CLEAN TECHNOLOGIES & SUSTAINABLE INDUSTRIES
EARLY COLLEGE HIGH SCHOOL

bscsd.org/CleanTech.cfm

CLEAN TECHNOLOGIES & SUSTAINABLE INDUSTRIES
EARLY COLLEGE HIGH SCHOOL PROGRAM

REAL WORLD EXPERIENCE
Collaborating with business partners, such as GLOBALFOUNDRIES, prepares students for advanced manufacturing jobs making products that enable current technologies.

CLEAN TECHNOLOGIES & SUSTAINABLE INDUSTRIES EARLY COLLEGE HIGH SCHOOL PROGRAM

Early College High Schools blend high school and college in a rigorous yet supportive program, compressing the time it takes to complete a high school diploma and the first two years of college.

Launched in the 2011–12 school year in collaboration with NYSERDA and Hudson Valley Community College at TEC-SMART in Malta, NY, the Clean Technologies & Sustainable Industries ECHS Program, a Pathways In Technology (P-TECH) Program, provides high school students with opportunities to develop college and career readiness skills and pursue college coursework in one of four pathways.

The Clean Tech ECHS program includes partners from K-12 education, higher education, and business & industry collaborating together to provide students a distinct opportunity to pursue coursework towards an Associate's Degree and be prepared to seamlessly transition into key industry sectors within our economic region.

Providing high school students with opportunities to develop college and career readiness skills and pursue college coursework

Program Location	HVCC's TEC-SMART Facility 345 Hermes Road Malta, NY 12020
Program Support	NYS P-TECH Grant Corporate Partner Donations
Scholarship Offerings	Sage College Siena College SIMS Scholarship

COLLEGE PATHWAYS

The ECHS program develops and supports pathways to higher education leading to careers in STEM-related fields. High school students pursue college coursework in one of the following four pathways and gain up to 30 college credits.

> ### *Students take Hudson Valley Community College coursework at TEC-SMART in 1 of 4 pathways.*

Clean Energy

The Clean Energy Management Associate in Applied Science (A.A.S.) degree program combines renewable energy and business courses to meet industry demands for a workforce that possesses a blend of technical skills and business management ability. In addition to basic electrical theory and an exploration of photovoltaic, geothermal, wind and fuel cell energies, the program focuses on the essential principles of finance, marketing and business development. The interdisciplinary curriculum also provides technical training in PV installation, troubleshooting and maintenance.

Computer Science

The Computer Information Systems Associate in Applied Science (A.A.S.) program is offered to students whose primary goal is to gain employment in information technologies, however it should be noted that the degree transfers well to Computer Information Systems and Information Technology Management four-year degree programs. The program provides students with a strong foundation in : (a) programming and logic, (b) information resource management, (c) systems analysis and design, (d) database management systems (DBMS) in Oracle and, (e) project management.

STUDENT CHARACTERISTICS

► Motivated to learn in new and exciting ways

► Innovative and creative

► Interested in science, technology, engineering, and math

► Willing to persevere

► Being a risk taker

Number of Participating Students	College Acceptance Rate	Participating School Districts
256	**100%**	**21**

> *The teachers encourage you in every way possible. I have made so many new friends, and the hard work I have put in is truly preparing me for my future in the business world.*
>
> Erika Pitcher, ECHS Senior, Class of 2018
> Broadalbin Perth   Entrepreneurship Pathway

Entrepreneurship

If you are interested in launching a business venture, the Entrepreneurship degree will give you the necessary skills to pursue that dream. You will learn the fundamentals for increasing the likelihood of building sustainable success in your venture. Coursework will help you develop an entrepreneurial mindset, understand entrepreneurial finance, small business management, marketing, and legal issues for small business owners. This academic program is primarily designed for those who wish to enter the workforce immediately following graduation.

Mechatronics

Mechatronics is a multi-disciplinary program, offered for students whose interests lie in the use of computers and control systems to direct the operation of the mechanical systems that power semiconductor manufacturing machinery and other modern industrial machines. Hands-on learning focuses on development of the technical skills needed to support installation, maintenance, repair, calibration and troubleshooting of control circuitry and machine-to-machine networks that enable machines to control and monitor other machines. Referring to the four interconnected disciplines— mechanics, electrical/electronics, motor control systems and computer science/ information technology—that drive the design, operation and maintenance of all modern complex machinery, mechatronics is a fusion of the words mechanical and electronics.

PROGRAM OVERVIEW

Our vision is to cultivate a fully connected and collaborative learning environment focusing on 21st Century skills, STEM teaching and learning, and college and career readiness for all students that is supported through public and private partnerships. The program provides equity and access for all students.

> ## *Students earn concurrent high school and college credits.*

9th Grade

▸ Students enroll in high school coursework at their home schools

▸ ECHS Online Coursework includes 21st Century Skills

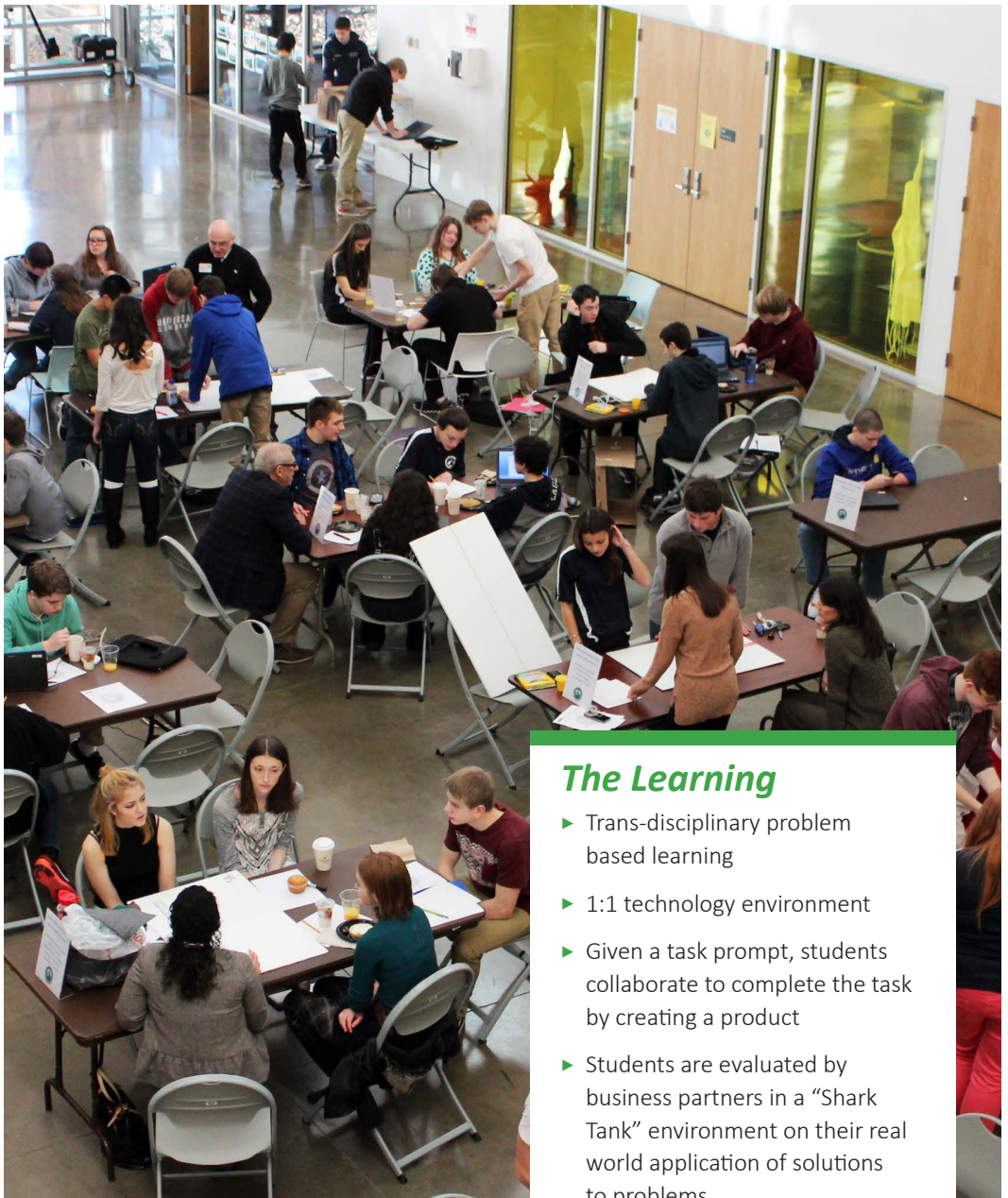▸ Monthly visits to TEC-SMART with mentoring

10th Grade

▸ Students enroll in high school coursework at their home schools

▸ ECHS Online Coursework includes 21st Century Skills Workplace Readiness

▸ HVCC Coursework includes College Forum (fall) for 1.0 credit and Psychology (spring) for 3.0 credits

▸ Monthly visits to TEC-SMART with mentoring

11th Grade

▸ Students attend school at TEC-SMART for high school and college classes in the morning, returning to their home school in the afternoon

▸ High school coursework includes English 11, Applied Mathematics in Clean Technologies, and Environmental Science & Sustainability

▸ HVCC coursework includes two courses each semester based on pathway

12th Grade

▸ Students attend school at TEC-SMART for high school and college classes in the morning, returning to their home school in the afternoon

▸ High school coursework includes English 12, Intro to Nanotechnology, and Green Economics & Public Policy

▸ HVCC coursework includes two courses each semester based on pathway

The Learning

▶ Trans-disciplinary problem based learning

▶ 1:1 technology environment

▶ Given a task prompt, students collaborate to complete the task by creating a product

▶ Students are evaluated by business partners in a "Shark Tank" environment on their real world application of solutions to problems

▶ Job shadowing and field experience

School Environment

▶ Upperclassmen mentor freshmen and sophomore students

▶ Business partners come to monthly visits to work with students on their projects

▶ Students attend college classes taught by college professors at HVCC's TEC-SMART

▶ Student committees work on events and student life

▶ Students organize community service events

11TH GRADE COURSEWORK

Students attend school at TEC-SMART for high school and college classes in the morning, returning to their home school in the afternoon.

High School Coursework

English 11 — 1.0 High School Credit
Students sit for NYS Common Core English Exam at their home school

Applied Mathematics in Clean Technologies — 1.0 High School Credit
All high school courses are NCAA approved except for Applied Mathematics in Clean Technologies

Environmental Science & Sustainability — 1.0 High School Credit

Hudson Valley Community College Coursework

Junior students take two college courses each semester based on pathway
HVCC college coursework is subject to change based on HVCC enrollment, scheduling, and offerings.

Clean Energy

Fall

Principles of Marketing
Electrical Theory for Renewable Energy

Spring

College Algebra & Trig* or Pre-Calculus
Intro to Wind Energy

Computer Science

Fall

Intro to Computer Information Sciences
College Algebra & Trig* or Pre-Calculus

Spring

Programming & Logic I
Intro to Web Design & Development

Mechatronics

Fall

Business Communication
Electrical Theory for Renewable Energy

Spring

College Algebra & Trig* or Pre-Calculus
Cultural Diversity in American Society

Entrepreneurship

Fall

Principles of Marketing
Intro to Entrepreneurship

Spring

Intermediate Algebra or higher
Computer Concepts & App I

* Students who are looking to obtain an advanced Regents diploma should also take the high school Algebra II/Trigonometry course at their home school.

12TH GRADE COURSEWORK

Students attend school at TEC-SMART for high school and college classes in the morning, returning to their home school in the afternoon.

High School Coursework

English 12 — 1.0 High School Credit

Intro to Nanotechnology — 1.0 High School Credit
Can be used for a year of science or technology

Green Economics and Public Policy — 1.0 High School Credit
Counts for economics and government credit

Hudson Valley Community College Coursework

Senior students take two college courses each semester based on their junior year pathway
HVCC college coursework is subject to change based on HVCC enrollment, scheduling, and offerings.

Clean Energy

Fall
Legal & Ethical Environment of Business I
Photovoltaic Theory and Design

Spring
Photovoltaic Installation & Maintenance
Electrical Power Systems

Computer Science

Fall
Programming & Logic II
Intro to Business Analytics with Microsoft Excel

Spring
English Composition
Intro to Robotics

Mechatronics

Fall
Intro to Business Analytics with Microsoft Excel
IT Essentials; PC Hardware & Software
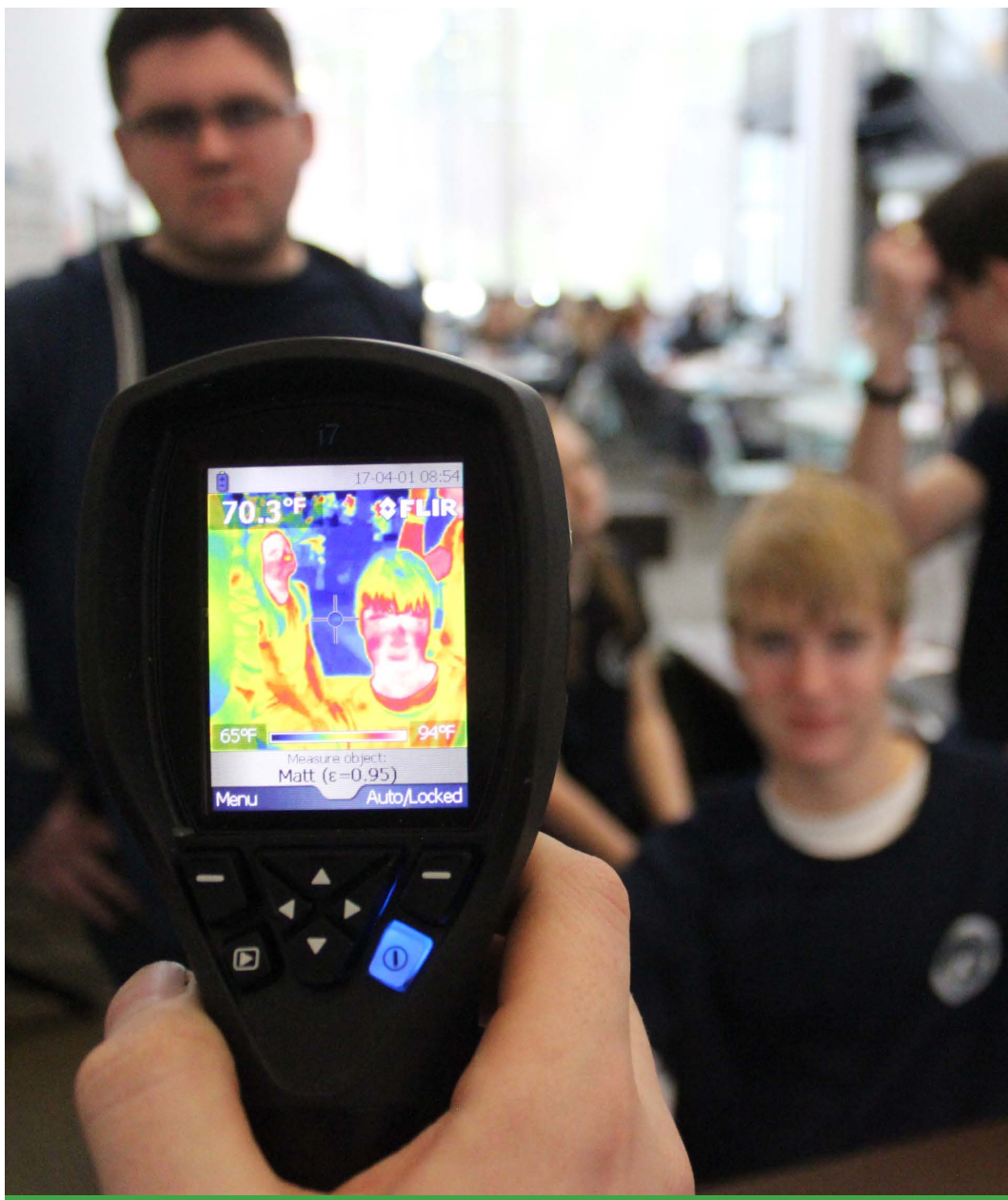
Spring
Electrical Power Systems
English Composition

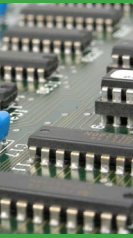### Entrepreneurship

Fall
Entrepreneurial Process
Statistics

Spring
Public Speaking
Organization & Management

HANDS-ON LEARNING
Students utilize hands-on equipment such as infrared cameras to learn science concepts.

CONTACT US

For more information, please visit www.bscsd.org/CleanTech.cfm

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