



## CTE Program of Studies 2018-2019

### Mission Statement

The Center for Technology, Essex provides comprehensive technical programs for all students which include career exploration, preparation and technical literacy in a respectful learning environment. All students will be afforded the opportunity to acquire skills necessary to reach their individual goals.

The Center for Technology, Essex strives to offer every student who is committed to technical education:

- A progressive vision driven by exemplary performance reflected by its staff, curricula and learning environments
- Qualified and caring instructors capable of developing a student's academic and technical knowledge and the application of these skills relevant to both employment and continuing education
- Opportunities to participate in leadership activities which will assist students in achieving both a sense of self-worth and community
- Pathways leading to further education, certifications, and viable careers through active partnerships with industry
- A safe, positive, and enriching environment within the classroom, laboratory, and business community which fosters creativity, individual achievement and promotes the students' abilities to succeed with imagination and discrimination

Visit our web site [www.gocte.org](http://www.gocte.org) for more details and photos.

The Center for Technology, Essex (CTE) operates a full day, flexible block schedule. This schedule allows juniors and seniors to complete a technical program in one year. Students attend CTE daily, from 9:40 a.m. - 2:05 p.m. Every program offers two to three academic credits (math, science, English, social studies, etc.) as well as up to four elective credits toward high school graduation. In addition, many students take separate academic courses (e.g. algebra, chemistry) at CTE, Essex High School, or a local college to meet graduation or college entry requirements. Our schedule allows flexibility for serious students.

The primary objective of our CTE programming is to provide each student with specific knowledge, skills, and theory to enable him/her to either obtain employment upon completion of the program and/or to pursue post-secondary education. All eligible students participate in a "Career Work Experience" (internship) related to their technical field during their program at CTE. For successful students, this may evolve into a paid work (Co-op) position. Industry credentials and/or licenses are affiliated with all programs.

**College Connection:** Many CTE programs qualify for dual enrollment credits that award eligible students college credit for their CTE program. These agreements include college transcripts and transferable credit. CTE students in all programs are also offered the opportunity to take college courses for free or at a reduced rate at area colleges.

### Admission Requirements:

- 1) visit the program
- 2) submit a complete application with transcript, attendance and discipline records attached by March 1 deadline
- 3) attend Step-Up Day
- 4) documentation indicates a minimum of 10 high school credits/proficiencies (including 2 credits each in math, science, social studies and English) by June  
*\*our Pre Tech Exploration program has separate credit entrance requirements*
- 5) good attendance (no more than 15 absences, unless there are extenuating circumstances)
- 6) ability to work both independently and in group situations
- 7) ability and willingness to follow safety instructions
- 8) respect for self, others, the environment, the learning process, and the CTE employability skills

## **CENTER for TECHNOLOGY, Essex: PROGRAMS OFFERED**

### *Full day programs*

#### **For Eleventh and Twelfth Grade Students**

Automotive Technology I & II	Design & Creative Media I & II
Building Technology: Residential	Engineering/Architectural Design I & II
Building Technology: Systems	Health Informatics
Childhood Education/Human Services I & II	Natural Resources and Agri-science Technology: Mechanical Science
Computer Animation & Web Page Design I & II	Natural Resources and Agri-science Technology: Forestry
Computer Systems Technology I & II	Professional Food Services I & II
Cosmetology Arts and Sciences I & II	Apprenticeship Training / Internship
Dental Assisting	

#### **For Ninth and Tenth Grade Students**

- Pre-Tech Explorations: Foods, Health, and Human Development (*grade 10 - full day program*)
- Pre-Tech Explorations: BASES - Building Arts and Small Engine Systems (*grade 10 - full day program*)
- Pre-Tech Explorations: IDEA – Information Technology, Design, Engineering, and Arts (*grade 10 - full day program*)
- Pre-Tech Explorations: Natural Resources (*grade 10 - full day program*)
- Pre Tech Explorations: Culinary, Hospitality and Tourism (*grade 10 – full day program*)
  
- Pre-Tech Foundations: Intro to Engineering (*grade 9 or 10 - single block course*)
- Pre-Tech Foundations: Intro to Automotive Technology (*grade 9 or 10 - single block course*)

The Center for Technology, Essex is an equal opportunity agency that offers all persons the benefits of participating in each of its programs and competing in all areas of employment. This agency does not discriminate because of race, religion, color, ancestry, national origin, gender, sexual orientation, sexual identity, place of birth, or age, or against a qualified individual with a disability.

## **CENTER for TECHNOLOGY, Essex: PROGRAM OF STUDIES 2018-2019**

### **Helpful Terms:**

- **Embedded credits:** Core academic credits in Math, Science, Social Studies, or English that are approved by the Vermont State Board of Education and meet state required high school graduation requirements. These credits are awarded based upon the rigor and connection of content in the program area to the core academic discipline.
- **Integrated credits:** Core academic credits in Math, Science, Social Studies, or English that are taught by licensed academic instructors who teach directly in the CTE program.
- **Recommended Reading Level:** This measure is provided as a guideline to indicate the demands of the text used in our CTE programs. Many of our programs have highly technical text demands. This measure is **not** an entrance requirement. This information is included in the Program of Studies to inform students, families, and sending schools about the difficulty of typical text in our programs and to maximize the likelihood for student success. Support services are offered to all CTE students.

## **AUTOMOTIVE TECHNOLOGY I**

The Automotive Technology Program provides training and experience in the principles of automotive diagnosis and repair. The Automotive Technology Program has been recognized nationally for its excellence; it is a NATEF (National Automotive Technicians Education Foundation) certified course. The Automotive Technology program provides students with the basic knowledge and skills to acquire entry-level jobs in many automotive areas, or to pursue a post-secondary education in the automotive field. Students have the opportunity to learn both basic and advanced technical skills, along with essential worker traits. While at CTE, students work as practicing technicians in the “live” auto shop environment operated within the center. Eligible students are placed in a two week Career Work Experience in area automotive technology businesses.

***Recommended Prerequisite(s):*** Grade Level Math, Science and English

***H.S. Credits:*** One embedded math credit and one embedded science credit, plus four elective credits.

***Certifications:*** VADA GST certifications, SP/2 Safety Training

***College Credits:*** Articulation Agreements with University of Northwestern Ohio, Universal Technical Institute and Ohio Technical College

***Recommended Reading Level:*** Grade 11-13+

## **AUTOMOTIVE TECHNOLOGY II**

Qualified students are invited to apply to our apprenticeship program with a limited number of slots available. It is made available for qualified students through the Automotive Youth Education System (AYES), a national program sponsored by manufacturers and dealers. The curriculum includes paid apprentice hours at local employers, on-line CDX certificate training, college classes provided at area colleges, adult training courses in our evening skill tech division and regularly scheduled individual meetings with a cooperative education placement coordinator.

***Prerequisite:*** Successful completion of the Automotive Technology I program

***H.S. Credits:*** One embedded math credit, one embedded science credit and four elective credits.

***Certification:*** ASE

## **BUILDING TECHNOLOGY: RESIDENTIAL**

In the Building Technology: Residential program, students will work in the shop, onsite in a custom home being built in a local neighborhood development near CTE or a commercial building project off-site. Successful students have the potential to find well-paid jobs in the field or to go on to further education in architecture and design, civil engineering, or construction management. Curriculum components include; basic safety, construction industry math, hand tool use and identification, power tool safety, use and maintenance, blueprint reading, basic rigging, construction materials and adhesives, and framing methods and planning. In addition, some students may enroll in a licensed apprenticeship program for electricians or plumbers who are accredited by the State of Vermont.

***H.S. Credits:*** One embedded math credit, one integrated science credit and four elective credits.

***Co-Op Offered:*** Qualified students may apply to participate in a second year co-op.

***Recommended Reading Level:*** Grade 11-13+

## **BUILDING TECHNOLOGY: SYSTEMS**

In the Building Technology: Systems program, students will have instruction and gain practical experience in electrical, plumbing/HVAC systems, timber framing and historic preservation, excavation and site layout, cabinet making and woodshop machines, and concrete. Successful students have the potential to find well-paid jobs in the field or to go on to further education in architecture and design, civil engineering, or construction management. In addition, some students may enroll in a licensed apprenticeship program for electricians or plumbers who are accredited by the State of Vermont.

**H.S. Credits:** One embedded math credit, one integrated science credit and four elective credits.

**Co-Op Offered:** Qualified students may apply to participate in a second year co-op.

**Recommended Reading Level:** Grade 11-13+

## **CHILDHOOD EDUCATION AND HUMAN SERVICES I**

This program is designed to prepare students to work with young children, the elderly, and people with special needs. Students are introduced to careers in education, human services, and child psychology and instructed in the steps they need to take to pursue a teaching career or a career in the human service field. The program teaches students to provide instruction in math, science, reading, and social studies at the elementary school level. Students are also trained to work with the handicapped and the elderly. The students enrolled in this program operate the CTE Preschool. The program is recognized by the State of Vermont Day Care Licensing Unit as a training program for assistant teachers and caregivers in state licensed childcare facilities. Students are introduced to the human service field, such as social work, geriatrics, and child psychology. Students attend Career Work Experiences with infants and toddlers, school-age children, and the elderly. In cooperation with the Community College of Vermont students are able to earn six college credits in Early Childhood Education while participating in this program. Students are also able to attend Champlain College or Community College of Vermont for additional credits.

**Special Requirement of All Students:** Due to the professional requirements in this field, all applicants must be able to satisfy the criminal records check required by the state Child Care Services Division.

**Prerequisites:** 2 credits English, 2 credits math, 1 credit science, 1 credit social studies

**HS Credits:** One integrated English credit, one embedded social studies credit and four elective credits.

**Certification(s):** Assistant Child Care Teacher, First Aid and CPR

**College Credits:** Up to six credits awarded by CCV; six additional credits available to qualified students.

**Recommended Reading Level:** Grade 9-11+

## **CHILDHOOD EDUCATION AND HUMAN SERVICES II**

Qualified students are invited to apply to our apprenticeship program. Students involved in this program work at area schools, pre-schools or child care facilities. This is a supervised work experience and students are expected to fulfill the planned course work at the center as well as complete a college level course each semester and any required high school academic classes. Students are paid by the employers for their time at the centers. Students are required to complete three rotations in school settings: one rotation in an alternative school, one rotation in an elementary school classroom, and a rotation observing elementary school math, music, and art classrooms. In cooperation with CCV, eligible students can earn three additional college credits for a psychology course.

**Prerequisites:** Successful completion of Childhood Education and Human Services I program.

**HS Credits:** One integrated English credit, one embedded social studies credit and, four elective credits.

**College Credits:** Additional courses at CCV and VTC earn three to nine additional credits.

## **COMPUTER ANIMATION AND WEB PAGE DESIGN I**

The Computer Animation and Web Page Design Program is designed for students interested in the combination of art and technology. Through the program students acquire media skills for 21<sup>st</sup> century careers. The Computer Animation component takes advantage of state-of-the-art 2D and 3D digital computer hardware and software used in media such as Pixar films and games. Learn how to bring your ideas to reality, from characters to landscapes, to animation and special effects. This CTE program also offers specific elements of game design. In the web design component students study a number of different design mediums including XHTML, HTML5 and CSS: students add interactivity, image manipulation, logo and layout creation using Photoshop and Illustrator and create streaming/interactive content in Flash. Upon completion of the program, students have created an interactive online portfolio of their best work for application to higher education, internships or the work force.

**Recommended Prerequisite(s):** Students must demonstrate creativity and interest in the combination of art and technology and the ability to work independently.

**H.S. Credits:** One integrated English credit, one embedded fine art credit, and four elective credits.

**Certification(s):** World Organization of Webmasters

**College Credits:** Dual enrollment agreement with CCV for up to six college credits. In addition, qualified students can earn up to nine more college credits at area colleges.

**Recommended Reading Level:** Grade 9-11+

## **COMPUTER ANIMATION AND WEB PAGE DESIGN II**

Students who successfully complete the Computer Animation and Web Design Page 1 program may apply to the second year program. Second year students will expand their knowledge of new media skills and work with clients on projects. The Computer Animation component of the second year consists of using 3D software to learn advanced poly modeling techniques, character development and modeling, unwrapping models to texture, and using digital painting to normal map. The Web design curriculum includes creating complex websites using HTML5 / CSS, employing JavaScript to develop web 2.0 technologies, and creating a content management system for clients using PHP and MySQL. Along with creating websites, students in the second year program will use state of the art cameras to take photographs for their web projects and create high definition videos to be hosted on the web. During the year, students work on developing a professional online portfolio, which can be used to apply to college or a job after graduation. In addition to the curriculum all students access a career work experience where they expand their skills while working with actual clients.

**Prerequisite:** Successful completion of Computer Animation and Web Design I program.

**H.S. Credits:** One integrated computer science/ robotics credit, one embedded fine art credit, and four elective credits.

**Certification(s):** World Organization of Webmasters

**College Credits:** Same dual enrollment agreement with CCV as CAWD I. In addition, qualified students can earn up to three VTC credits in English Composition and three credits at CCV in Drawing I.

## **COMPUTER SYSTEMS TECHNOLOGY**

The Computer Systems Technology Program prepares students to enter a career in computer support services as part of an information technology team. Students learn how to diagnose and solve computer problems, upgrade computer systems, properly install internal computer components, set up networks, operate network servers, and maintain computers in a Windows or network environment. Students gain necessary skills to become support/service/bench or help desk technicians. The program is excellent preparation for students considering computer engineering in college, and eight transferable college credits are awarded to successful students.

**HS Credits:** One embedded math credit, one embedded science credit, plus four elective credits.

**Certification(s):** A+

**College Credits:** Dual Enrollment agreement with CCV for up to eight credits.

**Recommended Reading Level:** Grade 11-13+

## **COMPUTER SYSTEMS TECHNOLOGY II**

Successful students who earn required certifications may apply to return to CTE for an advanced/second year to work on Network and Cisco Certified Network Associate (CCNA) certification. Study, in combination with co-op placement, assists students qualify for this challenging license required by information technology support staff.

**Prerequisites:** Successful completion of Computer Systems Technology I program.

**HS Credits:** One embedded math credit, one embedded science credit, plus four elective credits.

**Certification(s):** Network +, CCNA

**College Credits:** Four credits for CISCO Networking, plus the opportunity for four credits College English Composition from VTC.

## **COSMETOLOGY ARTS AND SCIENCES I**

Approved by the State Board of Cosmetology and Barbering as a licensed school of cosmetology, this full-time program prepares students for employment and further education in the field of cosmetology. Students can complete up to 750 hours toward their required 1500 hours for a state cosmetology license. Students learn through theory and practice the foundational skills including: hair structure and chemistry, hair shaping and design decisions, color and lightening application and scientific process, and chemical restructuring of the hair. Additionally, level one anatomy and physiology, skin and nail diseases and disorders are important topics covered in this program. The introduction of interpersonal and workplace readiness skills are an integral part of this program of study.

**HS Credits:** One embedded science credit, one integrated English credit, and one integrated math credit, plus three elective credits.

**Certification(s):** OPI certification (nail system)

**Recommended Reading Level:** Grade 11-13+

## **COSMETOLOGY ARTS AND SCIENCES II: SALON MANAGEMENT**

Students who successfully complete Cosmetology I may be accepted into the client-oriented second year program. Cosmetology II students can complete up to an additional 750 clock hours toward the required 1500 hours for a state cosmetology license. Students in this program focus on applying fundamental skills learned in the first year while practicing on clients in a business setting. In preparation for licensure, all competencies introduced in Cosmetology I are revisited in a theoretical manner. Cosmetology II Salon Practices Management emphasizes the day-to-day operation of the salon. This year-long program reinforces and enhances salon management, scientific application of chemical services and interpersonal communications.

**Prerequisite:** Successful completion of Cosmetology I program.

**HS Credits:** One embedded science credit, one integrated English credit, and one integrated math credit, plus three elective credits.

**Certification(s):** State Cosmetology License for qualified students

**College Credits:** Students can earn up to nine college credits at area colleges (CCV, VTC, and UVM).

## **DENTAL ASSISTING**

Accredited by the American Dental Association, this program is designed for students who have a strong background in science and want to work with people. Students become familiar with all aspects of dental assisting in the general dental practice. The curriculum is designed to prepare motivated individuals to become competent and knowledgeable in professional orientation, dental materials, dental radiology, tooth morphology, head and neck anatomy, infection control, clinical assisting, and medical emergencies/CPR. Instruction takes place in our in-school classroom, dental laboratory and clinic. For eligible students, clinical training is completed at area dental offices. Students who successfully complete the program and meet eligibility requirements are prepared to challenge the Dental Assisting National Board examination to become Certified Dental Assistants and to become certified in dental radiology. All successful students are eligible for employment as dental assistants in a variety of dental practices.

**Recommended Prerequisite(s):** General or biological science.

**HS Credits:** One embedded science credit and one integrated math credit, plus four elective credits.

**Certifications:** American Red Cross CPR and AED (defibrillator) certification; dental radiology certification.

**Recommended Reading Level:** Grade 10-12+

## **DESIGN AND CREATIVE MEDIA I**

Look at the logo on your T-shirt or ball cap, or the package you opened this morning that your breakfast burrito came in? How about the images in iTunes that direct you to download a certain song or the graphic icons on your cell phone? What do all these seemingly unrelated examples have in common? All were designed by a graphic designer. This creative/technical design-based hands-on program is for students who thrive on technology, a challenge, and love computers; for students who are curious about color, imagery, photography, how design interacts with people on a daily basis; for students who want to explore careers in communication and creative media while learning graphic design for print and new media. This program mirrors a design studio. Students take a design project from concept creation through digital production and preparation for output to various media. Students learn the Adobe creative suite (Illustrator, Photoshop, InDesign, etc.) software on a Mac computer. Through a combination of project work, site visits, field trips and career work experience, students will gain experience in many aspects of the industry that touch our lives in so many ways. For completion of the program students create a portfolio and earn the Design and Creative Media Certification awarded by the *Regional Design and Creative Media Advisory Council*. Students can apply for the second year program where a career-based client driven design studio is managed by the students.

**HS Credits:** One embedded math credit, one integrated art credit, one integrated English credit, plus three elective credits.

**College Credits:** Students can also earn credits from CCV in graphic design through a dual enrollment initiative and articulate up to 15 credits at Lyndon State College in their Visual Arts department.

**Recommended Reading Level:** Grade 11-13+

## **DESIGN AND CREATIVE MEDIA II**

Students who successfully complete the Design and Creative Media I program may apply to the second year program. Second year students have a choice between two program models. Qualified students can complete program requirements by participating in an apprenticeship in which they go directly into the workforce and expand their skills through employer-based programs. Other students may wish to complete their second year in our in-house design and print studio, *Next Generation Design & Print*. In both instances, students engage in software certification and learn to manage the design and print studio. Second year students also develop concepts for client jobs, produce and prepare the digital job files, and print/finish the live client jobs.

**Prerequisite:** Successful completion of Design and Creative Media I program.

**HS Credits:** One embedded math credit, one integrated art credit, plus four elective credits.

**College Credits:** Student portfolios can earn up to nine credits from Lyndon State and nine credits from the Vermont State College system. Dual enrollment credits in Graphic Design II and Digital Image Manipulation (three credits each) as well as a Drawing I class available to qualified students.

## **ENGINEERING / ARCHITETURAL DESIGN**

The Engineering and Architectural Design Program is an excellent hands-on preparation for students interested in architecture or mechanical engineering. Students learn the graphic language basic to all forms of engineering, architecture and design. The program provides an essential background and early opportunity for students to explore the field prior to college. College credit may be awarded to eligible students who complete this program. Students also complete a portfolio valuable for college application. This course has been recommended by UVM and VTC to all students considering engineering careers.

The program utilizes an individualized approach. A student may enter the program on a one or two year basis; flex scheduling is accommodated. Students must be enrolled in both math and science courses while taking this program (Algebra II, Pre-Calc, Chemistry, Conceptual Physics or Physics). By graduation, students should plan to have successfully completed Algebra I, Geometry, Algebra II, Pre-Calculus or Algebra, Trigonometry, Probability and Statistics (ATPS), Chemistry and Physics as minimum requirements for any two or four year college.

## **ENGINEERING / ARCHITETURAL DESIGN**

### **Year I: TECHNICAL DRAFTING**

In this course, students progress through a series of drafting problems, providing them with a sound foundation in the methods and techniques used in various drafting and design applications. Orthographic, isometric, sectioning, perspectives, schematics, developments and many other types of graphics will be covered. Computers with AUTOCAD and SOLIDWORKS software are used to solve and draw many of these problems. Multimedia portfolios are produced using Microsoft Office applications.

**Recommended Prerequisite:** Algebra I, Geometry (80% or better in each)

**HS Credits:** One embedded fine arts credit, one embedded math credit, plus four elective credits

**Recommended Reading Level:** Grade 10-12+

## **ENGINEERING / ARCHITETURAL DESIGN**

### **Year II: DESIGN**

After completion of technical drafting, the student may enter the design area in which he/she wishes to concentrate - Mechanical Design or Architectural Design.

**MECHANICAL DESIGN** provides students with experiences in advanced detail drafting, assembled mechanisms, precision measuring, fixture design, CNC computer numerical control and programming. . The design, building and testing of structural models are covered through involvement with engineering competitions. Work in this course is completed entirely on computer with SOLIDWORKS and other software. Students chosen to participate in the VTC course *MEC-1011* receive two (2) transcribed college credits.

**ARCHITECTURAL DESIGN** covers residential buildings. Topics include styles, construction, design floor plans, elevations, foundations, electrical, plumbing, heating, kitchens, lot and plot plans. Students are involved in the actual design of buildings to be constructed in the surrounding community. Work in this course is completed entirely on computer with AUTOCAD and other software. Students chosen to participate in the VTC course *ARC-1021* will receive two (2) transcribed college credits.

**HS Credits:** One embedded fine arts credit, one embedded math credit, plus four elective credits

**College Credits:** In addition to the VTC MEC-1011 or ARC-1021 transcribed credits, some colleges have waived courses for work demonstrated in students' portfolios. Eligible students may also take VTC English Composition and other college classes.



## **HEALTH INFORMATICS**

This program focuses on training for diverse medical administrative positions and as an introduction to health professions. Health care increasingly relies upon the expertise of staff trained in both interpersonal communications and technical skills. Course topics include: medical terminology, human biology, career development, medical office management, computer science, electronic health records, medical insurance reimbursement and diagnostic/procedural medical coding. Students also discuss the ethical and legal issues regarding work in medicine as well as personnel management, insurance issues, the specific skills involved in working from home, and other information management topics.

Eligible students in this program participate in a 30-hour career work experience in the health care industry, with placements in private physicians' offices, hospitals, clinics or insurance companies. Possible career fields include but are not limited to: Health care supervision, medical coding and insurance reimbursement, medical office secretary and patient scheduling. Students could qualify for clinical health related careers with additional training.

**HS Credits:** One integrated anatomy and physiology credit, one embedded math credit, one integrated English credit and four elective credits.

**Certifications:** CPR, First Aid

**College Credits:** Up to six college credits for eligible students through dual enrollment at CCV. Additional three - nine credits are available through classes at area colleges.

**Recommended Reading Level:** Grade 11-13+

## **NATURAL RESOURCES AND AGRISCIENCE TECHNOLOGY FORESTRY AND MECHANICAL SCIENCE**

Students are offered a unique opportunity to experience the science, technology, and management of a "living laboratory" in this award winning, fast paced program. The program is organized into two one-year options. Students select either Forestry (Environmental Science/Horticulture) or Mechanical Science after completing an introductory unit featuring core skills during Step-Up Day. **Forestry (Environmental Science/Horticulture)** curriculum includes: Timber Harvesting, Forest Management, Landscaping, Greenhouse Management, Plant & Soil Science, Hydroponics/Aquaculture and Hand and Power Tools. **Mechanical Science** curriculum includes: Heavy Equipment Operation, Welding Fabrication, Small Engine Repair, Electrical Systems, Water Systems, Hydraulic Systems and Hand and Power Tools. In both concentrations, students have the opportunity to develop leadership and entrepreneurial skills as they produce a variety of seasonal food products. Several traditional food products include maple syrup, honey, rainbow trout, and hydroponic vegetables. Students interested in attending college to major in mechanical engineering, natural resources and environmental fields will benefit from this program. Students preparing for careers relating to industrial mechanics, or the management, use and preservation of land, soil, and water will find this course tailored to meet their needs.

**Recommended Prerequisite(s):** Qualified applicants must demonstrate maturity with respect to safe equipment operation such as chainsaws and heavy machinery, the ability to work effectively in teams; maintain a high level of respect for classmates, and instructors; and act in a manner congruent with authorized ambassadorship of a highly visible program. Mastery of basic mathematical operations, measurement, fractional and metric conversions, and logical manipulative skills is required. Preference will be given to students with math and science backgrounds.

**HS Credits:** One embedded math credit and one embedded science credit, plus four elective credits.

**Certifications:** Games of Logging I-IV, Outdoor power equipment certification in small engines (OPE).

**College Credits:** Articulation agreement in place with SUNY Cobleskill, NY (Agricultural Engineering and the Department of Plant Sciences) and Paul Smith's College. Eligible seniors can earn three college credits in English Composition or up to six credits at area colleges.

**Co-Op Offered:** Qualified students who have completed one year of Natural Resources may apply to participate in a second year co-op.

**Recommended Reading Level:** Grade 10-12+

## **PROFESSIONAL FOOD SERVICES I**

The Professional Food Services Program is designed to offer training in all areas of the food service industry. Students in this program learn food preparation, baking, and restaurant operation and management. Teamwork, professionalism and positive worker traits are stressed as well as technical skills in order to give students a chance to secure and retain employment in the food service field.

Students work and learn in a commercial kitchen and use professional equipment as part of their training. Part of the instruction involves operating the Center's restaurant "The CTE Café and Bakery". Students learn basic weights and measures, food service safety and sanitation, product identification and use, time management, nutrition, use and care of equipment and mastering food service competencies. There is a close working relationship with area businesses which allows students to spend two weeks with a participating employer on a Career Work Experience.

***Recommended Prerequisite(s):*** Good basic math and writing skills.

***HS Credits:*** One embedded math credit and one embedded science credit, plus four elective credits.

***Certifications:*** ServSafe

***Recommended Reading Level:*** Grade 10-12+

## **PROFESSIONAL FOOD SERVICES II**

Students who complete the Professional Food Services I program can apply to this second year program. The curriculum focuses on menu design, marketing, and sales in an entrepreneurial food production setting. Students learn to work more independently and assume responsibility for food production management decisions. Students produce and market healthy meals to be sold in the school's cafeteria. There is a close working relationship with area businesses which allows students to spend two to three weeks with a participating employer on a Career Work Experience. Students may qualify for an extended Apprenticeship placement in the second semester.

***Recommended Prerequisite(s):*** Good basic math and writing skills.

***HS Credits:*** One embedded math credit and one embedded science credit, plus four elective credits.

***Certifications:*** ServSafe

***College Credit:*** An exciting dual enrollment program with New England Culinary Institute (NECI) is an option for eligible seniors. This program awards three credits and provides a three-day residential session at NECI in Montpelier. Additionally, CTE has an articulation agreement with Paul Smith's College

## **APPRENTICESHIP TRAINING**

The Center for Technology, Essex (CTE) offers those students who have successfully completed one year at CTE and are highly motivated, focused, and highly skilled a second year option of student apprenticeship in certain career areas. This workplace, competency delivered curriculum, combines both non-paid and paid training, vital for students to achieve advanced job placement or acceptance in a post-secondary institution in their selected career area. Successful first year students must interview for these placements.

## Programs and Classes for Ninth and Tenth Graders

### **PRE-TECHNICAL EXPLORATION: Building Arts and Small Engine Systems - BASES (Full Day Program)**

Get your bases covered in this section of Pre-Tech. We learn a variety of carpentry and construction skills through project based learning in an extensive woodshop. We discover the ins and outs of small engines by dissecting and restoring engines and equipment to working order. If woodworking or engines interest you, this is the place to build a solid foundation or crank up your passion for your future.

Pre-Technical Education is a one-year, six-period program **for sophomores** who thrive in project-oriented experiences that emphasize applied academics. Students are involved in a wide variety of cutting-edge technical activities where they learn science, mathematics, and communication skills while building personal development assets. Much of the learning takes place outside a traditional classroom and instead uses authentic locations to engage reluctant students and to provide experiences for deeper and more relevant learning. Students apply specifically to this strand of the Pre Technical program.

Students succeeding in this program are likely to experience success in their future and are encouraged to enroll in CTE programs to further develop their skills and advance their learning.

**Prerequisites:** Applicants must have a ninth grade transcript that shows an award of five full credits including: 1 math, 1 English, 1 social studies, 1 science and 1 elective.

**HS Credits:** One integrated credit each in English, math, science, fine arts, physical education and elective.

### **PRE-TECHNICAL EXPLORATION: Information Technology, Design, Engineering, and Arts - IDEA (Full Day Program)**

**Inquiry, Imagination, Innovation.** What drives you?

PreTech:IDEA prepares students to be successful on a path to technology and design careers. Through projects, students learn how to creatively solve problems, communicate ideas, and work with a team. We follow a creative production process and use technology as a tool to communicate and produce ideas. Some units include: Brain Science, Product Development and Marketing, Electronics, Fine Art, IT, and more!

PreTech:IDEA is a gateway to the following CTE programs: Computer Animation and Web Design, Computer Systems Technology, Graphic Design and Digital Publishing, and Engineering.

Pre-Technical Education is a one-year, six-period program **for sophomores** who thrive in project-oriented experiences that emphasize applied academics. Students are involved in a wide variety of cutting-edge technical activities where they learn science, mathematics, and communication skills while building personal development assets. Much of the learning takes place outside a traditional classroom and instead uses authentic locations to engage reluctant students and to provide experiences for deeper and more relevant learning. Students apply specifically to this strand of the Pre Technical program.

Students succeeding in this program are likely to experience success in their future and are encouraged to enroll in CTE programs to further develop their skills and advance their learning.

**Prerequisites:** Applicants must have a ninth grade transcript that shows an award of five full credits including: 1 math, 1 English, 1 social studies, 1 science and 1 elective.

**HS Credits:** One integrated credit each in English 10, Geometry, science, fine arts, physical education and elective.

**PRE-TECHNICAL EXPLORATION: Health, and Human Development (Full Day Program)**

In this section of Pre-Tech, experience nutrition through learn about how the human body works, including personal fitness and wellness, and child development. Through projects such as planning and preparing meals, creating books for kids, home made skin care products and others, students will develop the positive relationship and communication skills needed to join a workforce of people who enjoy helping others.

Pre-Technical Education is a one-year, six-period program **for sophomores** who thrive in project-oriented experiences that emphasize applied academics. Students are involved in a wide variety of cutting-edge technical activities where they learn science, mathematics, and communication skills while building personal development assets. Much of the learning takes place outside a traditional classroom and instead uses authentic locations to engage reluctant students and to provide experiences for deeper and more relevant learning. Students apply specifically to this strand of the Pre Technical program.

Students succeeding in this program are likely to experience success in their future and are encouraged to enroll in CTE programs to further develop their skills and advance their learning.

**Prerequisites:** Applicants must have a ninth grade transcript that shows an award of five full credits including: 1 math, 1 English, 1 social studies, 1 science and 1 elective.

**HS Credits:** One integrated credit each in English, math, science, fine arts, physical education and elective.

**PRE-TECHNICAL EXPLORATION: Natural Resources (Full Day Program)**

Natural Resources provides an opportunity to study curriculum related to natural resources in an environment that caters to a hands-on, creative and mindful individual. The class explores many topics, including heavy equipment, welding, soil science, forestry and silviculture. Units will be structured around student led projects and activities that focus on communication, academics, and occupational skills.

**Prerequisites:** Applicants must have a ninth grade transcript that shows an award of five full credits including: 1 math, 1 English, 1 social studies, 1 science and 1 elective.

**HS Credits:** One integrated credit each in English, math, science, fine arts, physical education and elective.

**PRE-TECHNICAL EXPLORATION: Culinary, Hospitality and Tourism (Full Day Program)**

This program is designed to introduce students to the Hospitality Industry with emphasis on Culinary Arts, Baking and Pastry, Nutrition and Customer Service Skills. Units will be structured around quarterly project based learning. There will be a focus on 21st Century Transferable Skills including communication, problem solving and time management. Throughout the school year students will receive hands-on experience operating our student run restaurant and bakery. This program introduces multiple pathways towards employability, college, and career opportunities in the culinary, hospitality and tourism industry.

**Prerequisites:** Applicants must have a ninth grade transcript that shows an award of five full credits including: 1 math, 1 English, 1 social studies, 1 science and 1 elective.

**HS Credits:** One integrated credit each in English, Geometry, science, fine arts, physical education and elective.

## **PRE TECH FOUNDATIONS: INTRO TO AUTOMOTIVE TECH AND TRANSPORTATION**

This course is designed for ninth and tenth grade students interested in automotive and transportation-based careers. Students are introduced to the basic skills and knowledge that will help them better plan for continued exploration in the Automotive Technology industry. In addition to hands-on activities using the tools and equipment in the Automotive Technology lab, students complete career plans to better understand what is required to be successful in this industry. Students considering application to the center's full day Automotive Technology program are encouraged to take this course.

**Recommended Prerequisite:** Intro to Algebra or a similar math course.

**Note:** This class meets the first block of the morning every other day

**HS Credits:** One half elective credit and one half practical art credit.

## **PRE TECH FOUNDATIONS: INTRO TO ENGINEERING**

Do you like to design and create? Is a career in engineering or architecture for you? This course was developed for ninth and tenth graders to give them a taste of how designers, engineers and architects create and design products, like buildings or machines, for our society. Students learn the elements and principles of art and how they are used in the design process by practicing the skills of drawing, sketching, 2-D computer aided design, 3-D computer aided design and problem solving to complete projects. Students will also learn about career paths in engineering and architecture and what colleges/universities require for entrance. Hands-on projects and field trips to industry sites are a regular part of this curriculum. This class is limited to 18 students.

**Note:** This class meets the first block of the morning every other day

**HS Credits:** One half fine art credit and one half elective credit.

## **ACADEMIC COURSE OFFERINGS**

### **VERMONT TECHNICAL COLLEGE INTRO TO COLLEGE ENGLISH/ ENGLISH COMPOSITION 1060**

This Honors English dual enrollment course offers qualified seniors the opportunity to earn both a high school English credit and six college credits in English Composition. This course introduces students to four literary genres – the short story, poetry, the novel and drama – and to research writing. The course aims to 1) master the techniques of essay writing, 2) educate students about the rewards inherent in reading, analyzing and reflecting upon literature, 3) communicate effectively, both orally as well as in exposition, and 4) increase their awareness of their responsibilities as global citizens who have both technological and academic skills.” A student must have acceptable Accuplacer scores and recommendation from an English teacher. All students earn one high school English credit. Students must meet additional requirements to earn college credit. Enrollment is limited to 20 students. This is a full year class.

### **SENIOR ENGLISH**

This course is for juniors and seniors interested in going to college. Students learn to read beyond comprehension and recall and for meaning and interpretation. They learn to write about abstract concepts using effective essay writing formulas.

### **ENGLISH 11/12**

Looking for relevance in your English class? Look no further. A major goal of this English class is to link aspects of this course to your life, your needs, and your experience at CTE. Much of the reading, writing, and communication skills in this course focus on helping students prepare for further success in the job search, in the workplace, and in life. Projects throughout the year allow students to make a direct link between academic and technical training.

## **ALGEBRA 1**

This course provides students with a foundation in algebra to prepare for further mathematics courses. Topics covered are: the real number system, a study of first-degree equations and inequalities, operations with algebraic expressions, factoring, polynomials, radicals, and a brief introduction to quadratic equations. Some lessons include the use of a graphing calculator.

## **ALGEBRA 2**

Algebra 2 gives students more practice with basic algebraic operations and concepts. It then presents deeper concepts and more difficult operations for them to analyze and perform. Some of the topics covered are real numbers, equations and inequalities, polynomials, fractions, exponents, radicals, logarithms, sequences and series, complex numbers, graphing and analysis of functional relationships. Some lessons include the use of the graphing calculator.

## **INTRO TO ALGEBRA 2**

Intro to Algebra 2 is intended as a bridging course to help students prepare for Algebra 2. Principles of Algebra 1 are reviewed and additional background is introduced to help students feel comfortable before moving into new topics in algebra. Topics include factoring, graphing, fractional equations, exponents, radicals, and inequalities. The class is paced as a mix between Algebra 1 and Algebra 2 topics.

## **VTC PRE CALCULUS 1 & 2**

This six credit course is an opportunity for students to earn college credits through Vermont Technical College in 2 semester-long mathematics classes. It is meant to be a stepping-stone to college mathematics. The first semester we focus on strengthening and expanding algebra 1, Algebra 2, and Geometry skills through work with systems of equations, factoring, quadratics, exponents, and radicals. During the second semester we explore the big ideas in trigonometry, logarithms, and complex numbers -- skills that both prepare students for college level mathematics and for being a thoughtfully engaged member of their community. Prerequisites: Teacher recommendation, Credit in Algebra 2, and Accuplacer scores.

## **GEOMETRY**

Students are introduced to geometry principles they apply to the world of work. Topics include points, lines, circles, and properties of polygons, constructions with compass and straight edge, congruency, angle bisector, special projects and related vocabulary. Students maintain a computer-based log of activities with "Geogebra", a web based system that allows students to manipulate geometric concepts, focus on learning, and work at their own pace. Specific applications with graphic design, computer/internet web design, and building construction provide relevant connections to life and careers.

## **PRE-TECHNICAL MATH**

As an integral component of our Pre-Tech Exploration program, students work through a series of application-based concepts of mathematics, geometry, measurement, algebra and related topics. Word problems, fractions, fractional equations, graphing, unit conversions, ratio and proportion are central to several real-world content applications. Geometric applications surfaces dimensions, measurement, right triangle, circles, and polygons are central to real-world skill application.

## **APPLIED SCIENCE**

This course is designed to provide students with scientific literacy in Chemistry and Life Sciences. Topics are explored through inquiry, discussion, projects, lab investigations, research and technology. Basic concepts in biology and chemistry are woven into the curriculum. It provides an excellent foundation in the basic topics of general chemistry and biology, always placing an emphasis on how each topic relates to daily life. Lecture, demonstrations, videos, computer simulations and traditional hands-on lab activities are used throughout this course. This course has been designed to meet Next Generation Science Standards. Topics include scientific method and experimentation, biochemistry, ecology, human body systems, classifying matter, liquids, solids, gases and mixtures, properties of water, acids and bases, chemical bonds, and an introduction to chemical reactions.

## **PHYSICAL EDUCATION**

CTE offers physical education classes in two different formats. One class is offered every day and includes a variety of lifetime activities/ sports with an emphasis on fitness components and stress management. The other PE option is an independent study course where class meets once per week and includes a health club atmosphere, fitness components, stress management, and a variety of lifetime sports/ activities and independent workouts consisting of 240 minutes per week. Students in this class are required to complete a final personal fitness plan according to their interests and needs as a way to promote lifetime physical activity. Information learned in this course is applied to the students' CTE programs to promote fitness and health in the workplace. Examples of units of study for both courses may include; ice-skating, weight training, yoga, Pilates, power walking, golf, biking, climbing wall, Frisbee, tennis, badminton, and ping pong.

## **ELL – ENGLISH FOR ACADEMIC AND PROFESSIONAL PURPOSES**

This course is for non-native English language speakers who need to improve their English skills in order to participate in CTE programs with confidence. The course is tailored to the specific needs of each program and the focus is on developing academic vocabulary relevant to the student's field of study and their future workplace. Students work on research, presentation, and reading academic text skills needed in class as well as on building confidence and fluency for effective communication needed in their job search and professional working environment.

## **ELL – INDEPENDENT STUDY**

A major goal of this course is to meet particular language needs of every English language learner studying at CTE. Students work one-on-one with an ELL teacher to fill in any gaps in their English language learning, whether it is their pronunciation, grammar, or communication skills. This Independent Study also offers a high degree of flexibility and personalization. Students design an individual study plan together with the teacher and follow it through to prepare themselves for success in a chosen CTE program.

## **FINE ARTS**

Through the assignments given in this Independent Study, students will explore different art techniques and media to create expressive and interesting artwork. Students will be pushed to think independently about assignments and to create interesting compositions. By the end of the semester students will have a portfolio that shows a range of knowledge and skills that they have learned through creating artwork.

## **DRIVER EDUCATION**

This curriculum is designed to develop good driving skills, knowledge, and attitudes with an emphasis on safety. Classroom, simulation, range, and road experience will be included. Those students registering for Driver Education must obtain a Vermont Learner's Permit prior to the first day of class each semester.

## **PUBLIC ISSUES**

Public Issues is a social studies course that examines current events, public policy and civics. Students explore the foundations of American government, the principles of the Constitution, rights and responsibilities as citizens, as well as current public policy challenges for local communities, Vermont, the United States and the world. The course utilizes a variety of instructional methods including: lecture, individual and cooperative assignments, simulations, discussion, research and student presentations. Throughout the semester students use current publications, media, and technology to stay informed about the issues facing us today at a local, state, national, and global level. Emphasis will be made on the importance of being an involved and informed citizen.

## **U.S. HISTORY**

This social studies course attempts to connect our lives as Americans to the past, present, and future. Students will gain an understanding of some of the major events, people, places, and ideas that are affecting our world today, and connect these modern day events with the history that created them. This course will also present opportunities for students to learn to think critically, identify cause and effect, recognize and appreciate diversity, and understand key institutions, ideas and principles of human rights, government and economics. The course covers the following units through the lens of three central themes (politics/foreign policy; society/culture, and economy): the Civil War & Reconstruction, Westward Expansion/Native Americans, Industrialization & Progressivism, Imperialism & The Spanish-American War, World War I, The "Roaring Twenties" & the Great Depression, World War II & the Holocaust, the Cold War/Korea/Life in the 1950s, Civil Rights & Turmoil in the 1960s, Vietnam, and the 1970s-1990s.

In addition to the topics listed above, students also work on some critical skills, including reading, research, developing persuasive arguments, and writing

## **SENIOR PORTFOLIO**

Senior Portfolio is a .5 credit social studies class that fulfills the senior project requirement for many sending schools. As part of the class, students create a professional portfolio of work that they can use to represent their job skills and qualifications in an employment or college interview. The project consists of multiple components that include professional documentation (resume, letters of recommendation), community service work, reflective essays and work samples that demonstrate the students' proficiency in their career area. Students finish the course with a demonstrated learning presentation in an area of their expertise.