprenticeship 2 9173A Barbering Apprenticeship 3 9174A Barbering Apprenticeship 4
Recommended Electives:	9175A Barbering Apprenticeship 5 9176A Barbering Apprenticeship 6 9177A Barbering Apprenticeship 7 9178A Barbering Apprenticeship 8 9179A Barbering Apprenticeship 9

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	9180A Barbering Apprenticeship 10 9181A Barbering Apprenticeship 11 9182A Barbering Apprenticeship 12 9183A Barbering Apprenticeship 13 9184A Barbering Apprenticeship 14 9185A Barbering Apprenticeship 15 9186A Barbering Apprenticeship 16 9187A Barbering Apprenticeship 17 9188A Barbering Apprenticeship 18 9189A Barbering Apprenticeship 19 9011A Work-Based Integration & Transition
WV CTE Program of Study:	HU9505 Cosmetology (ACE)
Program Required Courses:	9193A Barbering and Cosmetology Foundations
Specializations:	Aesthetics 9196A Skin Sciences I 9195A Aesthetics Science 9194A General Aesthetics I Nail Technology 9190A Nail Technology Science and Procedure 9191A Art of Nail Technology 9192A Nail Technology Clinical Experience Hair Stylist 9198A Cosmetology Professional I 9199A Cosmetology Professional II 9200A Cosmetology Professional Advanced
Advanced Specialization Courses:	<i>Select the four courses listed below to complete the Minimum Requirements for Hair Stylist by the Board of Barbers and Cosmetologists:</i> 9201A Cosmetology Science I 9202A Cosmetology Science II 9203A Cosmetology Chemical I 9204A Cosmetology Chemicals II
	<i>Select the course listed below to complete the Minimum Requirements for Aesthetics by the Board of Barbers and Cosmetologists:</i> 9197A General Aesthetics II
Recommended Electives:	9011A Work-Based Integration & Transition

Information Technology Career Cluster™ (IT)

WV ACE Program of Study:	IT9901 CISCO Networking Academies (ACE)
Program Required Courses:	9261A CCNET 1 9262A CCNET 2 9263A CCNET 3 9264A CCNET 4
Recommended Electives:	9265A Computer Operating Systems 9266A Security+

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	9267A Wireless Network Essentials 9268A CySA+
WV ACE Program of Study:	IT9902 Computer Systems Repair Technology (ACE)
Program Required Courses:	9269A COMPTIA A+ 220-901 9270A COMPTIA A+ 220-902 9271A Networking+ 9272A Fundamentals of Computer Systems
Recommended Electives:	9273A Linux Essentials 9274A Server+ 9266A Security+ 9268A CySA+ 9275A Cloud+
WV ACE Program of Study:	IT9903 Coding, App and Game Design (ACE)
Program Required Courses:	9276A Coding, App and Game Design I 9061A Digital Imaging/Multimedia I 9277A Coding, App and Game Design II 9278A Webpage Publishing
Recommended Electives:	9279A Digital Imaging/Multimedia II 9011A Work-Based Integration & Transition

Law, Public Safety, Corrections & Security Career Cluster™ (LA)

WV ACE Program of Study:	LA9601 Emergency and Firefighting Management Services (ACE)
Program Required Courses:	9205A Fire Fighting I 9206A Fire Fighting II <i>(+Specialization)</i>
Specialization Courses:	Industrial Fire safety 9207A Industrial Incident Command 9208A Industrial Hazardous Material or Emergency Management 9209A Emergency Services 1 9210A Emergency Services 2 9211A Fire Science Technology
Recommended Electives:	9209A Emergency Services 1 9212A Strategic Security and Protection 9211A Fire Science Technology 9213A Telecommunicator 9214A Auto Extrication 9215A Driver/Pump Operator 9216A Fitness/Conditioning Activities 9011A Work-Based Integration & Transition
WV ACE Program of Study:	LA9602 Legal Office (ACE)
Program Required Courses:	9055A Business Computer Applications I 9217A Computerized Legal Office Software 9058A Business Communications 9218A Business Law & Ethics

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WV ACE Program of Study:	LA9603 Paralegal Assistant (ACE)
Program Required Courses:	9219A Introduction to the Court Systems/Legal Procedure 9220A Paralegal Skills 9056A Business Computer Applications II 9217A Computerized Legal Office Software
Recommended Electives:	9190A Business Law & Ethics 9191A Work-Based Integration & Transition

Manufacturing Career Cluster™ (MA)

WV ACE Program of Study:	MA9701 Electromechanical Technology (ACE)
Program Required Courses:	9221A Fundamentals of Electricity 9006A Industrial & Commercial Wiring 9008A National Electrical Code 9009A Residential Wiring 9222A Electrical Maintenance 9223A Fundamentals of Industrial Equipment Maintenance 9224A Hydraulics & Pneumatic Systems
Recommended Electives:	9010A Rotating Devices and Control Circuitry 9011A Work-Based Integration & Transition
WV ACE Program of Study:	MA9702 Cabling Technology (ACE)
Program Required Courses:	9225A Cabling Technology
Recommended Electives:	9011A Work-Based Integration & Transition
WV ACE Program of Study:	MA9703 Machine Tool Technology (ACE)
Program Required Courses:	9226A Fundamentals of Machine Tool Technology 9227A Fundamentals of Machine Process 9228A Machine Tool Operations 9229A Metal Trades Processes and Applications
Recommended Electives:	9230A Engine Machining 9231A Machine Tool Technology 9232A Integrated Machine Processes 9233A Machining Processes & Applications 9234A CNC Machining 9011A Work-Based Integration & Transition
WV ACE Program of Study:	MA9704 Welding (ACE)
Program Required Courses:	9235A Welding I 9236A Welding II 9237A Welding III 9238A Welding IV
Recommended Electives:	9239A Ornamental Welding 9240A Blueprint Reading and Metallurgy 9241A Gas Metal Arc Welding 9242A Gas Tungsten Arc Welding 9011A Work-Based Integration & Transition

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Transportation, Distribution & Logistics Career Cluster™ (TR)

WV ACE Program of Study:	TR9801 Automotive Technology (ACE)
Program Required Courses:	9243A Automotive Technology MLR-1 9244A Automotive Technology MLR-3 9245A Automotive Technology MLR-4 9246A Automotive Technology MLR-2
Recommended Electives:	9247A Alternative Fuels 9248A Automotive Technology AST-4 9249A Automotive Technology AST-1 9250A Automotive Technology AST-2 9251A Automotive Technology AST-3 9011A Work-Based Integration & Transition
WV ACE Program of Study:	TR9802 Diesel Equipment Technology (ACE)
Program Required Courses:	9252A Electronic Engine Controls 9253A Diesel Engine Components 9254A Diesel Support Systems 9255A Fundamentals of Diesel Equipment Technology
Recommended Electives:	9244A Brakes 9243A Automotive Technology MLR-1 9245A Automotive Technology MLR-4 9256A Diesel Equipment Electrical Systems 9257A Diesel Engine Tune Up and Trouble Shooting 9258A Diesel Preventative Maintenance and Inspection 9259A Diesel Truck Chassis Concepts 9011A Work-Based Integration & Transition
WV ACE Program of Study:	TR9803 Truck Driving (ACE)
Program Required Courses:	9260A Truck Driver Training I 9283A Truck Driver Training II
Recommended Electives:	9011A Work-Based Integration & Transition