

## CTE Programs of Study

### Agriculture, Food, and Natural Resources

- Animal Science
- Applied Agricultural Engineering
- Plant Science

### Architecture and Construction

- Architectural Design

### Arts, Audio/Video Technology and Communications

- **Creative Media Production Academy\***
- Design and Multimedia Arts
- Digital Communications

### Business, Marketing, and Finance

- Accounting and Financial Services
- **Business Management and Entrepreneurship Academy\***
- Business Management

### Education and Training

- Early Learning
- Teaching and Training

### Health Science

- **Biomedical Sciences Academy\***
- Healthcare Diagnostics
- Healthcare Therapeutic

### Hospitality and Tourism

- **Culinary Arts and Hospitality Academy\***

### Human Services

- **Cosmetology Academy\***
- Family and Community Services

### Manufacturing

- Advanced Manufacturing and Machinery Mechanics

### Information Technology

- Networking Systems

### Science, Technology, Engineering, and Mathematics

- Programming and Software Development
- **STEM Academy\***

### Transportation, Distribution, and Logistics

- **Aviation and Aeronautics Academy\***

\*Multiple Programs of Study may exist in each Career Academy

## Career Icons



### Career Awareness

#### Learning ABOUT Work

Build awareness of the variety of careers available and the role of postsecondary education; broaden student options.



### Career Preparation

#### Learning THROUGH Work

Apply learning through practical experience that develops knowledge and skills necessary for success in careers and postsecondary education.



### Career Exploration

#### Learning ABOUT Work

Explore career options and postsecondary for the purpose of motivating students and to inform their decision making in high school and postsecondary education.



### Career Training

#### Learning FOR Work

Train for employment and/or postsecondary education in a specific range of occupations.

# CAREER AND TECHNICAL EDUCATION GUIDE

## Recommended Course Sequences

| Agriculture, Food, and Natural Resources  |  |  |   |
|---|--|--|---|
| <b>Animal Science - Business and Industry or STEM Endorsement</b>                   |  |  |   |
| Principles of Agriculture, Food, and Natural Resources (1 credit)                   | Livestock Production (1 credit)                          | Veterinary Medical Applications (1 credit)                         | <ul style="list-style-type: none"> <li>• Advanced Animal Science (1 credit)</li> <li style="text-align: center;"><b>or</b></li> <li>• Practicum in Agriculture (2 credits)</li> </ul> <i>[NOTE: Practicum is highly recommended.]</i> |
| <b>Applied Agricultural Engineering - Business and Industry or STEM Endorsement</b> |  |  |   |
| Principles of Agriculture, Food, and Natural Resources (1 credit)                   | Agricultural Mechanics and Metal Technologies (1 credit) | Agricultural Equipment Design and Fabrication with Lab (2 credits) | Practicum in Agriculture (2 credits)  |
| <b>Plant Science - Business and Industry or STEM Endorsement</b>                    |  |  |   |
| Principles of Agriculture, Food, and Natural Resources (1 credit)                   | Horticulture Science (1 credit)                          | Floral Design 1 (1 credit)   | <ul style="list-style-type: none"> <li>• Advanced Floral Design (1 credit)</li> <li style="text-align: center;"><b>and/or</b></li> <li>• Practicum in Agriculture (2 credits)</li> </ul>  |
| Architecture and Construction   |  |  |   |
| <b>Architectural Design - Business and Industry or STEM Endorsement</b>             |  |  |   |
| Principles of Architecture (1 credit)   | Architectural Design I (1 credit)                        | Computer Aided Drafting for Architecture (1 credit)                | Architectural Design II (2 credits)   |
|   |  |  | Interior Design II (2 credits)  |

## Arts, Audio/Video Technology and Communications

### Creative Media Production Academy (NHS) - Business and Industry Endorsement

\*Students in this academy can take any course in the academy as long as they have met the prerequisite for the course. For example, students must take a career exploration course before taking the corresponding career preparation course.

|  |  |  |   |
|--|--|--|---|
| Principles of Arts, Audio/Video Technology, and Communications<br>(1 credit) | Audio/Video Production I<br>(1 credit)             | Audio/Video Production II/<br>Lab (NHSTV)<br>(2 credits) | Practicum in Audio/Video<br>Production (NHSTV)<br>(Internship)<br>(2 credits) |
|  | Commercial Photography I<br>(1 credit)             | Commercial Photography II<br>(1 credit)                  | Practicum in Commercial<br>Photography (Internship)<br>(2 credits)            |
|  | Graphic Design and<br>Illustration I<br>(1 credit) | Graphic Design and<br>Illustration II<br>(1 credit)      | Practicum in Graphic Design<br>and Illustration<br>(2 credits)                |

### Design and Multimedia Arts - Business and Industry Endorsement

|  |  |   |                                     |
|--|--|---|-------------------------------------|
| Principles of Arts, Audio/Video Technology, and Communications<br>(1 credit) | Graphic Design and<br>Illustration I<br>(1 credit) | Commercial<br>Photography I<br>(1 credit) | Career Preparation I<br>(2 credits) |
|--|--|---|-------------------------------------|

### Digital Communications - Business and Industry Endorsement

|  |   |  |                                     |
|--|---|--|-------------------------------------|
| Principles of Arts, Audio/Video Technology, and Communications<br>(1 credit) | Audio/Video Production I<br>(1-2 credits) | Audio/Video Production II<br>(1-2 credits) | Career Preparation I<br>(2 credits) |
|--|---|--|-------------------------------------|

## Business, Marketing, and Finance

### Accounting and Financial Services - Business and Industry Endorsement

|  |                            |                                     |  |
|--|----------------------------|-------------------------------------|--|
| Principles of Business,<br>Marketing and Finance<br>(1 credit) | Accounting I<br>(1 credit) | Financial Mathematics<br>(1 credit) | Practicum in Business<br>Management<br>(2 credits)<br><b>or</b><br>Career Preparation I<br>(2 credits) |
|--|----------------------------|-------------------------------------|--|

### Business Management and Entrepreneurship Academy (EHS) - Business and Industry Endorsement

|  |   |   |   |
|--|---|---|---|
| Principles in Business,<br>Marketing, and Finance<br><b>(BME Fundamentals)</b><br>(1 credit) | Virtual Business<br><b>(BME Operations I)</b><br>(.5 credit)<br><b>and</b><br>Social Media Marketing<br><b>(BME Operations II)</b><br>(.5 credit) | Entrepreneurship<br><b>(BME Innovation)</b><br>(1 credit) | Practicum in Business<br>Management/VEI<br><b>(BME Capstone)</b><br>(2 credits) |
|--|---|---|---|

| <b>Business Management - Business and Industry Endorsement</b> |  |  |   |  |
|--|--|--|---|--|
| <b>Option 1</b>  | Principles of Business, Marketing and Finance (1 credit) | Business Management (1 credit)                           | <ul style="list-style-type: none"> <li>• Business Law (1 credit) <b>or</b></li> <li>• Business Information Management I (1 credit)</li> </ul> | <ul style="list-style-type: none"> <li>• Practicum in Business Management (2 credits)</li> </ul> |
|  | <b>Option 2</b>  | Principles of Business, Marketing and Finance (1 credit) | Business Information Management I (1 credit)  | Business Information Management II (1 credit)  |

## Education and Training

### Early Learning - Public Service Endorsement

#### Route 1

|                   |   |
|-------------------|---|
| <b>9th Grade</b>  | Principles of Human Services (1 credit) |
| <b>10th Grade</b> | Child Development (1 credit)            |
| <b>11th Grade</b> | Child Guidance (2 credits)              |
| <b>12th Grade</b> | Practicum of Human Services (2 credits) |

#### Route 2

|                   |   |
|-------------------|---|
| <b>7th Grade</b>  | Lifetime Nutrition Wellness (.5 credit) / Interpersonal Studies (.5 credit) |
| <b>8th Grade</b>  | Principles of Human Services (1 credit)                                     |
| <b>9th Grade</b>  | Principles of Education and Training (1 credit)                             |
| <b>10th Grade</b> | Child Development (1 credit)  |
| <b>11th Grade</b> | Child Guidance (2 credits)  |
| <b>12th Grade</b> | Practicum in Early Learning (2 credits)                                     |

| <b>Teaching and Training - Public Service Endorsement</b>                      |   |   |   |  |
|--|---|---|---|--|
| <b>Route 1</b>   |   |   |   |  |
| <b>9th Grade</b>   |   | Principles of Education and Training (1 credit)                             |   |  |
| <b>10th Grade</b>  |   | Child Development (1 credit)  |   |  |
| <b>11th Grade</b>  |   | Instructional Practices (2 credits)   |   |  |
| <b>12th Grade</b>  |   | Practicum in Education and Training (2 credits)                             |   |  |
| <b>Route 2</b>   |   |   |   |  |
| <b>7th Grade</b>   |   | Lifetime Nutrition Wellness (.5 credit) / Interpersonal Studies (.5 credit) |   |  |
| <b>8th Grade</b>   |   | Principles of Human Services (1 credit)                                     |   |  |
| <b>9th Grade</b>   |   | Principles of Education and Training (1 credit)                             |   |  |
| <b>10th Grade</b>  |   | Child Development (1 credit)  |   |  |
| <b>11th Grade</b>  |   | Instructional Practices (2 credits)   |   |  |
| <b>12th Grade</b>  |   | Practicum in Education and Training (2 credits)                             |   |  |
| <b>Health Science</b>  |   |   |   |  |
| <b>Biomedical Sciences Academy (BNHS) - Public Service or STEM Endorsement</b> |   |   |   |  |
| <b>PLTW Academy Courses</b>  | PLTW Principles of Biomedical Sciences (PBS) (1 credit) | PLTW Human Body Systems (HBS) (1 credit)                                    | PLTW Medical Interventions (MI) (1 credit)                            | PLTW Biomedical Innovation (BI) (1 credit) or Alternative Certification Course |
|  | Suggested Courses                                       | Honors Biology  | Honors Chemistry  | AP Biology or AP Chemistry   |
|  |   |   |   | Advanced Animal Science, Forensic Science, or Statistics                       |
| <b>Healthcare Diagnostics - Public Service or STEM Endorsement</b>             |   |   |   |  |
| Principles of Health Science (1 credit)  | Health Science Theory (1 credit)                        | Anatomy and Physiology (1 credit)   | Practicum in Health Science (EMT) (2 credits)                         |  |
| <b>Healthcare Therapeutic - Public Service or STEM Endorsement</b>             |   |   |   |  |
| Principles of Health Science (1 credit)  | Health Science Theory (1 credit)                        | Anatomy and Physiology (1 credit)   | Practicum in Health Science (Certified Medical Assistant) (2 credits) |  |

## Hospitality and Tourism

### Culinary Arts and Hospitality Academy (BNHS) - Business and Industry Endorsement

|   |                                      |                              |  |
|---|--------------------------------------|------------------------------|--|
|   |                                      |                              |  |
| Principles of Hospitality & Tourism<br>(1 credit) | Intro to Culinary Arts<br>(1 credit) | Culinary Arts<br>(2 credits) | Practicum in Culinary Arts/<br>Extended Practicum in<br>Culinary Arts<br>(3 credits) |

## Human Services

### Cosmetology Academy (SAHS) - Public Service Endorsement

|                                 |                                  |  |   |
|---------------------------------|----------------------------------|--|---|
|                                 |                                  |  |   |
| No 9th Grade<br>course offered. | No 10th Grade<br>course offered. | Cosmetology I<br>with Lab<br>(3 credits) | Cosmetology II<br>with Lab<br>(3 credits) |

### Family and Community Services - Public Service Endorsement

#### Route 1

|  |  |
|--|--|
|  | Principles of Human Services (1 credit)  |
|  | Family and Community Services (1 credit) |
|  | Counseling and Mental Health (1 credit)  |
|  | Practicum in Human Services (2 credits)  |

#### Route 2

|  |   |
|--|---|
|  | Lifetime Nutrition Wellness (.5 credit) / Interpersonal Studies (.5 credit) |
|  | Principles of Human Services (1 credit)                                     |
|  | Family and Community Services (1 credit)                                    |
|  | Counseling and Mental Health (1 credit)                                     |
|  | Practicum in Human Services (2 credits)                                     |
|  | Extended Practicum in Human Services (3 credits)                            |

| Information Technology   |  |   |  |
|--|--|---|--|
| Networking Systems - Business and Industry or STEM Endorsement                             |  |   |  |
| Principles of Information Technology<br>(1 credit)   | Computer Maintenance<br>(1 credit)                   | Networking<br>(1 credit)  | Practicum in Information Technology<br>(2 credits)         |
|  |  |   | Independent Study in Technology Applications<br>(1 credit) |
| Manufacturing  |  |   |  |
| Advanced Manufacturing and Machinery Mechanics - Business and Industry or STEM Endorsement |  |   |  |
| Blueprint Reading for Manufacturing<br>(1 credit)  | Manufacturing Engineering Technology I<br>(1 credit) | <b>This program is being developed.</b><br><br><b>New courses will be available in 23-24.</b> |  |
| Science, Technology, Engineering, and Mathematics  |  |   |  |
| Programming and Software Development - Business and Industry or STEM Endorsement           |  |   |  |
| Computer Science I*<br>(1 credit)  | Computer Science II*<br>(1 credit)                   | Computer Science III*<br>(1 credit)   | Practicum in Information Technology<br>(2-3 credits)       |
|  |  |   | Independent Study in Technology Applications<br>(1 credit) |

\*NOTE: Computer Science I, II, and III satisfy state requirements for Languages other than English (LOTE)

| <b>STEM Academy (NHS) - Business and Industry or STEM Endorsement</b> |  |   |   |  |
|---|--|---|---|--|
| Science   | STEM Honors Biology (SC.25H/AC)  | STEM Honors Chemistry (SC.27H/AC)   | STEM OnRamps Physics (D92OR/AC)   | Advanced Science   |
| Math  | STEM Honors Geometry (M.112H/AC)   | STEM OnRamps Algebra II (D94OR/AC)  | Honors Precalculus or OnRamps Precalculus   | AP Calculus AB or BC   |
| English   | STEM Honors English I (ELA.1H/AC)  | STEM Honors English II (ELA.2H/AC)  | STEM OnRamps English III (D91OR/AC)   | STEM English IV (0024/AC) <b>or</b> STEM English IV AP (ELA.2A/AC) <b>or</b> DC Technical & Business Writing (CT.D90025) |
| PLTW Academy Courses  | PLTW Introduction to Engineering Design (IED) (1 credit) <b>and</b> Computer Science I (LOTE) (CT.849/AC) (1 credit) | PLTW Aerospace Engineering (AE) <b>or</b> PLTW Civil Engineering and Architecture (CEA) <b>or</b> PLTW Digital Electronics (DE) <b>or</b> PLTW Cyber Security (CS) (ALL 1 credit) | Engineering Science (PLTW Principles of Engineering - POE) (1 credit)   | PLTW Engineering Design and Development (EDD) (1 credit)   |
| Optional STEM Courses   | X  | Computer Science II (LOTE) <b>or</b> Foundations of Cybersecurity (PLTW Cybersecurity)  | Honors Computer Science III <b>or</b> Foundations of Cybersecurity (PLTW Cybersecurity) <b>or</b> Scientific Research and Design STEM | Practicum in STEM <b>or</b> Project-Based Research   |



## Transportation, Distribution, and Logistics

### Aviation and Aeronautics Academy (EHS) - Business and Industry or STEM Endorsement

|                                   |  |   |  |  |
|-----------------------------------|--|---|--|--|
| <b>Aviation Mechanics* (TCCD)</b> | Introduction to Aerospace and Aviation [1 HS Credit] | Introduction to Aircraft Technology [1 HS Credit] | Aircraft Airframe Technology (Dual Credit) [2 HS Credits] <b>OR</b> Aircraft Airframe Tech [3 HS Credits]  | Aircraft Powerplant Technology (Dual Credit) [2 HS Credits] <b>OR</b> Aircraft Powerplant Technology/Advanced Transportation Systems Laboratory (Dual Credit) [3 HS Credits]   |
| <b>Drone (Unmanned Flight)</b>    | Introduction to Aerospace and Aviation [1 HS Credit] | Introduction to Aircraft Technology [1 HS Credit] | Introduction to Unmanned Aerial Vehicles [1 HS Credit]   | Project-Based Research First Time Taken [1 HS Credit]  |
| <b>Pilot*** (EHS/TCCD)</b>        | Introduction to Aerospace and Aviation [1 HS Credit] | Introduction to Aircraft Technology [1 HS Credit] | Project-Based Research First Time Taken [1 HS Credit] (EHS) <b>OR</b> Practicum in Transportation Systems/Extended Practicum in Transportation Systems First Time Taken (Dual Credit) [3 HS Credits] | <b>Private Pilot (TCCD)</b>  |
|                                   |  |   |  | Practicum in Transportation Systems/Extended Practicum in Transportation Systems First Time Taken (Dual Credit) [3 HS Credits] <b>OR</b> Practicum in Transportation Systems/Extended Practicum in Transportation Systems Second Time Taken (Dual Credit) [3 HS Credits] |
|                                   |  |   |  | <b>Private Pilot (Simulator)</b>   |
|                                   |  |   |  | Practicum in Transportation Systems First Time Taken [2 HS Credits] (EHS)  |

**Dual Credit Courses offered throughout the program will be determined by the college in partnership with the Academy Facilitator.**

\* During their Junior and Senior years, students in the Aviation Mechanics Pathway will take two dual credit courses each semester. Completion of TSIA-2 ELAR and Mathematics is required for TCC enrollment. In addition, many of these courses require a high-stakes FAA regulated exam that must be passed in order to pass the class.

\*\* During their Senior year, students in the TCC Private Pilot Pathway will take two dual credit courses each semester. Completion of TSIA-2 ELAR and Mathematics may be required for TCC enrollment. In addition, many of these courses require a high-stakes FAA regulated exam that must be passed in order to pass the class.