

CAREER & TECHNICAL EDUCATION

# COURSE CATALOG



**CAREER  
& TECHNICAL  
EDUCATION**  
at the Center for Instruction, Technology & Innovation

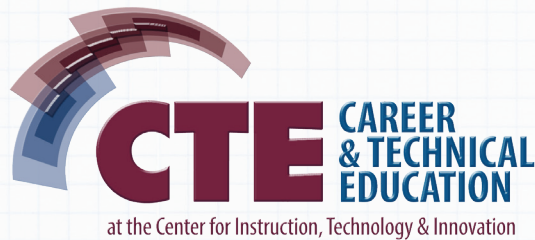
**2025-2026**





# WHAT *is* CTE?

CTE focuses on exploring different occupations and trades through hands-on learning. We offer 18 programs that tap into your existing talents while developing other skills that may lead to a lifelong career choice.





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# WELCOME LETTER



## *Welcome!*

If you enjoy hands-on work, crafting, problem-solving, and consider yourself a creative individual, then you're on the right path to shaping your future. Welcome to CiTi BOCES, where our Career and Technical Education (CTE) programs aim to equip students with the technical, academic, and employability skills crucial for success in today's competitive job market and higher education landscape.

We're thrilled to present the 2025-2026 CTE Course Catalog, showcasing a range of cutting-edge programs designed to meet the demands of the 21st century workforce. With 18 distinctive CTE programs available, there's something to cater to every interest and aspiration. Our courses are led by experienced professionals who bring real-world expertise to the classroom, ensuring that students gain a competitive edge in their chosen field.

Take the time to explore our catalog and collaborate with your school counselor to identify the program that aligns best with your goals. Whether you're interested in technology, healthcare, construction, or any other field, CiTi BOCES offers a pathway to success.

We invite you to become part of our CTE family and allow us to play a role in building your future. Should you have any inquiries or require further information about specific courses, please don't hesitate to reach out to our CiTi counselors at 315.963.4251. We're dedicated to providing you with the finest educational experience possible and look forward to assisting you on your journey.

Sincerely,

*Michael D. Thurlow*

*Career and Technical Education Principal*





# SCHOOL DISTRICTS SERVED



Altmar-Parish-Williamstown  
Central School District



Central Square  
School District



Fulton City School District



Hannibal Central  
School District



Mexico Academy &  
Central School District



Oswego City  
School District



Phoenix Central  
School District



Pulaski Academy  
& Central School District



Sandy Creek Central  
School District

**BUILD Your FUTURE**  
*with Career & Technical Education*





# GENERAL INFORMATION

**MIKE THURLOW**  
CTE Principal

**CHRISSY RODE**  
CTE Assistant Principal

**WALTER BENEDICT**  
Counselor for  
Fulton City School District  
Hannibal Central School District  
Sandy Creek Central School District

**COLLEEN MARTIN**  
Counselor for  
APW Central School District  
Oswego City School District  
Pulaski Academy & Central Schools

**RYAN WARNER**  
Counselor for  
Central Square School District  
Mexico Academy & Central School District  
Phoenix Central School District

## CITI BOCES BOARD OF EDUCATION

John Shelmidine, **President**; Sandy Creek Central School District

Amy Shaw, Mexico Academy & Central School District

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Center for Instruction,  
Technology & Innovation



The Center for Instruction, Technology & Innovation shall continue its long-standing policy of providing educational opportunities for all students who wish to enroll in any course without regard to race, sex, religion, national origin or creed. The Title IX Compliance Officer is Kristen Foland.



# GENERAL INFORMATION

**Program Length:** The course descriptions indicate whether a program is designed for one or two years. In order for students to be exposed to the entire curriculum (and be prepared for a licensing or certification exam, if applicable) they must participate in the entire program. Students may choose to participate in a two-year program for only one year. For example, a senior has the option of enrolling in a two-year program for one year. This student will participate in the basic learning of the first year.\*

**Industry Alignment:** As NYSED approved CTE programs, our curriculum is aligned with the appropriate industry standards. For example, the welding curriculum mirrors the American Welding Society standards for entry-level welders; the Nursing Assistant curriculum is directly aligned with the NYS standards for students preparing for the NYS Certified Nurse Aide certification.

**Integrated Academic Coursework:** Through the NYSED CTE program approval process, our program curriculum is reviewed by a minimum of three academic teachers from outside of our organization. Those teachers compare the rigor of the academic content (i.e., math, English, science) and determine if students enrolled in the CTE program can also be awarded academic credit. For example, NYS certified math teachers have reviewed the Welding Technology curriculum and have determined that students are engaged in a sufficient amount of math curriculum at the commencement level for math credit to be awarded. Integrated academic coursework takes place within the CTE program instruction on a regular basis.

**College Credit Opportunities:** Most programs offered through CTE have an articulation agreement with a community college, university or trade union that allows the student to apply knowledge already mastered toward specific courses. Many CTE programs also offer college credit directly through successful participation in the CTE program. For example, a student who successfully completes Advanced Metal Manufacturing may receive 3 credits at Cayuga Community College for MMT101. (Please note that the availability of offering specific college courses may be updated. Students will be notified at the beginning of the school year exactly what college courses may be offered within the CTE programs.)

**Credential Opportunities:** Students have the opportunity to earn credentials in CTE programs. If a student successfully demonstrates the knowledge and/or skills necessary, as determined by business, industry and/or labor associations, then he/she receives a credential. For example, students who demonstrate mastery in welding may be eligible to receive the American Welding Society Entry Level 1 Welder Qualification.

**Industry (Technical) Assessments:** Industry (or technical) assessments are exams that require students to demonstrate skill and knowledge mastery in their CTE subject matter. These assessments are nationally and/or state recognized and are based on industry standards. For example, eligible Nursing Assistant students will take the New York State Nurse Aid Competency Exam; successful Auto Technology students may be eligible to receive the Automotive Service Excellence (ASE) Education Foundation exam on light maintenance and repair.

**Program Supplies, Materials, Assessments Provided:** CiTi provides students with safety and industry-specific items needed for participation in the CTE program. For example, Heavy Equipment Repair and Operation students receive work boots, safety glasses, hard hats and outdoor jackets. CiTi also funds all expenses related to students taking industry assessments if taken prior to high school graduation. (Please note that items provided for program participation may change.)

## Student Resources

CTE offers all students the opportunity to participate in various clubs. These student clubs offer leadership training, community service projects and social activities.

- Culinary Arts Signature Club
- Future Farmers of America (FFA)
- National Honor Society (NHS)
- National Technical Honor Society (NTHS)
- SkillsUSA
- Student Safety Committee
- Student Senate
- Student Technology Integration Committee
- Women in Trades

\*Students who opt to participate in only one year of a two-year program will not receive full academic credit, industry credentials or be eligible for a 4+1 Pathway exam





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# ADVANCED METAL MANUFACTURING

Advanced Metal Manufacturing will introduce students to the skills and training of design, machining, fabricating and welding. Using engineering drawing techniques and CAD-CAM software, students will design projects starting with raw materials such as steel, aluminum and brass. Machine tools and fabricating equipment will then be used to assemble projects.

## SUCCESSFUL STUDENT ATTRIBUTES:

Mechanical aptitude, persistence, manual dexterity, attention to detail, eye-hand coordination, can complete multi-step processes





**Program Length:** Two years

**Industry Alignment:** National Institute for Metalworking Skills (NIMS) Standards; Occupational Safety & Health Administration (OSHA) Standards

**Integrated Academic Coursework:** Career and Financial Management (1/2 credit); Math (1/2 credit per year)

**Graduation Pathway:** 4+1 Pathway Option: NIMS – Machining Level 1, CDOS Pathway

**College Credit Opportunities:** Articulation Agreement: Lincoln Technical Institute; Dual Credit: Cayuga Community College: MMT 101 Machine Tools I

**Credential Opportunities:** NIMS – Machining Level 1 – Measurement, Materials and Safety; 10-hour OSHA General Industry Safety & Health Credential (3 credits)

**Program Achievement Opportunities:** Technical Endorsement on Graduation Diploma, National Technical Honor Society

**Industry Assessments:** NIMS - Machining Level 1– Measurement, Materials and Safety Certification

**Program Supplies, Materials, Assessments Provided:** Work boots; safety glasses; 10-hour OSHA training certificate, NIMS Exam

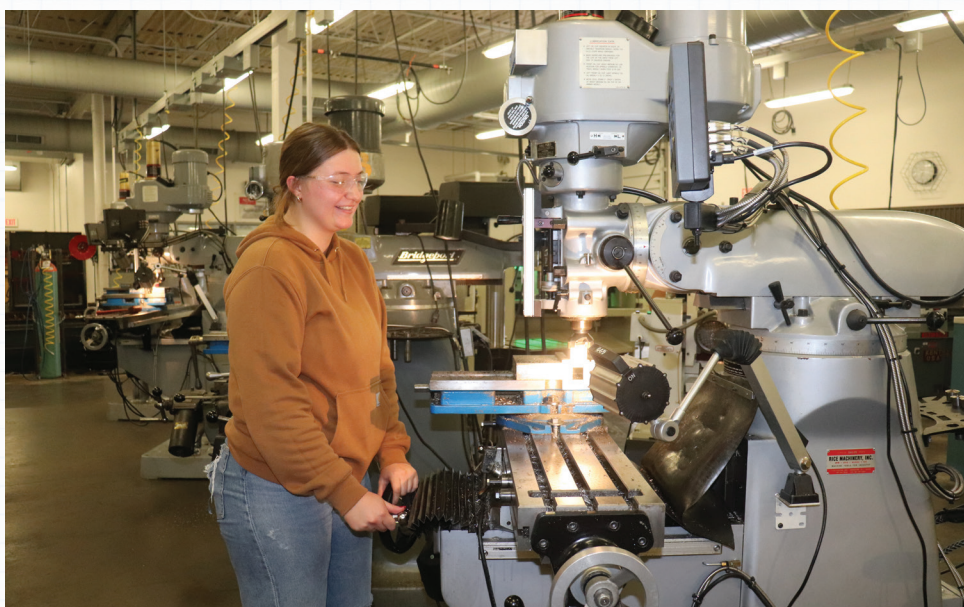
**Entry-level Occupational Reading Materials Lexile:** 1200–1310  
(<https://ttac.gmu.edu/archive/telegram/article-1>)

**9th Grade Reading Level Sample Text:** Spring collets are very accurately ground cylindrical sleeves. The spring collet has slits that begin at its front and continue about three-quarters of the way toward the back. The back end of the collet is threaded, which allows it to be pulled, or drawn, against a mating tapered surface. The slits allow the collet to constrict and grip the workpiece when the taper of the collet is drawn against the master taper. Spring collets come in a variety of sizes and shapes to accommodate many types, shapes, and sizes of workpieces. Collets are most commonly found with straight round bores but are also available with square- and hex-shaped holes. Spring collets are purchased of particular standard sizes and have a gripping range of only a few thousandths of an inch. If many different workpiece sizes must be machined, many different collets are needed. (Precision Machining Technology, Year 1 & 2 textbook)

**Sample Vocabulary:**

Bilateral tolerance, cylindrical grinder, helix, micrometer

**Sample Math Problem:** Calculate spindle speed and feed for the following situation: (1) Use an HSS  $\frac{1}{2}$ " diameter three-flute endmill to mill 6061 aluminum 350 SFPM using a 0.0015" chip load.



## CAREER OPPORTUNITIES:

**Metal Fabricator**  
**CAD Engineer**  
**Welder**  
**Machinist**







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# AGRICULTURAL STUDIES

Students in the Agricultural Studies program will be engaged in a variety of agricultural activities. This program will explore sustainable farm-to-table pathways through plant sciences, horticulture, small animals, and conservation. Students will collaborate with other programs (e.g., Construction Technology, Heavy Equipment, Culinary Arts, etc.) on various projects to maintain and expand CiTi Farms. Students will connect science and business topics while learning about the wide variety of careers available throughout the field of agriculture.

## SUCCESSFUL STUDENT ATTRIBUTES:

Willingness to do physical work outside and get dirty, ability to problem-solve, hand-eye coordination, basic mechanical skills





**Program Length:** Two years

**Industry Alignment:** Agriculture, Food and Natural Resources Cluster Plant Systems Pathway; Occupational Safety & Health Administration General Industry-Agriculture (OSHA 10)

**Integrated Academic Coursework:** Career & Financial Management (½ credit), ELA (½ credit per year), Science (½ credit per year)

**Graduation Pathways:** 4+1 Pathway Option: Precision Greenhouse Management, CDOS Pathway

**College Credit Opportunities:** SUNY Morrisville: AGBS100 Intro to Food & Agribusiness (3 credits), ENSC 101 Agricultural Science (3 credits)

**Credential Opportunities:** 10-hour Occupational Safety & Health Administration General Industry – Agriculture (OSHA)

**Program Achievement Opportunities:** Technical Endorsement on Graduation Diploma, National Technical Honor Society

**Industry Assessments:** Precision Exam – Greenhouse Management; 10-hour Occupational Safety & Health Administration General Industry – Agriculture (OSHA)

**Program Supplies, Materials, Assessments Provided:** Work boots, safety glasses, work gloves, 10-hour OSHA training certificate

**Entry-level Occupational Reading Materials Lexile:** 1270-1510  
(<https://ttac.gmu.edu/archive/telegram/article-1>) No textbook used at this time.

**Sample Vocabulary:** Asexual propagation, monocots, non-ruminant digestive system, agronomy

**Sample ELA Prompt:** Describe the correlation between the world's food supply and global warming. Give specific examples of these connections and the projected impact on health, economy and food sources for future generations.

**Sample Science Question:** Explain the impact of biostimulants on plant make-up, crop yields and end users.



## CAREER OPPORTUNITIES:

Grower/Farmer  
Horticulture  
Farm Manager  
Agricultural Engineer  
Greenhouse Worker  
Agriculture Specialist  
Crop Manager







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## AUTO BODY REPAIR

Each damaged vehicle presents a new problem to be solved. Auto body technicians solve these problems by using specialized equipment and tools to straighten frames, remove dents, replace parts and accurately match paint finishes. Students will assess collision characteristics based on physical damage. Students will practice procedures and techniques which develop perceptual capabilities and skills to produce high quality auto body repairs and provide professional customer service.

### SUCCESSFUL STUDENT ATTRIBUTES:

Ability to troubleshoot and propose solutions, detail oriented, understands basic science concepts as they relate to the occupation





**Program Length:** Two years

**Industry Alignment:** Inter-Industry Conference on Auto Collision Repair (ICAR); Automotive Service Excellence (ASE); ASE Education Foundation; Occupational Safety & Health Administration (OSHA)

**Integrated Academic Coursework:** Career & Financial Management (½ credit), Science (½ credit per year)

**Graduation Pathways:** 4+1 Pathway Option: Precision Automotive Collision Repair

**College Credit Opportunities:** Articulation Agreements: Alfred State; Ohio Technical College

**Credential Opportunities:** ASE – Hours Toward Painting and Refinishing ASE Accreditation and Test Preparation; ASE Education Foundation Entry Level Certification; 10-hour OSHA General Industry Safety and Health Credential

**Program Achievement Opportunities:** Technical Endorsement on Graduation Diploma, National Technical Honor Society

**Industry Assessments:** Precision Exams - Automotive Collision Repair; ASE Education Foundation Entry-Level Painting and Refinishing Certification Exam

**Program Supplies, Materials, Assessments Provided:** Work boots; safety glasses; respiratory physical; 10-hour OSHA Training Certificate; ASE Education Foundation Entry Level Painting and Refinishing Certification Exam

**Entry-level Occupational Reading Materials Lexile:** 1170-1350  
(<https://ttac.gmu.edu/archive/telegram/article-1>)

**9th Grade Reading Level Sample Text:** Moisture in the refrigerant may damage the compressor. The accumulator, or receiver/drier, acts as a reservoir for the refrigerant and also removes moisture from the refrigerant in the system.

The moisture is removed by a desiccant. A desiccant is a chemical that absorbs moisture. There are two types of refrigerant lines - metal tubes and flexible rubber hoses. The metal tubes and rubber hoses form airtight connections between air conditioning system components. The connections can be made with nuts or with garters.

A garter spring looks like a ring or circle made out of a coil spring. They are used to provide an even radial force around an object. In refrigerant applications the male end of the coupling is inserted into a female flared end. The union is held together by the garter spring which prevents uncoupling by tightly gripping the flared end of the female connector. (Auto Collision Repair and Refinishing, Year 1 & 2 textbook)



**Sample Vocabulary:** Polymerization, brazing, adhesion, viscosity, oscillating knife

**Sample Science Problem:** The pitch of a metallic color is too light. The face is okay. Technician A wants to add white mica. Technician B wants to add a flop adjuster. What will the addition of each of these do to the composition of the paint?

## CAREER OPPORTUNITIES:

**Auto Body Technician**  
**Painter**  
**Parts Manager**  
**Estimator**





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# AUTO TECHNOLOGY

Through the Auto Technology program, students learn the various aspects of vehicle diagnostics, repair, and maintenance. The units of study include eight required Automotive Service Excellence (ASE) modules: Engine Performance, Steering/Suspension Systems, Engine Repair and Automatic/Manual Transmissions and Transaxles, Electrical/ Electronics, Brakes, Heating and Air Conditioning and Tires and Wheels.

## SUCCESSFUL STUDENT ATTRIBUTES:

Persistence to problem-solve, basic computer, math, reading and communication skills, self-motivation, ability to work on a project over multiple days





**Program Length:** Two years

**Industry Alignment:** Automotive Service Excellence (ASE); ASE Education Foundation; Occupational Safety and Health Administration - Automotive (OSHA)

**Integrated Academic Coursework:** Career and Financial Management (1/2 credit); Science (1/2 credit per year)

**Graduation Pathways:** 4+1 Pathway Option: Precision-Automotive Service Fundamentals: Maintenance & Light Repair, CDOS Pathway

**College Credit Opportunities:** Onondaga Community College (ATC103 & ATC115) (3 credits), Articulation Agreements: Ohio Technical College; Lincoln Technical Institute; SUNY Canton; SUNY College of Technology at Delhi

**Credential Opportunities:** ASE Education Foundation Entry-Level Certification Exam - Time Toward ASE Accreditation and Test Preparation; 10-hour Occupational Safety and Health Administration (OSHA) General Industry Safety and Health Credential; Technical Endorsement on Graduation Diploma Industry; SP2 Lift Safety Certification

**Program Achievement Opportunities:** Technical Endorsement on Graduation Diploma, National Technical Honor Society

**Industry Assessments:** Precision Exams Automotive Service Fundamentals

**Program Supplies, Materials, Assessments Provided:** Work boots; safety glasses; 10-hour OSHA certificate; ASE Education Foundation Entry-Level Certification Exams

**Entry-level Occupational Reading Materials Lexile:** 1170-1350  
(<https://ttac.gmu.edu/archive/telegram/article-1>)

**11th Grade Reading Level Sample Text:** Parasitic Load Testing - If a battery in a vehicle has a low state of charge after sitting, a parasitic load could be the cause. Parasitic load, also called key-off battery drain, occurs when a system or component continues to draw power even after the vehicle is shut down. All modern vehicles have some key-off draws such as clock memory, radio memory, computer memories, and other similar memory circuits. Other key-off draws may include anti-theft and keyless entry systems. Typically, these draws diminish over time as certain control modules enter a standby or sleep mode. If, however, a module does not shut down, it could cause a significant key-off draw on the battery, actually discharging the battery enough that the vehicle may not start after sitting overnight. Determining if a parasitic load is present can be done three ways. Disconnect the battery negative cable and install a test light in series between the battery terminal and the battery cable connection. If the test light is brightly lit, a significant key-off draw is



present.

You may ask why a test light will light up when placed in series within the negative side of the circuit. If there is not a significant draw, there will not be enough current flow to power the light.

**Sample Vocabulary:** Voltage regulator, gasket, calipers, torque converter, schematics

**Sample Science Question:** A vehicle's interior accessory fuse blows repeatedly. Tech A says installing a fuse with a higher amperage rating may solve the problem. Tech B says bypassing the fuse with a jumper wire can allow the technician to find the problem.

Who is correct? Explain your reasoning

## CAREER OPPORTUNITIES:

**Mechanic**  
**Auto Parts Salesperson**  
**Diagnostic Technician**





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# COMPUTER CODING

The Computer Coding program is an introductory class providing students with programming foundations. Students will utilize a variety of computer languages including HTML, CSS, Web DNA and JavaScript. Course projects will include mobile web development, autonomous robotics, remote server workflow and data queries. There is an emphasis on developing for the web, as well as producing data-driven applications. The program will also incorporate artificial intelligence applications as students explore the ethical implications in the industry.

## SUCCESSFUL STUDENT ATTRIBUTES:

Has abstract reasoning ability, basic computer, reading, and writing skills, can work independently or with a team, is self-directed, can determine a detailed course of work needed to achieve required outcome





**Program Length:** Two years

**Industry Alignment:** Information Technology Career Cluster Programming and Software Development Pathway

**Integrated Academic Coursework:** Career & Financial Management (½ credit), ELA (½ credit per year), LOTE (1/2 credit per year)

**Graduation Pathways:** 4+1 Pathway Option: Precision Exams - Web Development II, CDOS Pathway

**College Credit Opportunities:** Articulation Agreements: New England Institute of Technology: GDS110 Introduction to Game Programming, GDS111 HTML & JavaScript or SE111 HTML & JavaScript

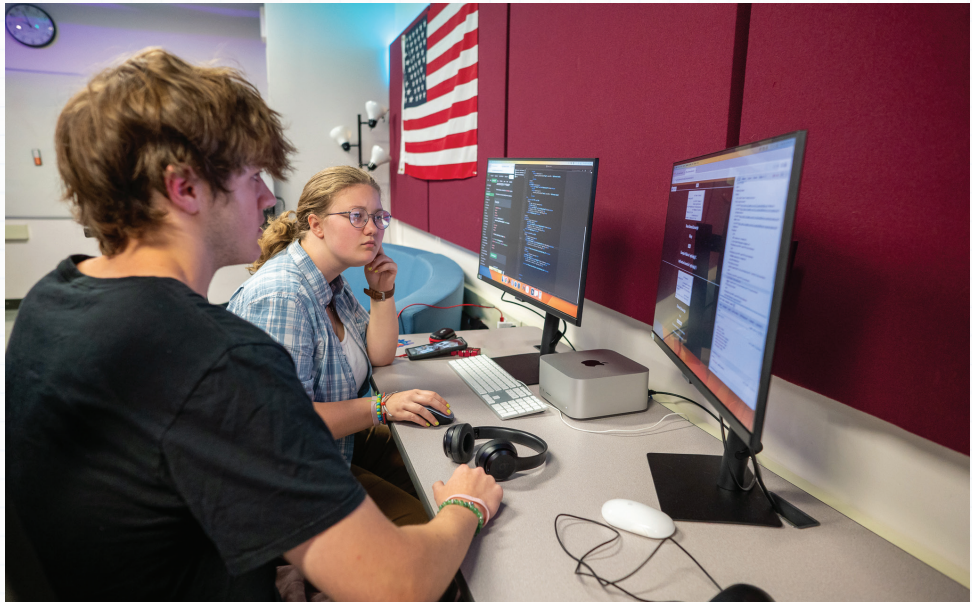
**Credential Opportunities:** Precision Exams - Web Development II

**Program Achievement Opportunities:** Technical Endorsement on Graduation Diploma, National Technical Honor Society

**Entry-level Occupational Reading Materials Lexile:** 1110-1190  
(<https://ttac.gmu.edu/archive/telegram/article-1>) No textbook used at this time.

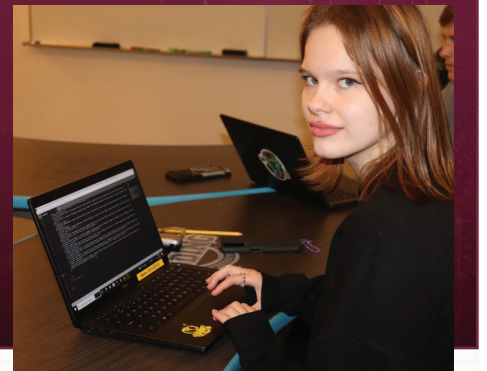
**Sample Vocabulary:** Attributes, properties, domain, traverse, cache

**Sample ELA Prompt:** Create a user's manual to accompany the cell phone application developed by your team. Be sure to include step-by-step instructions, problem solving suggestions, and overall app description in your manual.



## CAREER OPPORTUNITIES:

Database Administrator  
Back-end Developer  
Game Developer  
Coder







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# CONSTRUCTION TECHNOLOGY

Construction Technology provides students with classroom instruction and hands-on experiences in various specialties of the construction industry. Students will gain knowledge and apply it to the following areas: carpentry, electrical, masonry and plumbing. A strong emphasis is placed on safety, career and college readiness, career exploration, and foundational-level construction competencies.

## SUCCESSFUL STUDENT ATTRIBUTES:

Mastery of basic math functions and calculations, can perform physical tasks, completes problem-solving tasks, has head-to-hand skills, ability to decipher information from graphic representations





**Program Length:** Two years

**Industry Alignment:** Architecture and Construction  
Career Cluster Construction Pathway; Career Connections;  
Occupational Safety and Health Administration (OSHA)  
Construction Industry

**Integrated Academic Coursework:** Career and Financial  
Management (½ credit); Math (½ credit per year)

**Graduation Pathway:** 4+1 Pathway Option: Precision  
Exams - Carpentry, CDOS Pathway

**College Credit Opportunities:** Articulation Agreements:  
SUNY College of Technology at Delhi

**Credential Opportunities:** Precision Exams –  
Construction Trades Foundations & Precision Exams–  
Carpentry 10-hour, OSHA Construction Industry Credential

**Program Achievement Opportunities:** Technical  
Endorsement on Graduation Diploma, National Technical  
Honor Society

**Industry Assessments:** Precision Exams – Construction  
Trades Foundations & Precision Exams – Carpentry

**Program Supplies, Materials, Assessments Provided:**  
Work boots; safety glasses; hard hats; high-visibility jacket;  
10-hour OSHA training; Precision Exams - Carpentry

**Entry-level Occupational Reading Materials Lexile:**  
1210-1340  
(<https://ttac.gmu.edu/archive/telegram/article-1>)

**11th Grade Reading Level Sample Text:** The choker hitch affects the capacity of the sling, reducing it by a minimum of 25 percent. This capacity reduction must be considered when choosing the proper sling. Further, the choker hitch does not grip the load securely. It is not recommended for loose bundles of materials because it tends to push loose items up and out of the choker. Many riggers use the choker hitch for bundles, mistakenly believing that forcing the choke down provides a right grip. In fact, it serves only to drastically increase the stress on the choke leg. (NCCER Core Introductory Craft Skills, Year 1 & 2 textbook)

**Sample Vocabulary:** Torque, conversions, pythagorean theorem, combustibles, pneumatic

**Sample Math Question:** Find the cost of baseboard needed for the floorplan given. The lumber company charges \$1.19 per linear foot of baseboard, and there is a 12% discount. All door widths are the standard 30". Add tax after you reduce for the sale cost. Calculate: total linear feet needed, initial baseboard cost, discount amount, baseboard cost after sale reduction, amount added for 8% sales tax, and total baseboard cost.



## CAREER OPPORTUNITIES:

**Carpenter**  
**Carpenter Laborer**  
**Electrician**  
**Mason Laborer**







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# COSMETOLOGY

The CiTi Salon offers students the opportunity to gain practical experience and apply classroom theory as they work toward meeting the requirements to take the New York state licensing exam. Students must participate in internship hours outside of the scheduled school day/calendar to achieve the 1,000 hours needed for NYS licensing.

Students gain the knowledge to be able to use real-life experiences learned through the program in the Cosmetology classroom clinic. Students are expected to demonstrate the ability to work independently & with others, as well as have appropriate decision-making skills. The fast-paced environment of cosmetology can lead to several career opportunities.

## SUCCESSFUL STUDENT ATTRIBUTES:

Demonstrate the ability to work independently and with others, appropriate decision-making, aptitude for biology & chemistry concepts, strong interpersonal skills, interacts appropriately in all situations, demonstrates initiative to complete required hours for licensing





**Program Length:** Two years (students may be eligible to apply for a temporary New York state license after attainment of 1,000 hours)

**Industry Alignment:** New York State Cosmetology Division of Licensing Services Curriculum; New York State Education Department Cosmetology Prioritized Curriculum

**Integrated Academic Coursework:** Career and Financial Management (½ credit); Science (½ credit per year); English (½ credit per year)

**Graduation Pathways:** 4+1 Pathway Option: NOCTI – Cosmetology NY, CDOS Pathway

**College Credit Opportunities:** Articulation Agreement: Bryant & Stratton College

**Credential Opportunities:** Temporary Cosmetologist License (After the successful completion of 1,000 hours, which includes additional time commitment outside of regular class hours)

**Program Achievement Opportunities:** Technical Endorsement on Graduation Diploma, National Technical Honor Society

**Program Supplies, Materials, Assessments Provided:** Stylist uniform; NOCTI Cosmetology Exam

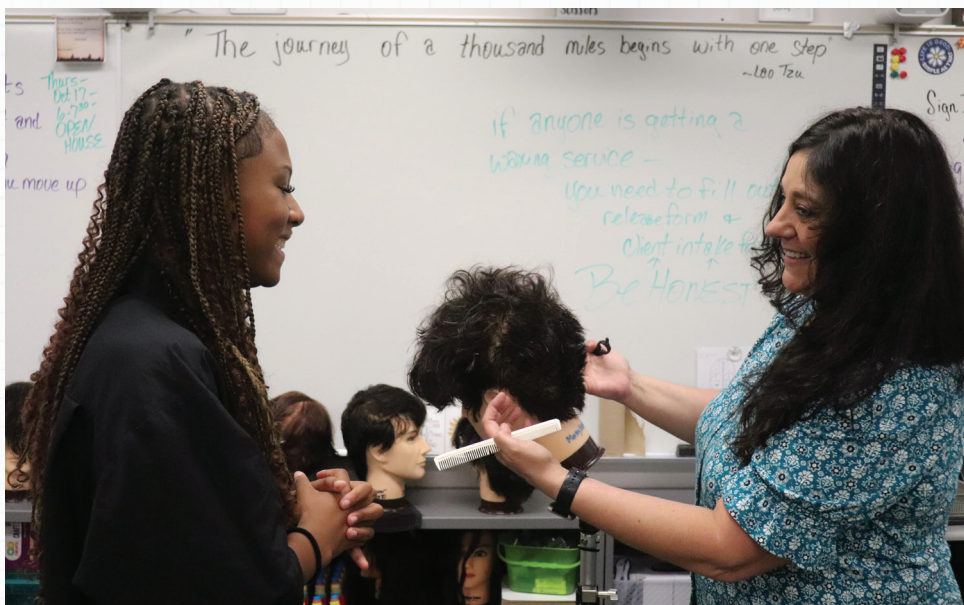
**Entry-level Occupational Reading Materials Lexile:** 1230-1260  
(<https://ttac.gmu.edu/archive/telegram/article-1>)

**13th Grade Reading Level Sample Text:** The hydroxide ion is the active ingredient in all hydroxide relaxers, which are very strong alkalis with a pH over 13. Sodium hydroxide, potassium hydroxide, lithium hydroxide, and guanidine hydroxide are all types of hydroxide relaxers, which can swell the hair up to twice its normal diameter. Hydroxide relaxers are not compatible with thio relaxers, permanent waving, or soft curl perms due to the difference in chemistry. Hydroxide relaxers have such a high pH that the alkalinity alone can break the disulfide bonds. The average pH of the hair is about 5, and many hydroxide relaxers have a pH over 13. Since each step in the pH scale represents a tenfold change in concentration, a pH of 13 is 100 million times more alkaline than a pH of 5. (Milady, Year 1 & 2 textbook)

**Sample Vocabulary:** Effilating, keratinization, neutralizing, peptide, sebum

**Sample ELA:** Role play a client consultation that includes information learned from the client intake form.

**Sample Science Question:** Explain the role of hydrogen peroxide in a haircolor formula.



## CAREER OPPORTUNITIES:

Salon Manager  
Hair Stylist  
Nail Care Artist  
Aesthetician  
Platform Artist  
Color Educator  
Color Specialist







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# CULINARY ARTS

Working as a chef, cook or food-preparation worker involves the ability to work as an efficient team member. While applying classroom theory in an industrial kitchen, students will learn food preparation and cooking methods, food-handling techniques, and sanitation procedures. This course provides students with a solid foundation for further career training programs and/or employment.

## SUCCESSFUL STUDENT ATTRIBUTES:

Ability to multitask, has good personal hygiene, ability to work in a fast-paced environment, makes safe decisions, works well in a team, understands basic science concepts as related to food prep, handling and cooking, physical requirements as required by industry: standing for long periods of time, lifting 50 lbs





**Program Length:** Two years

**Industry Alignment:** ProStart; ServSafe; New York State Restaurant Association Education Foundation; National Restaurant Association Education Foundation

**Integrated Academic Coursework:** Career and Financial Management (½ credit); Science (½ credit per year)

**Graduation Pathways:** 4+1 Pathway Option: National Restaurant Association Educational Foundation: ProStart Level 1 and 2 Written Exam, Qualters Practical Assessment, CDOS Pathway

**College Credit Opportunities:** Dual Credit: Cayuga Community College CULA 100 Food Safety and Sanitation (2 credits); CULA 101 Culinary Methods and Techniques I (4 credits); CULA 102 Culinary Methods and Techniques II (4 credits); BIOL 209 Basic Nutrition (3 credits); Articulation Agreements: SUNY Cobleskill; Schenectady County Community College; Bryant & Stratton College; SUNY Morrisville; SUNY Delhi; Tompkins Cortland Community College; Niagara Falls Culinary Institute; The Culinary Institute of New York at Monroe College; All ProStart articulation locations

**Credential Opportunities:** ProStart – Level 1 and 2; ProStart Certificate of Achievement; ServSafe Manager Level Certification; ServSafe Food Handler Certification; Technical Endorsement on Graduation Diploma; CPR Certificate

**Program Achievement Opportunities:** Technical Endorsement on Graduation Diploma, National Technical Honor Society

**Industry Assessments:** ProStart – Levels 1 and 2; Qualters Practical Exam

**Program Supplies, Materials, Assessments Provided:** Chef hats; aprons; uniforms; shoes; ServSafe Certifications; ProStart Exam Levels 1 & 2; Qualters Food Handler Practical

**Entry-level Occupational Reading Materials Lexile:** 1230-1260

(<https://ttac.gmu.edu/archive/telegram/article-1>)

**9th Grade Reading Level Sample Text:** The three general types of cooking methods are dry-heat cooking, moist-heat cooking, and combination cooking. Each method can be used to bring out the flavor and tenderness of specific dishes. In addition, these methods can reflect cultural and regional preferences. Heat is a type of energy. When two items of different temperatures have contact, energy in the form of heat transfers from the warmer item to the cooler until they both reach the same temperature. Heat travels in items in three ways: conduction, convection, and radiation. Conduction is the transfer of heat from one item to another when the items come into direct contact with each other. Sometimes the heat is transferred to the



air or from surface to surface. An example is when a cold plate begins to warm when covered with hot food. The heat of the food is conducted into the surface of the plate. (Foundations of Restaurant Management & Culinary Arts, Year 1 textbook)

**Sample Vocabulary:** Braising, caramelization, cross-contamination, conversion factor

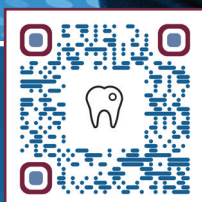
**Sample Science Question:** Think about steaming a piece of chicken in your favorite soup recipe. Now think about a piece of grilled chicken with perfect crosshatching. Why are the flavors so different?

Research the Maillard reaction and then cook two chicken breasts, one by a dry-heat method and one by a moist-heat method. What do you notice? What conclusions can you make?

## CAREER OPPORTUNITIES:

Sous Chef  
Food Critic  
Baker Assistant





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# DENTAL CHAIRSIDE ASSISTING

This hands-on program provides an excellent opportunity for those interested in the dental profession to begin a rewarding career. Course work includes: sciences in dentistry, emergency care, infection control, radiology, chairside procedures, clinical dentistry and preventative dentistry along with a required 200-hour clinical internship in a dental office. Students receive instruction and training in a dental equipped classroom/clinical laboratory setting.

## SUCCESSFUL STUDENT ATTRIBUTES:

Attention to detail, good personal hygiene, organizational skills, good dexterity, strong communication skills, willingness to engage in physical contact as required by industry, physical abilities as required by industry: ability to stand for long periods of time, lift/bend, fine motor skills

## ADDITIONAL PROGRAM NOTES:

Students in this program are required to have a current physical and health immunizations.





**Program Length:** Two years

**Industry Alignment:** NCHSE National Health Science Standards, NYS Dental Assisting Standards

**Integrated Academic Coursework:** Career & Financial Management (½ credit), ELA (½ credit per year), Science (½ credit per year)

**Graduation Pathways:** 4+1 Pathway Option: Precision - Dental Science 1, CDOS Pathway

**College Credit Opportunities:** CCC CHEM 101 Introduction to Chemistry (4 credits)

**Credential Opportunities:** American Heart Association - First Aid, CPR and AED (Adult, Child and Infant Certifications), OSHA, Radiology and Infection Control

**Program Achievement Opportunities:** Technical Endorsement on Graduation Diploma, National Technical Honor Society

#### **Program Supplies, Materials, Assessments**

**Provided:** Lab Jacket and Scrub Pants, American Heart Association - First Aid, CPR and AED (Adult, Child and Infant Certifications), and NYS licensing fee (if eligible).

**Industry Assessments:** To be licensed as a registered dental assistant in New York state you must:

- be at least 18 years of age;
- meet education requirements; and
- meet examination requirements.

\*Passing scores on appropriate examinations administered by the Dental Assisting National Board (DANB), Inc. are required for licensure in New York (Radiation, Health and Safety, Infection Control and New York State Practical Dental Assisting Exam). Once all three exams are passed, the candidate is eligible for NYS registration.

#### **Entry-level Occupational Reading Materials Lexile:**

1260-1300

(<https://ttac.gmu.edu/archive/telegram/article-1>)

**Sample Vocabulary:** Temporomandibular joint disorder, therapeutic communications, resuscitation

**Sample ELA Prompt:** Describe the purpose of the periodontal ligaments as they relate to general oral health.

**Sample Science Problem:** Explain the impact of the gingival tissue during the excisional surgical procedure.



## CAREER OPPORTUNITIES:

Dental Assistant  
Dental Front Office Team  
Dental Sales Associate  
Dental Hygienist\*  
Dentist\*

\*additional schooling







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# DIGITAL MEDIA TECHNOLOGY

The Digital Media Technology program combines the creative elements of fine arts with digital technologies. Students use the latest industry hardware and software to complete projects in multimedia (including video production, audio editing, and special effects), desktop publishing, digital illustration and photography. Digital Media Technology lays the foundation for exciting careers in web development, public relations, graphic design, marketing, animation, gaming and illustration. The program will also incorporate artificial intelligence applications as students explore the ethical implications in the industry.

## SUCCESSFUL STUDENT ATTRIBUTES:

Has abstract reasoning ability, basic computer, reading, and writing skills, can work independently or with a team, is self-directed, artistic appreciation, high level communication skills for client consultations





**Program Length:** Two years

**Industry Alignment:** Arts, A/V Technology and Communications Career Cluster Visual Arts Pathway

**Integrated Academic Coursework:**

Career and Financial Management (½ credit); ELA (½ credit each year)

**Graduation Pathways:** 4+1 Pathway Option: Precision Exams – Commercial Art I; CDOS Pathway

**College Credit Opportunities:**

**Dual Credit:** Cayuga Community College: ART 252 Photoshop (3 credits); ART 215 Computer Graphics/Illustrator (3 credits); Articulation Agreements: Bryant & Stratton College, Mohawk Valley Community College

**Credential Opportunities:**

Precision Exams – Commercial Art I

**Program Achievement Opportunities:**

Technical Endorsement on Graduation Diploma, National Technical Honor Society

**Program Supplies, Materials, Assessments Provided:**

Precision Exams – Commercial Art I

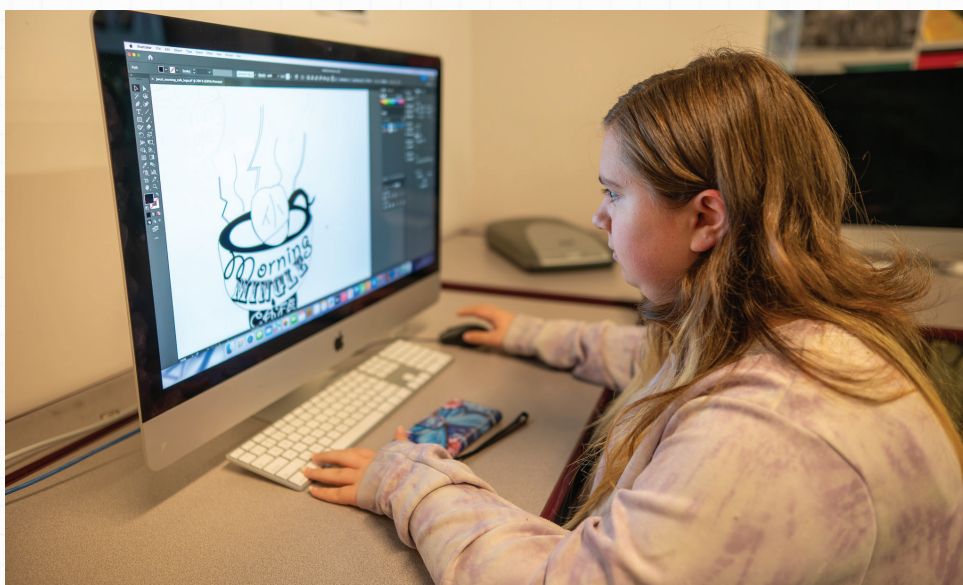
**Entry-level Occupational Reading Materials Lexile:**

1210-1310

(<https://ttac.gmu.edu/archive/telegram/article-1>) No textbook used at this time.

**Sample Vocabulary:** Subordination, kerning, critique, radiant, monochromatic

**Sample ELA Prompt:** Students will conference with a client to determine graphic design needs resulting in a narrative work order that includes a detailed task list, timelines with feedback and descriptive client expectations.



## CAREER OPPORTUNITIES:

Graphic Designer

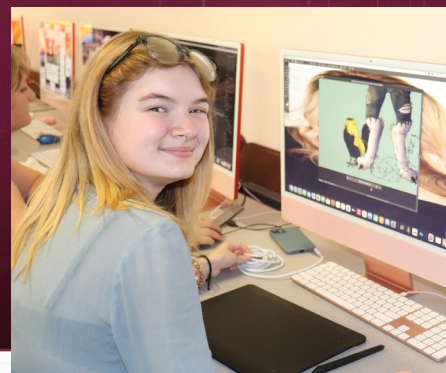
Illustrator

Animator

Videographer

Photographer

Apparel Designer







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## EARLY CHILDHOOD EDUCATION

The Early Childhood Education program is designed to teach students the aspects of teaching and working with young children, from birth through elementary age. Students will explore career pathways and develop the characteristics of successful teachers and childcare providers through practicums. Applying theoretical concepts to real-life situations, students can take what they have learned in the classroom and apply it to their rotation experiences. The rotation experiences are vital in building the student's understanding of how to meet the developmental needs and interests of young children in elementary school and/or daycare settings.

### SUCCESSFUL STUDENT ATTRIBUTES:

Likes and is patient with children, works well with others, kind, interested in caring for/teaching children, strong communication and organization skills, good role model, can work independently, positive discipline history





**Program Length:** Two years

**Industry Alignment:** American Heart Association: First Aid, Cardiopulmonary Resuscitation (CPR) and Automated External Defibrillator (AED) – Adult, Child and Infant Standards, ServSafe Certification, New York State Teaching Assistant Certificate, Level I

**Integrated Academic Coursework:** Career and Financial Management (1/2 credit); English (1/2 credit per year)

**Graduation Pathways:** 4+1 Pathway Option: NOCTI Early Childhood Care and Education – Advanced, CDOS Pathway

**College Credit Opportunities:** Dual Credit: Cayuga Community College: BIO 209 Basic Nutrition (1st year students) (3 credits), CAY 101 Foundations for College Success (2nd year students) (3 credits) and Jefferson Community College: ECD 101 Introduction to Early Childhood Care and Development (2nd year students) (3 credits); Articulation Agreements: SUNY Cobleskill

**Credential Opportunities:** NYS Teaching Assistant Certificate – Level I; American Heart Association: First Aid, CPR and AED Certifications, ServSafe Certification.

This program also offers: DASA, Child Abuse Prevention, and School Violence Prevention workshops for 2nd year students.

**Program Achievement Opportunities:** Technical Endorsement on Graduation Diploma, National Technical Honor Society

**Industry Assessments:** NYS Teaching Assistant Certificate; NOCTI – Early Childhood Care and Education Advanced Exam

**Program Supplies, Materials, Assessments Provided:** Polo shirts 1st year, Sweatshirt 2nd year; NOCTI – Early Childhood Care and Education (Advanced Exam); American Heart Association – First Aid, CPR, AED Certifications; ServSafe certification, 3 workshops (Dignity for All Students Act, Child Abuse Prevention Workshop, and School Violence Prevention Workshop); Exam fee for ATAS (Assessment of Teaching Assistant Skills) needed to earn the NYS Teaching Assistant Certificate (must be eligible to test after completing two years of instruction and completed all workshops); Fingerprint Clearance for Teaching Assistant Certificate (as long as student takes and passes ATAS exam before graduation), JCC 3 credit hours ECD 101 Introduction to Early Childhood Care and Development (2nd year students)

**Entry-level Occupational Reading Materials Lexile:** 1320-1370  
(<https://ttac.gmu.edu/archive/telegram/article-1>)

**7th Grade Reading Level:** Epilepsy is a convulsive disorder caused by damage to the brain. It affects about one percent of the population. As a result of this disorder, the electrical rhythms of the central nervous system are



disturbed. Epilepsy is not a disease. Epilepsy can cause varying degrees of reactions or seizures. Two major types are petit mal and grand mal. Petit mal seizures result in reactions that many times go unnoticed. Often, the only visible signs are the fluttering of the eyelids, frozen postures, staring, and a temporary stop in activity. The type of seizure may only last five to ten seconds. As a teacher, you may not always notice a petit mal seizure. You may notice that the child's behavior is strange or that he or she may not be paying attention. During the seizure, the child may have only a brief lapse of consciousness. Most of these seizures do not require medical attention. Grand mal seizures are much more pronounced. During a grand mal seizure, a child will lose consciousness. He or she may also jerk, thrash, or become stiff. The child may also be injured by hitting objects or biting the tongue.

**Sample Vocabulary:** Emotional impairment, developmentally appropriate, consumables, temperament

## CAREER OPPORTUNITIES:

Elementary, PreK, or Special  
Education Teacher  
Daycare Provider  
Teaching Assistant  
Social Worker  
School Psychologist





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# ELECTRICAL TECHNOLOGIES

The Electrical Technologies program provides introductory level exposure to knowledge and skills associated with the electrical trades; industrial, commercial & residential. Classroom instruction in electrical theory and fundamentals, as well as shop experiences will expose students to real-life requirements and expectations of the trade. Students will learn fundamentals of hand tools, power tools and test equipment used in an environment where safety, teamwork and accountability are stressed. Labs will provide hands-on experiences and demonstrations applicable to electrical work settings.

## SUCCESSFUL STUDENT ATTRIBUTES:

Strong problem-solving abilities, perseverance, adaptability, ability to decipher information from graphic representations, advanced math skills & understanding of math concepts and skills

## PHYSICAL REQUIREMENTS BY INDUSTRY:

Ability to stand for long periods of time, lift 50 lbs., climb, large & fine motor skills (such as: climbing a ladder, pulling wire, stripping wire, manipulating multi meter controls).





**Program Length:** Two years

**Integrated Academic Coursework:** Math (½ credit per year); Career & Financial Management (½ credit)

**Graduation Pathways:** 4+1 Pathway Option: NOCTI: Electrical Occupations, CDOS Pathway

**College Credit Opportunities:** Cayuga Community College: ELEC 101 (4 credits)

**Articulation Agreements:** SUNY College of Technology at Delhi; Lincoln Technical Institute;

**Credential Opportunities:** 10- Hour OSHA General Industry Safety and Health Credential; NCCER Core Certification, NCCER Electrical Level 1.

**Program Achievement Opportunities:** Technical Endorsement on Graduation Diploma, National Technical Honor Society

**Industry Assessments:** NOCTI Electrical Occupations, NCCER Electrical level 1 (NCCER Core is a prerequisite for all other NCCER assessments)

**Program Supplies, Materials, Assessments Provided:** Work boots, safety glasses, 10-Hour OSHA Credential, NCCER Academic Core

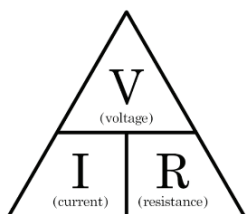
**Entry-level Occupational Reading Materials Lexile:** 1210-1340  
(<https://ttac.gmu.edu/archive/telegram/article-1>)

**8th Grade Reading Level Text Sample:** The unit of electrical work is the joule. The joule is the amount of work done by one coulomb flowing through a potential difference of one volt. If five coulombs flow through a potential difference of one volt, five joules of work are done. The time it takes these coulombs to flow through the potential difference has no bearing on the amount of work done. Amperes are a measurement of current, which is a rate of current flow. (NCCER Level 1 Electrical, Years 1 & 2 textbook)

**Sample Vocabulary:** Conduit, receptacle, concentric bends, voltmeter

**Sample Math Problem:** There is a total resistance (R) of 12 ohms in a circuit with 10 amps (I) of current. What is the circuit's voltage (V)?

### Ohm's Law Triangle



$$V = I \times R$$



$$I = V \div R$$



$$R = V \div I$$



## CAREER OPPORTUNITIES:

**Electrician**  
**Lineman**  
**Transmission Technician**







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# HEAVY EQUIPMENT

Students in the Heavy Equipment program will learn how to service, repair, and operate various types of excavation equipment. Instruction leads students through preventative maintenance, basic fabrication, hand tools, power tools, heating and cooling systems, engines and powertrains, and safely & appropriately utilizing industry equipment.

## SUCCESSFUL STUDENT ATTRIBUTES:

Safety-oriented, can problem-solve on their own, basic understanding of science and math concepts and skills, perseverance, foundational spatial reasoning skills, physical requirements by industry: ability to climb, lift 50 lbs, stand for long periods of time, large and fine motor skills (such as: digging, surveying, using hand tools)

## PROGRAM RECOMMENDATION:

NYS Learner's Permit or Driver's License





**Program Length:** Two years

**Industry Alignment:** Associated Equipment Distributors (AED) - Standards for Equipment Technology; Occupational Safety and Health Administration (OSHA)

**Integrated Academic Coursework:** Career and Financial Management (½ credit); Science (½) credit per year

**Graduation Pathways:** 4+1 Pathway Option: AED written exam & Precision Exams Practical (part 2)- Agricultural Machinery Technology, CDOS Pathway

**Articulation Agreements:** Lincoln Technical Institute; Ohio Technical College; SUNY Cobleskill

**Credential Opportunities:** 10-hour OSHA General Industry Safety and Health credential

**Program Achievement Opportunities:** Technical Endorsement on Graduation Diploma, National Technical Honor Society

**Industry Assessments:** AED written exam & Precision Exams Practical (part 2)- Agricultural Machinery Technology

**Program Supplies, Materials, Assessments Provided:** Safety glasses, gloves, high-visibility jacket, hard hat, work boots, work gloves; 10-hour OSHA credential; Precision Exams-Agricultural Machinery Technology

**Entry-level Occupational Reading Materials Lexile:** 1170-1350  
(<https://ttac.gmu.edu/archive/telegram/article-1>)

**9th Grade Reading Level Text Sample:** Recommended torque check to ensure that proper clamps and spacer are being used. The adjusters do not travel over the center of the vertical line. The brake cam and "push rod" are within the maximum travel distance for the size chamber. Stroke can be compensated for by the adjuster screw if needed. Never, under any circumstances, use a grease gun to adjust tracks having a capacity higher than 8000 PSI. Tee a pressure gauge gun tube to check pressure. If the piston cannot be moved with this type grease gun, disassemble track adjuster and free sized parts. (NCCER modules, Year 1)

**Sample Vocabulary:** Resistance, hydraulic, vented reservoir, oxyacetylene, electrode

**Sample Science Problem:** Create and pressure test a hydraulic hose to 120 PSI with zero failure outcomes.



## CAREER OPPORTUNITIES:

Heavy Duty Truck Technician  
Heavy Equipment Technician  
Equipment Operator  
Highway Maintenance Worker  
License Plate Manufacturer







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## NEW VISION ALLIED HEALTH

The New Vision Allied Health Program is designed for high school seniors interested in pursuing a career in health and wellness, healthcare, medicine, rehabilitation services, veterinary medicine, and related careers. Students will participate in classroom instruction and career-related experiences observed during clinical rotations in settings such as local health sites, health centers, hospitals, animal hospitals, inpatient and outpatient clinics, and private practices ranging from speech to surgery to dental care. The classroom setting is held on the SUNY Oswego campus, giving students a first-hand experience as college students, bridging the gap between high school, college and beyond.

### ADDITIONAL PROGRAM NOTES:

The admission process requires an application, recommendations, a writing sample and an interview. This program is housed on the SUNY Oswego campus. Students in this program are required to have a current physical, and health immunizations.

Background checks may also be required. Students will participate in rotations at local healthcare facilities.





# NEW VISION

ALLIED HEALTH | SPECIALIZED CAREERS

## Candidate Criteria:

- Entering 12th grade and planning to graduate the same year enrolled in New Vision program;
- Have achieved an attendance rate of 90 percent or better;
- Possess an 85 percent (3.0) or better overall average;
- Be willing to adhere to school and work site codes of conduct
- Have a focused career interest
- Students may be required to submit medical history forms prior to being placed in rotation sites

**Program Length:** One year (seniors only)

**Industry Alignment:** NCHSE National Health Science Standards

**Integrated Academic Coursework:** Participation in Government (½ credit); Economics (½ credit); Health (½ credit); English 12 (1 credit)

**Graduation Pathway:** CDOS Pathway

**College Credit Opportunities:** SUNY Oswego English 102; English 150; Psychology 100; GST 101 Professional Skills Preparatory

**Credential Opportunities:** American Heart Association Basic Life Support, Stop the Bleed, Harm Reduction, and more

**Industry Assessments:** American Heart Association Basic Life Support Certifications;

**Program Supplies, Materials, Assessments Provided:** Scrubs, CPR/AED certification, Clinical Background Clearance Fee



## CAREER OPPORTUNITIES:

Orthopedics, physical therapy, primary care, surgery, anesthesia, chiropractic, phlebotomy, medical imaging, ophthalmology, speech language pathology, labor and delivery, cardiology, occupational therapy, school-based health education, nursing, respiratory therapy, emergency medicine, pathology, psychiatry, mental health, behavioral health, memory care, cardiac sonography, veterinary medicine, vet tech, veterinary surgery, animal rehabilitation

\*All pathway opportunities are dependent on partnership and/or internship availability.







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# NEW VISION SPECIALIZED CAREERS

The New Vision Specialized Careers program is designed for high school seniors who have a strong interest in pursuing a specific career (other than healthcare-related).

Students will participate in classroom instruction, along with real-life career related experiences observed during rotations that are specifically tailored to their career interests (e.g, teaching, business and finance, law enforcement, public relations and marketing, etc.) These rotation sites will give students an overview of typical occupational experiences. The classroom setting is held on the SUNY Oswego campus, giving students a firsthand experience as college students.

## ADDITIONAL PROGRAM NOTES:

The admission process requires an application, recommendations, a writing sample and an interview. This program is housed on the SUNY Oswego campus. Students participate in supervised rotations that may require health records, immunizations and/or background checks.





# NEW VISION

ALLIED HEALTH | SPECIALIZED CAREERS

## Candidate Criteria:

- Entering 12th grade and planning to graduate the same year enrolled in New Vision program;
- Have achieved an attendance rate of 90 percent or better;
- Possess an 85 percent (3.0) or better overall average;
- Be willing to adhere to school and work site codes of conduct
- Have a focused career interest
- Students may be required to submit medical history forms prior to being placed in rotation sites

**Program Length:** One year (seniors only)

**Industry Alignment:** Learning Standards for Career Development and Occupational Studies

**Integrated Academic Coursework:** Participation in Government (½ credit); Economics (½ credit); English 12 (1 credit)

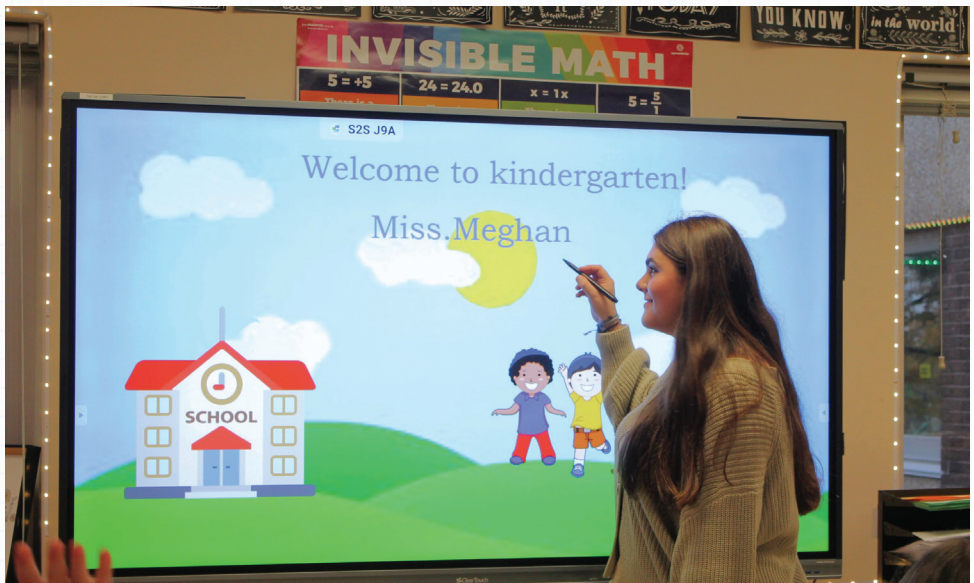
**4+1 Pathway Option:** CDOS Pathway

**College Credit Opportunities:** SUNY Oswego English 102; English 150; Psychology 100; GST 101 Professional Skills Preparatory

**Credential Opportunities:** American Heart Association

- First Aid: Cardiopulmonary Resuscitation (CPR) and Automated External Defibrillator (AED) - Adult, Child and Infant Standards

**Industry Assessments:** American Heart Association – First Aid, CPR and AED Certifications



## CAREER OPPORTUNITIES:

**Engineer, Business/Finance Professional, Case Manager  
Social Worker, Teacher, Law Enforcement Officer, Attorney**







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# NURSING ASSISTANT

The Nursing Assistant program offers an introduction into the healthcare field with an emphasis on entry-level employment as a nursing assistant, and/or advanced careers through continued education. In this program, students will be provided instruction through classroom theory, lab and clinical skills in preparation for the New York State Nurse Aide Certification exam. Nursing assistant skills will be demonstrated and practiced on mannequins, peers in the lab setting, and caring for residents in the clinical setting.

## ADDITIONAL PROGRAM NOTES:

Students in this program are required to have a current physical and health immunizations. Background checks may also be required. Students will participate in clinical rotations at local healthcare facilities by providing hands-on care to residents/ patients.

## SUCCESSFUL STUDENT ATTRIBUTES:

Good personal hygiene, ability to multitask, can bend, squat and lift at least 25 pounds, can maintain confidentiality, strong communication skills, basic understanding of science concepts as related to the human body, ability to work in a fast-paced environment, genuine interest in caring for others, compassion, trustworthy and appropriate for patient interactions in healthcare facilities, positive discipline history





**Program Length:** Two years (may be eligible for NYS CNA certification after second year)

**Industry Alignment:** NYS Department of Health Nurse Assistant/Aide; NYS Education Department Health Core Curriculum; American Heart Association – First Aid, CPR, and AED – Adult, Child and Infant Standards

**Integrated Academic Coursework:** Career and Financial Management (½ credit); Science (½ credit per year); Health (½ credit); English (½ credit per year)

**Graduation Pathway:** 4+1 Pathway Option: Prometric – New York State Nurse Aide Competency Exam, CDOS Pathway

**College Credit Opportunities:** DUAL CREDIT: Cayuga Community College: BIO 209 Introduction to Nutrition (3 credits); CHEM 101 Introduction to Chemistry (4 credits); Articulation Agreements: Bryant & Stratton College

**Credential Opportunities:** New York State Department of Health – Nurse Aide Certification; American Heart Association – First Aid, CPR and AED (Adult, Child and Infant Certifications)

**Program Achievement Opportunities:** Technical Endorsement on Graduation Diploma, National Technical Honor Society

**Industry Assessments:** New York State Nurse Aide Competency Exam

**Program Supplies, Materials, Assessments Provided:** Scrubs; Shoes; American Heart Association – First Aid, CPR, AED (Adult, Child and Infant Certifications); New York State Nurse Aide Competency Exam (if eligible)

**Entry-level Occupational Reading Materials Lexile:** 1260-1300  
(<https://ttac.gmu.edu/archive/telegram/article-1>)

**10th Grade Reading Level Sample Text:** Osteoarthritis usually affects weight-bearing joints, such as the knees, hips, and joints of the spinal column. Osteoarthritis begins when the smooth cartilage on the ends of the bones becomes rough, due to normal use of the joint. The rough area then becomes inflamed, and bony deposits build up. These bony deposits rub against the cartilage, causing even more damage. This cycle repeats until the cartilage has been worn down to the point where bone is actually rubbing against bone as the joint moves. The joint becomes swollen, stiff, and very painful. A person with osteoarthritis may take medications to decrease both the pain and swelling. Heat and cold applications can also increase a person's level of comfort. Mild exercise that places the affected joints through their range of motion helps to diminish stiffness and maintain joint function.

People who have very severe osteoarthritis may need surgery to replace the joint. Hips and knees are the



joints most commonly replaced, but replacement of shoulder, elbow, wrists, and hand joints is also possible. (Nursing Assistants: A Humanistic Approach to Caregiving, Year 1 & 2 textbook)

**Sample Vocabulary:** Respiration, airway obstruction, evaluate, intake, pathogens

**Sample ELA Question:** Write a script that could be used with a patient's family members to explain the measures included in basic life support measures.

**Sample Science Question:** Apply scientific principles and evidence to explain how the rate of change (physical or chemical) is affected when conditions are varied (ex. Temperature, age, weight, nutritional intake, etc.).

## CAREER OPPORTUNITIES:

**Nursing Assistant**  
**Therapy Aide**  
**Healthcare Advocate**





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# PUBLIC SAFETY & JUSTICE

Students enrolled in the Public Safety & Justice program will have the opportunity to explore law enforcement, security, corrections, emergency management & response, and firefighting careers. Many hands-on learning experiences will provide students the opportunity to learn about evidence gathering, fingerprinting, fire control, emergency management and response techniques, emergency dispatching, emergency training, and much more.

## SUCCESSFUL STUDENT ATTRIBUTES:

Ability to follow directions without question, strong communication, physical requirements by industry: run, lift 50 lbs, carry, climb, large and fine motor skills (such as: handcuffing, dusting fingerprints, manipulating fire control equipment)





**Program Length:** Two years

**Industry Alignment:** Law, Public Safety, Corrections & Security Career Cluster: Law Enforcement Services Pathway; New York State Division of Criminal Justice Services – Security Guard Training; New York State Office of Homeland Security – Training Guidelines; Department of State – New York State Security Guard Curriculum; New York State Department of Health – Basic Emergency Medical Services Training; American Heart Association – First Aid, Cardiopulmonary Resuscitation and Automated External Defibrillator (Adult, Child and Infant Standards); New York State Academy of Fire Science Recruit Firefighter Training Program; Stop The Bleed Training; Tactical Combat Casualty Care Training

**Integrated Academic Coursework:** Career and Financial Management (½ credit); Physical Education (½ credit per year); Science (½ credit per year); English (½ credit per year)

**Graduation Pathways:** 4+1 Pathway Option: Precision Exams – Criminal Justice I, CDOS Pathway

**College Credit Opportunities:** Bryant & Stratton College; SUNY College of Technology at Delhi

**Credential Opportunities:** American Heart Association – First Aid, CPR and AED (Adult, Child and Infant Certifications); NYS Division of Criminal Justice Services – Security Guard Certification; OSHA 10 Hours Safety Certification; NYS EMT Basic Certification

**Program Achievement Opportunities:** Technical Endorsement on Graduation Diploma, National Technical Honor Society

**Program Supplies, Materials, Assessments Provided:** Dress Uniform (shirt, pants, belt), boots, PT t-shirt, Precision Exams – Criminal Justice I Exam

**Entry-level Occupational Reading Materials Lexile:** 1420-1740

(<https://ttac.gmu.edu/archive/telegram/article-1>)

**12th Grade Reading Level Sample Text:** The application of the law to actual cases is not always straightforward. Contemporary concerns in criminal law nearly always involve disagreements about how the law ought to be applied to new situations created by major incidents or by advancing technology. An analogous issue is the trend toward holding parents responsible for the criminal conduct of their children. In South Carolina, for example, a judge ordered a truant daughter and her mother to be tethered by a 2-foot rope. Thus far, parental responsibility laws have been created in response to school vandalism and shootings. In some states parents are responsible for up to \$300,000 in damages caused by their children.

Criminal charges against parents are fewer, because they are difficult to prove. Nevertheless, a father was



sentenced to 60 days in jail and paid a fine after his son gave vodka to underage girls in his home while the father was asleep. The boundary between young people's personal responsibility for conduct and the responsibility to be shared by parents is still being debated. (Criminal Justice, Year 1 textbook)

**Sample Vocabulary:** Decontamination, topography, combustion, circumstantial evidence, adjudication

**Sample ELA Writing Prompt:** Give an example of a specific action or statement made by a defense attorney in a well-known case that leads you to believe that the attorney was acting inappropriately. In what sense was the behavior inappropriate? Defend your position.

**Sample Science Question:** Compare methods used to suppress bulk transport vehicle fires and flammable gas incidents.

## CAREER OPPORTUNITIES:

Law Enforcement  
Firefighter  
Emergency Medical Services  
911 Dispatcher  
Corrections





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# WELDING TECHNOLOGY

The Welding Technology program is a two-year program designed to help students gain basic welding, fabricating, math and problem-solving skills needed to qualify for entry-level employment or apprenticeship. Students work to complete the American Welding Society (AWS) Sense - Entry Level I Welder Qualification. Students will build a portfolio of projects and weld tests that will prepare them for success in a variety of employment settings.

## SUCCESSFUL STUDENT ATTRIBUTES:

Basic mastery of science and math skills, can make safe decisions for self and others, can work independently or in a team, shows perseverance and good decision making skills on a regular basis, strong hand-eye coordination, has physical ability to maneuver materials and weld in a variety of settings for extended periods of time, ability to read and decipher graphic representations, strong symbolic memory abilities





**Program Length:** Two years (may be eligible for AWS certification after second year)

**Industry Alignment:** American Welding Society (AWS) Sense; Occupational Safety & Health Administration (OSHA)

**Integrated Academic Coursework:** Career and Financial Management (½ credit), Math (½ credit per year), Science (½ credit per year)

**Graduation Pathways:** 4+1 Pathway Option: AWS – Sense Level 1 (Entry Welder), CDOS Pathway

**College Credit Opportunities:** Articulation Agreements: Lincoln Technical Institute; Ohio Technical College; SUNY College of Technology at Delhi

**Credential Opportunities:** AWS – Sense Level 1 certification; 10-hour OSHA Construction Industry Safety and Health Credential

**Program Achievement Opportunities:** Technical Endorsement on Graduation Diploma, National Technical Honor Society

**Industry Assessments:** AWS – Sense Level 1 (Entry Welder)

**Program Supplies, Materials, Assessments Provided:** Work boots, safety glasses, work gloves, welding jacket; 10-hour OSHA training certificate; AWS – Sense Level 1 certification

**Entry-level Occupational Reading Materials Lexile:** 1200-1310  
(<https://ttac.gmu.edu/archive/telegram/article-1>)

**11th Grade Reading Level Sample Text:** Oxy Fuel cutting, also called flame cutting or burning, is a process that uses the flame and oxygen from a cutting torch to cut ferrous metals. The flame is produced by burning a fuel gas mixed with pure oxygen. The flame heats the metal to be cut to the kindling temperature (a cherry-red color); then a stream of high-pressure pure oxygen is directed from the torch at the metal's surface. This causes the metal to instantaneously oxidize or burn away. The cutting process results in oxides that mix with molten iron and produce dross, which is blown from the cut by the jet of cutting oxygen. (NCCER Level 1 Welding, Year 1 textbook)

**Sample Vocabulary:** Acetylene cylinders, electrodes, helium spectrometer leak test, longitudinal cracks, fillet welds

**Sample Math Problem:** Using a nibbler, cutter, or grinder, mechanically or manually prepare the edge of a ¼" to a ¾" thick carbon steel plate with a bevel angle of 22½ or 30 degrees. Criteria for acceptance: Bevel angle +/- 2½". Bevel face smooth and uniform to 1/16", root face



**Sample Science Question:** The presence of voids or empty spots in the weld metal is called:  
(a) porosity, (b) inclusion, (c) defect, (d) discontinuity.

## CAREER OPPORTUNITIES:

Welder/Fitter  
Metal Fabricator  
ARC Welder  
Sheet Metal Worker  
Welding Inspector





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