

CENTER FOR TECHNOLOGY AT ESSEX

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 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 (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 worker traits.

CENTER for TECHNOLOGY: PROGRAM OF STUDIES 2015-2016 (2016-17)

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.

Please note: Burlington High School students may only enroll in Center for Technology, Essex courses if they are not offered at the Burlington Technical Center. The following courses are available only to BHS 11-12th grade students.

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+

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 21st 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 clients.

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

H.S. Credits: One integrated computer science 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 Honors English Composition and three credits at CCV in Drawing I.

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+

ENGINEERING / ARCHITECTURAL 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 2, Trigonometry, Probability/Statistics (ATPS), Chemistry and Physics as minimum requirements for any two or four year college.

ENGINEERING /ARCHITECTURAL 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/ARCHITECTURAL 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+

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.

