

## 2020-21 CTE Programs of Study

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Tennessee's career and technical education (CTE) programs of study are meant to provide a relevant framework of industry aligned, rigorous courses that progress a student in knowledge and skills year after year. They provide invaluable opportunities for students to experience a subject that they are passionate about and explore interests that lead to postsecondary learning and future career paths. These sequenced courses also reflect and support the three-credit elective focus requirement for graduation. Level 1 courses are encouraged to be taken by students in ninth grade; however, districts may make scheduling decisions that work best for their communities and students.

Early postsecondary opportunities (EPSOs), such as dual enrollment, dual credit courses, and college level examination program exams (CLEP) are also valuable opportunities for all students and should be provided within the program of study. The **dual enrollment course codes** may substitute for the Level 3 or 4 course offerings in any aligned career cluster's programs of study where those course codes represent postsecondary courses. Aligned **industry certifications** have been placed under the corresponding CTE course within the program of study to demonstrate where students have the opportunity to sit for industry and postsecondary recognized credential.

**Career Exploration** (C25X00) is available to orient eighth and ninth grade students to high school, postsecondary, and career options and develop employability skills. This course can serve as a prerequisite for any CTE course and program of study; however, it is not a required part of any program of study and should not be counted toward CTE concentrator status.

For additional information about courses or programs of study, please reach out to [CTE.Standards@tn.gov](mailto:CTE.Standards@tn.gov) or visit our webpage at: <https://www.tn.gov/education/career-and-technicaleducation.html>.

October 2020 Update:

- **Updated** guidance for Certified Clinical Medical Assistant certification in Therapeutic Services program of study to be recommended after C14H10 and C14H11.

## Advanced Manufacturing

Program of Study	Level 1	Level 2	Level 3	Level 4
<b>Electromechanical Technology</b>	Principles of Manufacturing (C13H05)	Introduction to Electromechanical (C13H14)	Advanced Electromechanical Technology (C13H13) -or- <b>Dual Enrollment</b> Electromechanical Technology I (C13H02)	Manufacturing Practicum (C13H08) -or- <b>Dual Enrollment</b> Electromechanical Technology II (C13H19)
	<b>Industry Certification:</b> Machining Level I - Measurement, Materials, and Safety Certification (NIMS) -and/or- OSHA 10 -and/or- Precision Measurement Instruments Certification (includes all subtests)	<b>Industry Certification:</b> Production Certification (CPT) Safety Module	<b>Industry Certification for C13H13:</b> OSHA 30 General Industry	<b>Industry Certification for C13H08:</b> Production Certification (CPT) Manufacturing Processes and Production Module and Maintenance Awareness Module -and/or- OSHA 30 General Industry
<b>Machining Technology</b>	Principles of Manufacturing (C13H05)	Principles of Machining I (C13H09)	Principles of Machining II (C13H06) -or- <b>Dual Enrollment</b> Machining Technology I (C13H01) -or- <b>Dual Enrollment</b> Machining Technology II (C13H20)	Manufacturing Practicum (C13H08) -or- <b>Dual Enrollment</b> Machining Technology III (C13H22) -or- <b>Dual Enrollment</b> Machining Technology IV (C13H23)
	<b>Industry Certification:</b> Machining Level I - Measurement, Materials, and Safety Certification (NIMS) -and/or- OSHA 10 -and/or- Precision Measurement Instruments Certification (includes all subtests)	<b>Industry Certification:</b> Production Certification (CPT) Safety Module	<b>Industry Certification for C13H06:</b> Production Certification (CPT) Quality Practices and Measurement Module -and/or- OSHA 30 General Industry	<b>Industry Certification for C13H08:</b> Production Certification (CPT) Manufacturing Processes and Production Module and Maintenance Awareness Module -and/or- OSHA 30 General Industry

<b>Mechatronics</b>	Principles of Manufacturing (C13H05)	Digital Electronics (C13H07) -or- Robotics & Automated Systems (C13H15) -or- Project Lead the Way (PLTW) Computer Integrated Manufacturing (C21H25)	Mechatronics I <sup>1</sup> (C13H16) -or- <b>Dual Enrollment</b> Mechatronics I (C13H04) -or- <b>Dual Enrollment</b> Mechatronics II (C13H21)	Mechatronics II <sup>1</sup> (C13H17) -or- Manufacturing Practicum (C13H08) -or- <b>Dual Enrollment</b> Mechatronics III (C13H24) -or- <b>Dual Enrollment</b> Mechatronics IV (C13H25)
	<b>Industry Certification:</b> Machining Level I - Measurement, Materials, and Safety Certification (NIMS) -and/or- OSHA 10 -and/or- Precision Measurement Instruments Certification (includes all subtests)	<b>Industry Certification for C13H15:</b> FANUC	<b>Industry Certification for C13H16:</b> OSHA 30 General Industry	<b>Industry Certification for C13H17:</b> Level 1 Siemens Certified Mechatronic Systems Assistant -and/or- OSHA 30 General Industry <b>Industry Certification for C13H08:</b> Production Certification (CPT) Manufacturing Processes and Production Module and Maintenance Awareness Module -and/or- OSHA 30 General Industry
<b>Welding</b>	Principles of Manufacturing (C13H05)	Welding I (C13H12)	Welding II <sup>2</sup> (C13H10) -or- <b>Dual Enrollment</b> Welding I (C13H03) -or- <b>Dual Enrollment</b> Welding II (C13H18)	Manufacturing Practicum (C13H08) -or- <b>Dual Enrollment</b> Welding III (C13H26) -or- <b>Dual Enrollment</b> Welding IV (C13H27)
	<b>Industry Certification:</b> Machining Level I - Measurement, Materials, and Safety Certification (NIMS) -and/or- OSHA 10 -and/or- Precision Measurement	<b>Industry Certification:</b> AWS SENSE Entry Level Welder -and/or- NCCER Core Curriculum	<b>Industry Certification for C13H10:</b> AWS SENSE Advanced Level Welder or American Welding Society Certified Welder -and/or- OSHA 30 General Industry	<b>Industry Certification for C13H08:</b> Production Certification (CPT) Manufacturing Processes and Production Module and Maintenance Awareness Module -and/or- OSHA 30 General

	Instruments Certification (includes all subtests)			Industry
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<sup>1</sup> Local dual credit and/or dual enrollment opportunities exist for this course.

<sup>2</sup> May be taught for 1 or 2 credits.

**Available courses for elective credit in this cluster:**

- **Work-Based Learning: Career Practicum** (C25H16) course may substitute for the Level 4 offering in all programs of study but does not count toward concentrator status.

## Agriculture, Food, & Natural Resources

Program of Study	Level 1	Level 2	Level 3	Level 4
Agribusiness	Agriscience <sup>1</sup> (C18H19)	Principles of Agribusiness (C18H14)	Organizational Leadership and Communications (C18H18) -or- <b>Dual Enrollment</b> Agribusiness I (C18H03)	Agricultural Business and Finance <sup>2</sup> (C18H11) -or- <b>Statewide Dual Credit</b> Intro to Agribusiness (C18H10) -or- <b>Dual Enrollment</b> Agribusiness II (C18H32)
	<b>Industry Certification:</b> OSHA - 10		<b>Industry Certification for C18H18:</b> OSHA 30 General Industry	<b>Industry Certification for C18H11:</b> OSHA 30 General Industry
	Supervised Agricultural Experience (C18H23)			
Agricultural Engineering and Applied Technologies	Agriscience <sup>1</sup> (C18H19)	Principles of Agricultural Mechanics (C18H12)	Agricultural Power and Equipment (C18H13) -or- <b>Dual Enrollment</b> Agricultural Engineering & Applied Technologies I (C18H02)	Agricultural and Biosystems Engineering (C18H22) -or- Unmanned Aircraft Systems in Agriculture (C18H40) -or- <b>Dual Enrollment</b> Agricultural Engineering & Applied Technologies II (C18H35)
	<b>Industry Certification:</b> OSHA - 10	<b>Industry Certification:</b> Precision Measurement Instruments Certification	<b>Industry Certification for C18H13:</b> OSHA 30 General Industry -and/or- Briggs and Stratton Basic Small Engine Certification	<b>Industry Certification for C18H22:</b> OSHA 30 General Industry -and/or- Briggs and Stratton Master Service Technician <b>Industry Certification for C18H40:</b> Remote Pilot License (FFA Part 107)
	Supervised Agricultural Experience (C18H23)			

<b>Environmental and Natural Resource Management</b>	Agriscience <sup>1</sup> (C18H19)	Applied Environmental Science <sup>1</sup> (C18H25) -or- <b>Cambridge IGCSE</b> Environmental Management (C18H07)	Plant and Soil Science (C18H15) -or- <b>Dual Enrollment</b> Environmental & Natural Resources Management I (C18H06) -or- <b>IB</b> Environmental Systems and Societies I (SL) (G03H36)	Natural Resources Management (C18H28) -or- Unmanned Aircraft Systems in Agriculture (C18H40) -or- <b>AP</b> Environmental Science (G03H25) -or- <b>Dual Enrollment</b> Environmental & Natural Resources Management II (C18H36) -or- <b>IB</b> Environmental Systems and Societies II (SL) (G03H34)
	<b>Industry Certification:</b> OSHA - 10		<b>Industry Certification for C18H15:</b> OSHA 30 General Industry	<b>Industry Certification for C18H28:</b> OSHA 30 General Industry <b>Industry Certification for C18H40:</b> Remote Pilot License (FFA Part 107)
	Supervised Agricultural Experience (C18H23)			
<b>Food Science</b>	Agriscience <sup>1</sup> (C18H19)	Principles of Food Production (C18H29)	Food Science and Safety (C18H26) -or- <b>Dual Enrollment</b> Food Science I (C18H04)	Advanced Food Science (C18H24) -or- <b>Dual Enrollment</b> Food Science II (C18H37)
	<b>Industry Certification:</b> OSHA - 10		<b>Industry Certification for C18H26:</b> OSHA 30 General Industry	<b>Industry Certification for C18H24:</b> OSHA 30 General Industry
	Supervised Agricultural Experience (C18H23)			

<b>Horticulture Science</b>	Agriscience <sup>1</sup> (C18H19)	Principles of Plant Science and Hydroculture (C18H30)	Greenhouse Management (C18H17) -or- <b>Statewide Dual Credit</b> Introduction to Plant Science (C18H09) -or- <b>Dual Enrollment</b> Horticulture Science I (C18H05)	Landscaping and Turf Science (C18H16) -or- Unmanned Aircraft Systems in Agriculture (C18H40) -or- <b>Dual Enrollment</b> Horticulture Science II (C18H33)
	<b>Industry Certification:</b> OSHA - 10		<b>Industry Certification for C18H17:</b> OSHA 30 General Industry	<b>Industry Certification for C18H16:</b> Tennessee Specific Industry Certification for Horticulture Science -and/or- Commercial Pesticide Certification <b>Industry Certification for C18H40:</b> Remote Pilot License (FFA Part 107)
	Supervised Agricultural Experience (C18H23)			
<b>Veterinary and Animal Science</b>	Agriscience <sup>1</sup> (C18H19)	Small Animal Science (C18H20)	Large Animal Science (C18H27) -or- <b>Dual Enrollment</b> Veterinary & Animal Science I (C18H01)	Veterinary Science <sup>1</sup> (C18H21) -or- Unmanned Aircraft Systems in Agriculture (C18H40) -or- <b>Dual Enrollment</b> Veterinary & Animal Science II (C18H34)
	<b>Industry Certification:</b> OSHA - 10		<b>Industry Certification for C18H27:</b> OSHA 30 General Industry	<b>Industry Certifications for C18H21:</b> TN Specific Industry Certification Animal Science -and/or- OSHA 30 General Industry <b>Industry Certification for C18H40:</b> Remote Pilot License (FFA Part 107)
	Supervised Agricultural Experience (C18H23)			

<sup>1</sup> Satisfies one lab science credit required for graduation. <sup>2</sup> Satisfies ½ credit of Personal Finance required for graduation.

**Available courses for elective credit in this cluster:**

- ***Work-Based Learning: Career Practicum*** (C25H16) course may substitute for the Level 4 offering in all programs of study but does not count toward concentrator status.
- ***Introduction to Geographic Information Systems*** (C18H39) is a supplemental course which can be offered in addition to courses within the Agricultural Engineering and Applied Technologies program of study but does not count toward concentrator status.

# Architecture & Construction

Program of Study	Level 1	Level 2	Level 3	Level 4
<b>Architectural &amp; Engineering Design</b>	Architectural & Engineering Design I (C17H13)	Architectural & Engineering Design II (C17H14)	Architectural & Engineering Design III <sup>1</sup> (C17H10) -or- <b>Dual Enrollment</b> Architectural & Engineering Design I (C17H04)	Engineering Practicum (C21H14) -and/or- AP Calculus (G02H24 or G02H25) -and/or- AP Physics (G03H27, G03H28, G03H24, or G03H29) -or- <b>Dual Enrollment</b> Architectural & Engineering Design II (C17H28) -or- <b>IB</b> Physics II (SL) (G03H82)
			<b>Industry Certification for C17H01:</b> Certified Solidworks Associate -and/or- AutoCAD User	
<b>Interior Design</b>	Foundations of Interior Design (C17H12)	Residential Interior Design (C17H11)	Commercial Interior Design (C17H20) -or- <b>Dual Enrollment</b> Interior Design I (C17H05)	Advanced Interior Design (C17H19) -or- <b>Dual Enrollment</b> Interior Design II (C17H29)

<b>Mechanical, Electrical, &amp; Plumbing (MEP) Systems</b>	Fundamentals of Construction (C17H15)	MEP Systems (C17H23)	HVAC (C17H17) -and/or- Electrical Systems (C17H16) -and/or- Plumbing Systems (C17H18) -or- <b>Dual Enrollment</b> Mechanical, Electrical, & Plumbing Systems I (C17H03)	Construction Practicum (C17H22) -or- <b>Dual Enrollment</b> Mechanical, Electrical, & Plumbing Systems II (C17H30)
	<b>Industry Certification:</b> NCCER Core Curriculum -and/or- OSHA 10	<b>Industry Certification:</b> Precision Measurement Instruments Certification (includes all subtests)	<b>Industry Certifications for C17H17:</b> HVAC Excellence, Heating, Electrical, Air Conditioning Technology (H.E.A.T.) -and/or- HVAC Excellence Employment Ready Certifications -and/or- Universal R-410A EPA Section 608 Universal <b>Industry Certification for C17H16:</b> NCCER Electrical Level One -and/or- OSHA 30 Construction <b>Industry Certification for C17H18:</b> NCCER Plumbing Level One	
<b>Residential &amp; Commercial Construction</b>	Fundamentals of Construction (C17H15)	Residential & Commercial Construction I (C17H24)	Residential & Commercial Construction II <sup>1</sup> (C17H25) -or- <b>Dual Enrollment</b> Residential & Commercial Construction I (C17H01) -or- <b>Dual Enrollment</b> Residential & Commercial Construction II (C17H31)	Construction Practicum (C17H22) -or- <b>Dual Enrollment</b> Residential & Commercial Construction III (C17H33) -or- <b>Dual Enrollment</b> Residential & Commercial Construction IV (C17H34)

	<b>Industry Certification:</b> NCCER Core Curriculum -and/or- OSHA 10	<b>Industry Certification:</b> NCCER Construction Technology	<b>Industry Certification for C17H25:</b> OSHA 30 Construction	
<b>Structural Systems</b>	Fundamentals of Construction (C17H15)	Structural Systems I (C17H26)	Structural Systems II <sup>1</sup> (C17H27) -or- <b>Dual Enrollment</b> Structural Systems I (C17H02)	Construction Practicum (C17H22) -or- <b>Dual Enrollment</b> Structural Systems II (C17H32)
	<b>Industry Certification:</b> NCCER Core Curriculum -and/or- OSHA 10	<b>Industry Certification:</b> NCCER Carpentry Level One -and/or- Precision Measurement Instruments Certification (includes all subtests)	<b>Industry Certification for C17H27:</b> NCCER Carpentry Level Two -and/or- OSHA 30 Construction	

**Available courses for elective credit in this cluster:**

- **Work-Based Learning: Career Practicum** (C25H16) course may substitute for the Level 4 offering in all programs of study but does not count toward concentrator status.
- **Introduction to Geographic Information Systems** (C18H39) is a supplemental course which can be offered in addition to courses within the Architectural and Engineering Design program of study but does not count toward concentrator status.
- **Welding I** (C13H12) is a supplemental course which can be offered in addition to courses within the MEP, Residential & Commercial Construction, and Structural Systems programs of study but does not count toward concentrator status.

## Arts, Audio/Visual Technology, & Communications

Program of Study	Level 1	Level 2	Level 3	Level 4
<b>Audio/Visual Production</b>	A/V Production I (C11H01)	A/V Production II (C11H02)	A/V Production III (C11H03) -or- <b>Dual Enrollment</b> Audio/Visual Production I (C11H00)	Applied Arts Practicum (C11H07) -and/or- AP English Language and Composition (G01H17) -or- <b>Dual Enrollment</b> Audio/Visual Production II (C11H15)
<b>Digital Arts &amp; Design</b>	Digital Arts & Design I (C11H06)	Digital Arts & Design II (C11H05)	Digital Arts & Design III (C11H16) -or- <b>Dual Enrollment</b> Arts & Design I (C11H08)	Applied Arts Practicum (C11H07) -and/or- AP Studio Art: 2-D Design (G05H30) -or- <b>Dual Enrollment</b> Arts & Design II (C11H09)
			<b>Industry Certification for C11H06:</b> Adobe Certified Associate	
<b>Fashion Design</b>	Visual Art I (G05H08)	Foundations of Fashion Design (C11H17)	Fashion Design (C11H10) -or- <b>Dual Enrollment</b> Fashion Design I (C11H13) -or- <b>Cambridge International AS Level</b> <u>Art &amp; Design</u> (C11H12)	Advanced Fashion Design (C11H11) -or- <b>Dual Enrollment</b> Fashion Design II (C11H14)

### Available courses for elective credit in this cluster:

- **Work-Based Learning: Career Practicum** (C25H16) may substitute for the Level 4 offering in all programs of study but does not count toward concentrator status.
- **Journalism** (G01H15) is a supplemental course which can be offered in addition to courses within the Audio/Visual Production program of study but does not count toward concentrator status.

# Business Management & Administration

Program of Study	Level 1	Level 2	Level 3	Level 4
Business Management	Introduction to Business & Marketing (C12H26)	Business Communications (C12H16) -or- Accounting I (C29H00) -or- <b>Cambridge IGCSE Accounting</b> (C29H08)	Business Management (C12H17) -or- <b>Statewide Dual Credit</b> Introduction to Business (C12H44) -or- <b>Dual Enrollment</b> Business Management I (C12H01) -and/or- <b>Principles of Management CLEP</b> -and/or- <b>Cambridge AS Business</b> (C12H14)	Business & Entrepreneurship Practicum (C12H35) -and/or- Virtual Enterprise International <sup>1</sup> (C12H23) -or- <b>Dual Enrollment</b> Business Management II (C12H47) -and/or- <b>Principles of Management CLEP</b>
			<b>Industry Certification for C12H17:</b> Google Suite	
Health Services Administration	Introduction to Business & Marketing (C12H26) -or- Health Science Education (C14H14)	Health Information Technology (C12H34)	Business Management (C12H17) -or- <b>Statewide Dual Credit</b> Introduction to Business (C12H44) -or- <b>Dual Enrollment</b> Health Services Administration I (C12H03) -or- <b>Cambridge AS Business</b> (C12H14)	Health Services Administration Practicum (C12H38) -or- <b>Dual Enrollment</b> Health Services Administration II (C12H49)
			<b>Industry Certification for C12H17:</b> Google Suite	

<b>Human Resources Management</b>	Introduction to Business & Marketing (C12H26)	Business Communications (C12H16)	Human Resources Management (C12H36) -or- <b>Dual Enrollment</b> Human Resources Management I (C12H39)	Human Resources Management Practicum (C12H37) -or- <b>Dual Enrollment</b> Human Resources Management II (C12H50)
			<b>Industry Certification for C12H36:</b> Google Suite	
<b>Office Management</b>	Computer Applications (C12X00)	Business Communications (C12H16)	Business Management (C12H17) -or- <b>Statewide Dual Credit</b> Introduction to Business (C12H44) -or- <b>Dual Enrollment</b> Office Management I (C12H02) -and/or- <b>Principles of Management CLEP</b> -or- <b>Cambridge AS</b> Business (C12H14)	Advanced Computer Applications (C12H25) -or- <b>Dual Enrollment</b> Office Management II (C12H48) -and/or- <b>Information Systems CLEP</b>
			<b>Industry Certification for C12H17:</b> Google Suite	<b>Industry Certifications for C12H25:</b> Microsoft Office Specialist: (Excel) (PowerPoint) (Word) -and/or- Microsoft Office Expert -and/or- Microsoft Officer Master

<sup>1</sup> Satisfies ½ credit of Economics required for graduation.

**Available courses for elective credit in this cluster:**

- **Work-Based Learning: Career Practicum** (C25H16) may substitute for the Level 4 offering in all programs of study but does not count toward concentrator status.
- **American Business Legal Systems** (C12H20) and **Business Economics** (C12H21) are supplemental courses which can be offered in addition to courses within the Business Management and Human Resources Management programs of study but do not count toward concentrator status.

## Education & Training

Program of Study	Level 1	Level 2	Level 3	Level 4
Early Childhood Education Careers	Early Childhood Education Careers I (C32H06)	Early Childhood Education Careers II (C32H07)	Early Childhood Education Careers III (C32H08) -or- <b>Dual Enrollment</b> Early Childhood Education Careers I (C32H10)	Early Childhood Education Careers IV (C32H09) -or- <b>Dual Enrollment</b> Early Childhood Education Careers II (C32H18)
	Industry Certification for C32H06 and C32H07: TECTA Center-Based Orientation Certificate			Industry Certification for C23H09: Child Development Associate (CDA)
Educational Therapy and Support	Educational Therapy and Support I (C32H12)	Educational Therapy and Support II (C32H13)	Educational Therapy and Support III (C32H14) -or- <b>Dual Enrollment</b> Educational Therapy and Support I (C32H16)	Educational Therapy and Support Practicum (C32H15) -or- <b>Dual Enrollment</b> Educational Therapy and Support II (C32H19)
Teaching as a Profession (K-12)	Fundamentals of Education (C32H00)	Teaching as a Profession I (C32H01)	Teaching as a Profession II (C32H02) -or- <b>Dual Enrollment</b> Teaching as a Profession (K-12) I (C32H04)	Teaching as a Profession Practicum (C32H03) -or- <b>Dual Enrollment</b> Teaching as a Profession (K-12) II (C32H05)

### Available courses for elective credit in this cluster:

- **Work-Based Learning: Career Practicum** (C25H16) may substitute for the Level 4 offering in all programs of study but does not count toward concentrator status.
- **Lifespan Development** (C19H17) is a supplemental course which can be offered in addition to courses within the Early Childhood Education Careers program of study but does not count toward concentrator status.

## Finance

Program of Study	Level 1	Level 2	Level 3	Level 4
<b>Accounting</b>	Introduction to Business & Marketing (C12H26)	Accounting I (C29H00) -or- <b>Cambridge IGCSE Accounting</b> (C29H08)	Accounting II (C29H01) -or- <b>Dual Enrollment Accounting I</b> (C29H05) -or- <b>Cambridge AS Level Accounting</b> (C29H06)	Financial Planning (C29H02) -or- Statistics (G02H37) -or- AP Statistics (G02H26) -and/or- <b>Dual Enrollment Accounting II</b> (C29H07) -and/or- <b>Financial Accounting CLEP</b>
			<b>Industry Certification for C29H01:</b> Quick Books Certified User	
<b>Banking and Finance</b>	Introduction to Business & Marketing (C12H26)	Accounting I (C29H00) -or- <b>Cambridge IGCSE Accounting</b> (C29H08)	Banking and Finance (C29H03) -or- <b>Dual Enrollment Banking &amp; Finance I</b> (C29H09)	Financial Planning (C29H02) -or- <b>Dual Enrollment Banking &amp; Finance II</b> (C29H10)

### Available courses for elective credit in this cluster:

- **Work-Based Learning: Career Practicum** (C25H16) may substitute for the Level 4 offering in all programs of study but does not count toward concentrator status.
- **Personal Finance** (C29H11) is a course required for graduation but does not count toward concentrator status in a program of study.

## Government & Public Administration

Program of Study	Level 1	Level 2	Level 3	Level 4
<b>Leadership in Government</b>	JROTC I (G08H04)	JROTC II (G08H05)	U.S. Government and Civics (G04H12) -or- JROTC III (G08H06) -or- <b>Dual Enrollment</b> Leadership in Community Emergency Response I (C15H22)	Success Skills in Service Learning (C25H15) -or- JROTC IV (G08H07) -or- <b>Dual Enrollment</b> Leadership in Community Emergency Response II (C15H23)
<b>Public Management and Administration</b>	Principles of Public Service (C15H14)	Public Management and Administration (C15H16)	Public Law and Budgeting (C15H15) -or- <b>Dual Enrollment</b> Public Management & Administration I (C15H06)	AP US Government & Politics (G04H26) -or- Success Skills Through Service Learning (C25H15) -or- <b>Dual Enrollment</b> Public Management & Administration II (C15H24)

### Available courses for elective credit in this cluster:

- **Work-Based Learning: Career Practicum** (C25H16) may substitute for the Level 4 offering in all programs of study but does not count toward concentrator status.

## Health Science

Program of Study	Level 1	Level 2	Level 3	Level 4
<b>Diagnostic Services</b>	Health Science Education (C14H14)	Anatomy and Physiology <sup>1</sup> (G03H31 or C14H09) -or- Diagnostic Medicine (C14H12) -or- <b>Dual Enrollment</b> Anatomy and Physiology (G03H43)	Diagnostic Medicine (C14H12) -or- Anatomy and Physiology <sup>1</sup> (G03H31 or C14H09) -or- <b>Dual Enrollment</b> Diagnostic Services I (C14H02) -or- <b>Dual Enrollment</b> Anatomy and Physiology (G03H43)	Cardiovascular Services (C14H18) -and/or- Clinical Internship (C14H11) -or- <b>Dual Enrollment</b> Diagnostic Services II (C14H26)
		<b>Industry Certification for C14H12:</b> OSHA 10 General Industry	<b>Industry Certification for C14H12:</b> OSHA 10 General Industry	<b>Industry Certification following C14H18 AND C14H11:</b> Certified EKG Technician
<b>Emergency Services</b>	Health Science Education (C14H14)	Anatomy and Physiology <sup>1</sup> (G03H31 or C14H09) -or- Medical Therapeutics (C14H15) -or- <b>Dual Enrollment</b> Anatomy and Physiology (G03H43)	Medical Therapeutics (C14H15) -or- Anatomy and Physiology <sup>1</sup> (G03H31 or C14H09) -or- <b>Dual Enrollment</b> Emergency Services I (C14H04) -or- <b>Dual Enrollment</b> Emergency Services II (C14H29) -or- <b>Dual Enrollment</b> Anatomy and Physiology (G03H43)	Emergency Medical Services <sup>1</sup> (C14H13) -or- Emergency Medical Services Practicum (C14H24) -or- <b>Dual Enrollment</b> Emergency Services III (C14H35) -or- <b>Dual Enrollment</b> Emergency Services IV (C14H36)
		<b>Industry Certification for C14H15:</b> OSHA 10 General Industry	<b>Industry Certification for C14H15:</b> OSHA 10 General Industry	<b>Industry Certification:</b> Emergency Medical Responder (First Responder)

<b>Nursing Services</b>	Health Science Education (C14H14)	Anatomy and Physiology <sup>1</sup> (G03H31 or C14H09) -or- Medical Therapeutics (C14H15) -or- <b>Dual Enrollment</b> Anatomy and Physiology (G03H43)	Medical Therapeutics (C14H15) -or- Anatomy and Physiology <sup>1</sup> (G03H31 or C14H09) -or- <b>Dual Enrollment</b> Nursing Services I (C14H03) -or- <b>Dual Enrollment</b> Nursing Services II (C14H27) -or- <b>Dual Enrollment</b> Anatomy and Physiology (G03H43)	Nursing Education (C14H16) -and/or- Clinical Internship (C14H11) -or- <b>Dual Enrollment</b> Nursing Services III (C14H33) -or- <b>Dual Enrollment</b> Nursing Services IV (C14H34)
		<b>Industry Certification for C14H15:</b> OSHA 10 General Industry	<b>Industry Certification for C14H15:</b> OSHA 10 General Industry	<b>Industry Certification for C14H16:</b> Certified Nursing Assistant (CNA) -and/or- <b>Industry Certification following C14H16 AND C14H11:</b> Certified Patient Care
<b>Sport and Human Performance</b>	Health Science Education (C14H14)	Anatomy and Physiology <sup>1</sup> (G03H31 or C14H09) -or- Rehabilitation Careers (C14H08) -or- <b>Dual Enrollment</b> Anatomy and Physiology (G03H43)	Anatomy and Physiology <sup>1</sup> (G03H31 or C14H09) if the student did not take it as Level 2, he/she must take it as Level 3 course. For students who took Level 2 A&P, choices include: Rehabilitation Careers (C14H08) -or- Medical Therapeutics (C14H15) -or- <b>Dual Enrollment</b> Exercise Physiology I (C14H06) -or- <b>Dual Enrollment</b> Anatomy and Physiology (G03H43) -or- <b>IB</b> Sports, Exercise, & Health Science I (SL) (G03H39)	Exercise Science (C14H22) -or- Clinical Internship (C14H11) -or- <b>Dual Enrollment</b> Exercise Physiology II (C14H30) -or- <b>IB</b> Sports, Exercise, & Health Science I (SL) (G03H40)

		<b>Industry Certification C14H08:</b> OSHA 10 General Industry	<b>Industry Certification C14H08:</b> OSHA 10 General Industry	<b>Industry Certification following C14H22 <u>AND</u> C14H11:</b> Certified Personal Trainer
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<b>Therapeutic Services</b>	Health Science Education (C14H14)	Anatomy and Physiology <sup>1</sup> (G03H31 or C14H09) -or- One option from Level 3 -or- <b>Dual Enrollment</b> Anatomy and Physiology (G03H43)	Anatomy and Physiology <sup>1</sup> (G03H31 or C14H09) if the student did not take it as Level 2, he/she must take it as Level 3 course. For students who took Level 2 A&P, choices include: Dental Science (C14H21) -or- Pharmacological Science (C14H20) -or- Nutrition Science and Diet Therapy <sup>1</sup> (C19H16) -or- Medical Therapeutics (C14H15) -or- Medical Assisting (C14H10) -or- Public Health and Epidemiology (C14H17) <b>Dual Enrollment</b> Therapeutic Services I (C14H05) -or- <b>Dual Enrollment</b> Anatomy and Physiology (G03H43)	Clinical Internship (C14H11) -or- <b>Dual Enrollment</b> Therapeutic Services II (C14H28)
			<b>Industry Certification following C14H20 AND C14H11:</b> Certified Pharmacy Technician <b>Industry Certification following C14H21 AND C14H11:</b> National Entry Level Dental Assistant (NELDA)	<b>Industry Certification following C14H10 AND C14H11:</b> Certified Clinical Medical Assistant  <b>Industry Certification for C14H11:</b> OSHA 10 General Industry

<sup>1</sup> Satisfies one lab science credit for graduation.

**Available courses for elective credit in this cluster:**

- **Work-Based Learning: Career Practicum** (C25H16) may substitute for the Level 4 offering in all programs of study but does not count toward concentrator status.
- **Medical Terminology** (C14H07) is a supplemental course which can be offered in addition to courses within the Health Science career cluster but does not count toward concentrator status

## Hospitality & Tourism

Program of Study	Level 1	Level 2	Level 3	Level 4
Culinary Arts	Culinary Arts I (C16H06)	Culinary Arts II (C16H07)	Culinary Arts III (C16H08) -or- <b>Dual Enrollment</b> Culinary Arts I (C16H01)	Culinary Arts IV (C16H09) -or- <b>Dual Enrollment</b> Culinary Arts II (C16H14)
			<b>Industry Certification for C16H08:</b> ServSafe Food Manager -and/or- Certified Fundamentals Cook (CFC)	<b>Industry Certification for C16H09:</b> ServSafe Food Manager -and/or- Certified Fundamentals Cook (CFC)
Hospitality and Tourism Management	Hospitality & Tourism Management I (C16H17) -or- <b>Cambridge IGCSE Travel &amp; Tourism</b> (C16H03)	Hospitality & Tourism Management II (C16H18) -or- <b>Cambridge International AS Level Travel &amp; Tourism</b> (C16H04)	Hospitality & Tourism Management III (C16H19) -or- <b>Dual Enrollment</b> Hospitality & Tourism Management I (C16H02)	Event Planning & Management (C16H12) -or- <b>Dual Enrollment</b> Hospitality & Tourism Management II (C16H15)
			<b>Industry Certification for C16HXX:</b> Certified Hospitality & Tourism Management Professional (CHTMP)	

### Available courses for elective credit in this cluster:

- **Work-Based Learning: Career Practicum** (C25H16) may substitute for the Level 4 offering in all programs of study but does not count toward concentrator status.

## Human Services

Program of Study	Level 1	Level 2	Level 3	Level 4
Cosmetology	Cosmetology I (C19H12)	Cosmetology II (C19H14)	Cosmetology III (C19H13) -or- <b>Dual Enrollment</b> Cosmetology I (C19H04) -or- <b>Dual Enrollment</b> Cosmetology II (C19H23)	Cosmetology IV (C19H21) -or- <b>Dual Enrollment</b> Cosmetology III (C19H27) -or- <b>Dual Enrollment</b> Cosmetology IV (C19H28)
				<b>Industry Certification for C19H21:</b> TN Cosmetology & Barber Examiners— TN Cosmetologist 1010
Barbering	Barbering I (C19H09)	Barbering II (C19H10)	Barbering III (C19H11) -or- <b>Dual Enrollment</b> Barbering I (C19H05)	Entrepreneurship <sup>1</sup> (C31H05) -or- <b>Dual Enrollment</b> Barbering II (C19H24)
			<b>Industry Certification for C19H11:</b> TN Cosmetology & Barber Examiners— TN Master Barber 1010	
Dietetics and Nutrition	Introduction to Human Studies (C19H19)	Nutrition Across the Lifespan (C19H15) -or- <b>Cambridge IGCSE Food &amp; Nutrition</b> (C19H08)	Nutrition Science and Diet Therapy (C19H16) -or- <b>Dual Enrollment</b> Dietetics & Nutrition I (C19H03)	Human Services Practicum (C19H20) -and/or- Psychology (G04H15) -and/or- Sociology (G04H14) -or- <b>Dual Enrollment</b> Dietetics & Nutrition II (C19H22)
			<b>Industry Certification for C19H16:</b> Tennessee Specific Industry Certification for Dietetics & Nutrition (in pilot)	

<b>Human and Social Sciences</b>	Introduction to Human Studies (C19H19)	Lifespan Development (C19H17)	Family Studies (C19H18) -or- <b>Dual Enrollment</b> Human and Social Sciences I (C19H02) -or- <b>Cambridge IGCSE Sociology</b> (G04H65) -or- <b>Human Growth and Development CLEP</b>	Human Services Practicum (C19H20) -and/or- Psychology (G04H15) -and/or- Sociology (G04H14) -or- <b>Dual Enrollment</b> Human and Social Sciences II (C19H26)
			<b>Industry Certification for C19H18:</b> Tennessee Specific Industry Certification for Human and Social Sciences (in pilot)	

<sup>1</sup> Satisfies ½ credit of Economics required for graduation.

**Available courses for elective credit in this cluster:**

- **Work-Based Learning: Career Practicum** (C25H16) may substitute for the Level 4 offering in all programs of study but does not count toward concentrator status.

# Information Technology

Program of Study	Level 1	Level 2	Level 3	Level 4
Coding	Computer Science Foundations (C10H11) -or- <b>Cambridge IGCSE Computer Science</b> (C10H07)	Coding I (C10H14) -or- AP Computer Science Principles (G02H44)	Coding II (C10H15) -or- Mobile App Development (C10H22) -or- AP Computer Science Principles (G02H44) -or- <b>Dual Enrollment</b> Coding I (C10H01)	Coding Practicum (C10H08) -and/or- AP Computer Science A (G02H45) -and/or- AP Computer Science Principles (G02H44) -or- <b>Dual Enrollment</b> Coding II (C10H28) -or- <b>Cambridge International AS Level Computer Science</b> (C10H25)
	<b>Industry Certification for C10H11:</b> CompTIA IT Fundamentals		<b>Industry Certification for C10H15:</b> Microsoft Technology Associate Software Development Fundamentals -and/or- CIW Web Foundation -and/or- JavaScript Specialist -and/or- Advanced HTML5/CSS3	
Cybersecurity	Computer Science Foundations (C10H11)	Cybersecurity I (C10H19) -and/or- AP Computer Science Principles (G02H44)	Cybersecurity II (C10H20) -and/or- AP Computer Science Principles (G02H44) -or- <b>Dual Enrollment</b> Cybersecurity I (C10H24)	Cybersecurity Practicum (C10H21) -and/or- AP Computer Science Principles (G02H44) <b>Dual Enrollment</b> Cybersecurity II (C10H31)
	<b>Industry Certification for C10H11:</b> CompTIA IT Fundamentals	<b>Industry Certification for C10H19:</b> CompTIA A+	<b>Industry Certification for C10H20:</b> CompTIA Network +	<b>Industry Certification for C10H21:</b> CompTIA Security + -and/or- Associate of ISC2

<b>Networking Systems</b>	Computer Science Foundations (C10H11)	Computer Systems (C10H10)	Networking (C10H13) -or- <b>Dual Enrollment</b> Networking Systems I (C10H02)	Cabling and Internetworking (C10H09) -and/or- IT Clinical Internship (C10H12) -or- <b>Dual Enrollment</b> Networking Systems II (C10H29)
	<b>Industry Certification:</b> CompTIA IT Fundamentals	<b>Industry Certification:</b> Comp TIA A+ -and/or- Cisco Certified Entry Network Tech (CCENT)	<b>Industry Certification for C10H13:</b> CompTIA Network + -and/or- Microsoft Technology Associate Infrastructure -and/or- Cisco IT Essentials PC Hardware & Software Certification -and/or- Cisco Certified Network Associate (CCNA)	
<b>Web Design</b>	Computer Science Foundations (C10H11) -or- <b>Cambridge IGCSE Information and Communication Technology</b> (C10H26)	Web Design Foundations (C10H16) -and/or- AP Computer Science Principles (G02H44)	Web Site Development (C10H17) -and/or- AP Computer Science Principles (G02H44) -or- <b>Dual Enrollment</b> <b>Web Design I</b> (C10H03)	Web Design Practicum (C10H18) -and/or- AP Computer Science Principles (G02H44) -or- <b>Dual Enrollment</b> <b>Web Design II</b> (C10H30)
	<b>Industry Certification:</b> CompTIA IT Fundamentals		<b>Industry Certification:</b> CIW Web Design Specialist -and/or- CIW Web Foundation -and/or- JavaScript Specialist -and/or- Advanced HTML5/CSS3	

**Available courses for elective credit in this cluster:**

- **Work-Based Learning: Career Practicum** (C25H16) may substitute for the Level 4 offering in all programs of study but does not count toward concentrator status.
- **Introduction to Geographic Information Systems** (C18H39) is a supplemental course which can be offered in addition to courses within the Cybersecurity program of study but does not count toward concentrator status.

## Law, Public Safety, Corrections, & Security

Program of Study	Level 1	Level 2	Level 3	Level 4
<b>Criminal Justice and Correction Services</b>	Criminal Justice I (C30H00)	Criminal Justice II (C30H01)	Criminal Justice III: Forensic Criminal Investigations (C30H02) -or- <b>Statewide Dual Credit:</b> Criminal Justice (C30H11) <sup>1</sup> -or- <b>Dual Enrollment</b> Criminal Justice and Correction Services I (C30H12)	Criminal Justice Practicum (C30H03) -or- <b>Dual Enrollment</b> Criminal Justice and Correction Services II (C30H13)
<b>Fire Management Services</b>	Principles of Fire and Emergency Services (C30H04)	Fire Prevention (C30H05)	Fire Science I (C30H06) -or- <b>Dual Enrollment</b> Fire Management Services I (C30H14)	Fire Science II (C30H07) -or- <b>Dual Enrollment</b> Fire Management Services II (C30H15)
<b>Pre-Law</b>	Pre-Law I (C30H08)	Pre-Law II (C30H09)	Pre-Law III (C30H10) -or- <b>Dual Enrollment</b> Pre-Law I (C30H16)	Success Skills in Service Learning (C25H15) -or- AP U.S. Government and Politics (G04H26) -or- <b>Dual Enrollment</b> Pre-Law II (C30H17)

<sup>1</sup> Statewide Dual Credit Criminal Justice **requires** Criminal Justice I **and** Criminal Justice II as prerequisite courses. Students cannot take Statewide Dual Credit Criminal Justice without having already completed the first two courses in the program of study.

### Available courses for elective credit in this cluster:

- **Work-Based Learning: Career Practicum** (C25H16) may substitute for the Level 4 offering in all programs of study but does not count toward concentrator status.
- **American Business Legal Systems** (C12H20) is a supplemental course which can be offered in addition to courses within the Legal and Correction Services program of study but does not count toward concentrator status.

## Marketing, Distribution & Logistics

Program of Study	Level 1	Level 2	Level 3	Level 4
<b>Entrepreneurship</b>	Introduction to Business & Marketing (C12H26)	Marketing and Management I: Principles <sup>1</sup> (C31H00)	Entrepreneurship <sup>1</sup> (C31H05) -or- <b>Dual Enrollment</b> Entrepreneurship I (C31H12) -or- <b>Cambridge IGCSE</b> Enterprise (C31H13)	Business & Entrepreneurship Practicum (C12H35) -or- Virtual Enterprise International <sup>1</sup> (C12H23) -or- <b>Dual Enrollment</b> Entrepreneurship II (C31H14)
<b>Marketing Management</b>	Introduction to Business & Marketing (C12H26)	Marketing and Management I: Principles <sup>1</sup> (C31H00)	Marketing and Management II: Advanced Strategies (C31H01) -or- Social Media Marketing and Analytics (C31H02) -or- <b>Dual Enrollment</b> Marketing Management I (C31H10) -and/or- <b>Principles of Marketing CLEP</b>	Advertising and Public Relations (C31H03) -or- Retail Operations <sup>1</sup> (C31H04) -or- Event Planning & Management (C16H12) -or- <b>Dual Enrollment</b> Marketing Management II (C31H11) -and/or- <b>Principles of Marketing CLEP</b>
			<b>Industry Certifications for C31H02:</b> Hootsuite Platform Certification -and/or- Hootsuite Social Marketing Certification	

<b>Supply Chain Management</b>	Introduction to Business & Marketing (C12H26) -or- Marketing and Management I: Principles <sup>1</sup> (C31H00)	Foundations of Supply Chain Management (C31H06)	Supply Chain Management I (C31H07) -or- <b>Dual Enrollment</b> Supply Chain Management I (C31H15)	Supply Chain Management II (C31H08) -or- Supply Chain Management Practicum (C31H09) -or- <b>Dual Enrollment</b> Supply Chain Management II (C31H16)
		<b>Industry Certification for C31H06:</b> Microsoft Office Specialist (Excel)	<b>Industry Certification for C31H07:</b> Certified Logistics Technician	

<sup>1</sup> Satisfies ½ credit of Economics required for graduation.

**Available courses for elective credit in this cluster:**

- **Work-Based Learning: Career Practicum** (C25H16) may substitute for the Level 4 offering in all programs of study but does not count toward concentrator status.
- **Business Communications** (C12H16) is a supplemental course which can be offered in addition to courses within these programs of study but does not count toward concentrator status.

# STEM

Program of Study	Level 1	Level 2	Level 3	Level 4
<b>Advanced STEM Applications</b>	STEM I: Foundation (C21H15)	STEM II: Applications (C21H16) -or- AP Computer Science Principles (G02H44)	STEM III: STEM in Context (C21H17) -or- AP Computer Science Principles (G02H44) -or- <b>Dual Enrollment</b> Advanced STEM Applications I (C21H32)	STEM IV: STEM Practicum (C21H18) -and/or- AP Calculus AB (G02H24) -or- AP Calculus BC (G02H25) -or- AP Computer Science A (G02H45) -or- AP Biology (G03H10) -or- AP Chemistry (G03H16) -or- AP Physics (G03H27, G03H28, G03H24, or G03H29) -or- <b>Dual Enrollment</b> Advanced STEM Applications II (C21H33) -or- <b>IB</b> Biology II SL/HL (G03H69) -or- <b>IB</b> Physics II (SL) (G03H82)
	<b>Industry Certification:</b> Precision Measurement Instruments Certifications (Snap-On)	<b>Industry Certification for C21H16:</b> Certified Solidworks Associate (CSWA)- Academic -and/or- Autodesk Inventor Certified User		

<b>BioSTEM</b>	BioSTEM I (C21H07)	BioSTEM II (C21H08)	BioSTEM III (C21H09)	BioSTEM Practicum (C21H10)
	<b>Industry Certification:</b> Precision Measurement Instruments Certifications (Snap-On)		<b>Industry Certification:</b> Certified Solidworks Associate (CSWA)- Academic -and/or- Autodesk Inventor Certified User	
<b>Engineering</b>	Principles of Engineering and Technology (C21H04)	Engineering Design I (C21H05) -or- AP Computer Science Principles (G02H44) -or- <b>Cambridge IGCSE</b> Design and Technology (C21H03)	Engineering Design II (C21H06) -or- AP Computer Science Principles (G02H44) -or- <b>Dual Enrollment</b> Engineering I (C21H00)	Engineering Practicum (C21H14) -and/or- AP Physics (G03H27, G03H28, G03H24, or G03H29) -or- AP Computer Science A (G02H45) -or- <b>Dual Enrollment</b> Engineering II (C21H11) -or- <b>Cambridge International</b> <b>AS</b> <u>Design and Technology</u> (C10H05) -or- <b>IB</b> Physics II (SL) (G03H82)
	<b>Industry Certification:</b> Precision Measurement Instruments Certifications (Snap-On)	<b>Industry Certification for</b> <b>C21H04:</b> Certified Solidworks Associate (CSWA)- Academic -and/or- Autodesk Inventor	<b>Industry Certification for</b> <b>C21H06:</b> Certified Solidworks Associate (CSWA)- Academic -and/or- Autodesk Inventor	<b>Industry Certification for</b> <b>C21H014:</b> Certified Solidworks Associate (CSWA)- Academic -and/or- Autodesk Inventor
<b>Engineering by Design</b>	Foundations of Technology (EBD) (C21H27)	Technological Design (EBD) (C21H28)	Advanced Design Applications (EBD) (C21H29) -and/or- Advanced Technological Applications (EBD) (C21H30)	Engineering Design (EBD) (C21H31)

<b>Project Lead the Way</b>	Introduction to Engineering (PLTW) (C21H19)	Principles of Engineering (PLTW) (C21H20)	Choice of the following: Aerospace Engineering (PLTW) (C21H21) -or- Civil Engineering & Architecture (PLTW) (C21H22) -or- Biotechnical Engineering (PLTW) (C21H23) -or- Digital Electronics (PLTW) (C21H24) -or- Computer Integrated Manufacturing (PLTW) (C21H25)	Engineering Design and Development (PLTW) (C21H26)
<b>Technology</b>	Principles of Engineering and Technology (C21H04)	Digital Electronics (C13H07) -or- AP Computer Science Principles (G02H44)	Robotics & Automated Systems (C13H15) -or- AP Computer Science Principles (G02H44) -or- <b>Dual Enrollment</b> Technology I (C21H01)	Engineering Practicum (C21H14) -and/or- AP Physics (G03H27, G03H28, G03H24, or G03H29) -or- AP Computer Science A (G02H45) -or- <b>Dual Enrollment</b> Technology II (C21H12) -or- <b>IB</b> Physics II (SL) (G03H82)
	<b>Industry Certification:</b> Precision Measurement Instruments Certifications (Snap-On)	<b>Industry Certification for C13H07:</b> Certified Solidworks Associate (CSWA)- Academic -and/or- Autodesk Inventor Certified User	<b>Industry Certification for C13H15:</b> FANUC	<b>Industry Certification for C21H14:</b> Certified Solidworks Associate (CSWA)- Academic -and/or- Autodesk Inventor Certified User

**Note:** Courses marked (EBD) are part of the *Engineering by Design* curriculum package and may require additional costs and training to implement. Courses marked (PLTW) are part of the *Project Lead the Way* curriculum package and may require additional costs and training to implement.

**Available courses for elective credit in this cluster:**

- **Work-Based Learning: Career Practicum** (C25H16) may substitute for the Level 4 offering in all programs of study but does not count toward concentrator status.
- **Introduction to Geographic Information Systems** (C18H39) is a supplemental course which can be offered in addition to courses within these programs of study but does not count toward concentrator status.

# Transportation

Program of Study	Level 1	Level 2	Level 3	Level 4
<b>Automotive Maintenance and Light Repair</b>	Maintenance and Light Repair I (C20H09)	Maintenance and Light Repair II (C20H10)	Maintenance and Light Repair III (C20H11) -or- <b>Dual Enrollment</b> Automotive Maintenance & Light Repair I (C20H01) -or- <b>Dual Enrollment</b> Automotive Maintenance & Light Repair II (C20H21)	Maintenance and Light Repair IV (C20H12) -or- <b>Dual Enrollment</b> Automotive Maintenance & Light Repair III (C20H22) -or- <b>Dual Enrollment</b> Automotive Maintenance & Light Repair IV (C20H30)
			<b>Industry Certification:</b> Precision Measurement Instruments Certification (includes all subtests)	<b>Industry Certification:</b> Automotive Service Excellence Student Certification: Maintenance & Light Repair
<b>Automotive Collision Repair</b>	Introduction to Collision Repair (C20H20)	Collision Repair: Non-Structural <sup>1</sup> (C20H13) -or- Collision Repair: Painting & Refinishing <sup>1</sup> (C20H14)	Collision Repair: Non-Structural <sup>1</sup> (C20H13) -or- Collision Repair: Painting & Refinishing <sup>1</sup> (C20H14) -or- <b>Dual Enrollment</b> Automotive & Collision Repair I (C20H02) -or- <b>Dual Enrollment</b> Automotive & Collision Repair II (C20H23)	Collision Repair: Non-Structural <sup>1</sup> (C20H13) -or- Collision Repair: Painting & Refinishing <sup>1</sup> (C20H14) -or- Collision Repair: Damage Analysis, Estimating, & Customer Service (C20H19) -or- <b>Dual Enrollment</b> Automotive & Collision Repair III (C20H24)
			<b>Industry Certification for C20H13:</b> I-CAR Refinish Technician ProLevel 1 or I-CAR Non-Structural Technician ProLevel 1 or Automotive Service Excellence Student Certification: Nonstructural Analysis/Repair  <b>Industry Certification for C20H14:</b> Automotive Service Excellence Student Certification: Painting and Refinishing	

<b>Aviation Flight</b>	Introduction to Aerospace (C20H15)	Aviation I: Principles of Flight (C20H16)	Aviation II: Advanced Flight (C20H18) -or- <b>Dual Enrollment</b> Aviation Flight I (C20H03)	Unmanned Aircraft Systems Pilot (C20H29) -or- <b>Dual Enrollment</b> Aviation Flight II (C20H28)
				<b>Industry Certification for C20HXX</b> Remote Pilot Certification (FAA Part 107)

<sup>1</sup> May be taught for up to three credits. Implementation options vary; contact the career cluster consultant for more information.

**Available courses for elective credit in this cluster:**

- **Work-Based Learning: Career Practicum** (C25H16) may substitute for the Level 4 offering in all programs of study but does not count toward concentrator status.
- **Welding I** (C13H12) and **Welding II** (C13H10) are supplemental courses which can be offered in addition to courses within the Automotive Collision Repair program of study but do not count toward concentrator status.
- **Structural** may be taken at a participating postsecondary institution as a third- or fourth-level course within the Automotive Collision Repair program of study.
- Programs of study in the areas of *Aviation Maintenance* and *Diesel Technology* can be found at a Tennessee College of Applied Technology. Please look at regional campus to determine course offerings. The following dual enrollment course codes apply: **Dual Enrollment Aviation Maintenance** (C20H04) and **Dual Enrollment Diesel Technology I** (C20H06), **Dual Enrollment Diesel Technology II** (C20H25), **Dual Enrollment Diesel Technology III** (C20H26), **Dual Enrollment Diesel Technology IV** (C20H27)

## Middle School

Career Cluster	6 <sup>th</sup> Grade	7 <sup>th</sup> Grade	8 <sup>th</sup> Grade
Advanced Manufacturing	Exploring Technology (EBD) (C25X01) Design and Modeling (PLTW) (C25X02) STEM Explorers (C25600)	Automation and Robotics (PLTW) (C25X03) Design and Modeling (PLTW) (C25X02) Inventions and Innovations (EBD) (C25700) STEM Innovators (C25701)	Automation and Robotics (PLTW) (C25X03) Energy and the Environment (PLTW) (C25802) Flight and Space (PLTW) (C25803) Green Architecture (PLTW) (C25804) Magic of Electrons (PLTW) (C25805) Technological Systems (EBD) (C25800) Science and Technology (PLTW) (C25806) STEM Designers (C25801) Career Exploration* (C25X00)
Agriculture, Food, & Natural Resources		Introduction to Agricultural Sciences (C18X00)	Introduction to Agricultural Sciences (C18X00) Career Exploration* (C25X00)
Architecture & Construction	Design and Modeling (PLTW) (C25X02) Exploring Technology (EBD) (C25X01) STEM Explorers (C25600)	Automation and Robotics (PLTW) (C25X03) Design and Modeling (PLTW) (C25X02) Inventions and Innovations (EBD) (C25700) STEM Innovators (C25701)	Automation and Robotics (PLTW) (C25X03) Energy and the Environment (PLTW) (C25802) Flight and Space (PLTW) (C25803) Green Architecture (PLTW) (C25804) Magic of Electrons (PLTW) (C25805) Technological Systems (EBD) (C25800) Science and Technology (PLTW) (C25806) STEM Designers (C25801) Career Exploration* (C25X00)
Arts, Audio/Visual Technology, & Communication	Design and Modeling (PLTW) (C25X02) Keyboarding (G10600)	Automation and Robotics (PLTW) (C25X03) Design and Modeling (PLTW) (C25X02) Keyboarding (G10700)	Automation and Robotics (PLTW) (C25X03) Computer Applications (C12X00) Energy and the Environment (PLTW) (C25802) Flight and Space (PLTW) (C25803) Green Architecture (PLTW) (C25804) Keyboarding (G10800) Magic of Electrons (PLTW) (C25805) Science and Technology (PLTW) (C25806) Career Exploration* (C25X00)

Business Management & Administration	Keyboarding (G10600)	Keyboarding (G10700)	Computer Applications (C12X00) Keyboarding (G10800) Career Exploration* (C25X00)
Education & Training	Introduction to Social Health <sup>2</sup> (C19X00)	Introduction to Social Health (C19X00)	Introduction to Social Health (C19X00) Career Exploration* (C25X00)
Finance	Keyboarding (G10600)	Keyboarding (G10700)	Computer Applications (C12X00) Keyboarding (G10800) Career Exploration* (C25X00)
Government & Public Administration			Career Exploration* (C25X00)
Health Science		Introduction to Health Science (C14X00)	Introduction to Health Science (C14X00) Medical Detectives (PLTW) (C14801) Career Exploration* (C25X00)
Hospitality & Tourism			Career Exploration* (C25X00)
Human Services	Introduction to Social Health <sup>2</sup> (C19X00)	Introduction to Social Health (C19X00)	Introduction to Social Health (C19X00) Career Exploration* (C25X00)
Information Technology	Design and Modeling (PLTW) (C25X02) Keyboarding (G10600) STEM Explorers (C25600)	Automation and Robotics (PLTW) (C25X03) Design and Modeling (PLTW) (C25X02) Keyboarding (G10700) STEM Innovators (C25701)	Automation and Robotics (PLTW) (C25X03) Computer Applications (C12X00) Energy and the Environment (PLTW) (C25802) Flight and Space (PLTW) (C25803) Green Architecture (PLTW) (C25804) Keyboarding (G10800) Magic of Electrons (PLTW) (C25805) Science and Technology (PLTW) (C25806) STEM Designers (C25801) Career Exploration* (C25X00)
Law, Public Safety, Corrections, & Security			Career Exploration* (C25X00)
Marketing, Distribution & Logistics	Keyboarding (G10600)	Keyboarding (G10700)	Computer Applications (C12X00) Keyboarding (G10800) Career Exploration* (C25X00)

STEM	Design and Modeling (PLTW) (C25X02) Exploring Technology (EBD) (C25X01) STEM Explorers (C25600)	Automation and Robotics (PLTW) (C25X03) Design and Modeling (PLTW) (C25X02) Inventions and Innovations (EBD) (C25700) STEM Innovators (C25701)	Automation and Robotics (PLTW) (C25X03) Energy and the Environment (PLTW) (C25802) Flight and Space (PLTW) (C25803) Green Architecture (PLTW) (C25804) Magic of Electrons (PLTW) (C25805) Science and Technology (PLTW) (C25806) STEM Designers (C25801) Technological Systems (EBD) (C25800) Career Exploration* (C25X00)
Transportation	Design and Modeling (PLTW) (C25X02) Exploring Technology (EBD) (C25X01) STEM Explorers (C25600)	Automation and Robotics (PLTW) (C25X03) Design and Modeling (PLTW) (C25X02) Inventions and Innovations (EBD) (C25700) STEM Innovators (C25701)	Automation and Robotics (PLTW) (C25X03) Energy and the Environment (PLTW) (C25802) Flight and Space (PLTW) (C25803) Green Architecture (PLTW) (C25804) Magic of Electrons (PLTW) (C25805) Science and Technology (PLTW) (C25806) STEM Designers (C25801) Technological Systems (EBD) (C25800) Career Exploration* (C25X00)

<sup>1</sup> *Keyboarding* may also be used with 4th and 5th grade students (G10400, G10500). <sup>2</sup> *Introduction to Social Health* may also be used with 5th grade students (C19X00).

**Note:** Courses marked (EBD) are part of the *Engineering by Design* curriculum package and may require additional costs and training to implement. Courses marked (PLTW) are part of the *Project Lead the Way* curriculum package and may require additional costs and training to implement.