

## **Translation & Interpretation Services**

Essex North Shore Agricultural & Technical School strives to ensure families have meaningful access to all aspects, programs, opportunities, and services pertaining to their children's education. We do this by providing a multitude of language services via internal and external resources to safeguard communications; including the translation of written communications and interpretation services for verbal communications.

To request documents in another language or request interpretation services, please email [translation@essextech.net](mailto:translation@essextech.net) or call (978) 304-4700.

## **Non-Discrimination Statement**

It is the policy of the Essex North Shore Agricultural & Technical School District to provide a safe and secure learning and work environment for all students and employees without distinction, where all school community members treat each other with respect. All programs, activities, and employment opportunities are offered without regard for race, color, sex, religion, national origin, ethnicity, sexual orientation, gender identity, homelessness, age, and/or disability.

The Essex North Shore Agricultural & Technical School District School Committee is committed to the prevention, remediation, and accurate reporting of discrimination and harassment, bias incidents, and civil rights violations, including hate crimes, based on race, color sex, religion, national origin, ethnicity, sexual orientation, gender identity, homelessness, age, and/or disability and any other class or characteristic protected by law. The District also prohibits other harmful conduct by reasons unrelated to the above characteristics.

*[Excerpt from file ACAB: Discrimination and Harassment Policy](#)*

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## PRINCIPAL'S MESSAGE

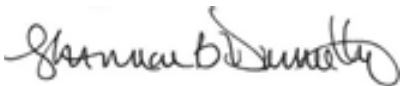
On behalf of the Essex North Shore Agricultural & Technical School learning community, we are excited to share with you our Program of Studies for the 2021-22 school year. With a shift to a new six-block schedule, students will have smaller class sizes and greater opportunities to learn through a fully-articulated set of pathway courses designed to prepare them to be responsible and skillful members of the future workforce. We have also added a statement that reaffirms our commitment to equity, diversity, inclusion, and opportunity for all students. We have also included an update to CTAAC Integration and our work as part of the Kaleidoscope Collective for Learning and a new Community Service Program, commencing with this next school year's entering grade 9 class. Finally, we have extended our requirement for students to take two years of Spanish, in grades 9 and 10, to begin preparing them for what they will encounter in a workplace where many languages are spoken.

As you read this program and should any questions arise, please do not hesitate to reach out directly to your student's guidance counselor or to our team of administrators:

- Academic Programs - Dr. Thomas O'Toole at [totoole@essextech.net](mailto:totoole@essextech.net)
- CTE East - Mr. Donald Ducharme at [dducharme@essextech.net](mailto:dducharme@essextech.net)
- CTE West - Ms. Jill Sawyer at [jsawyer@essextech.net](mailto:jsawyer@essextech.net)
- Guidance - Ms. Sandra Goldstein at [sgoldstein@essextech.net](mailto:sgoldstein@essextech.net)

We look forward to working with you to live our Mission and make Essex North Shore Agricultural & Technical School, a culture of academic and technical excellence for next year and for all the years to come.

Welcome,



Shannon B. Donnelly  
Principal

## MISSION STATEMENT

The mission of Essex North Shore Agricultural & Technical School is to create a culture of *academic and technical excellence*, encourage *continuous intellectual growth*, and promote *professionalism, determination, and citizenship* for all students, as they develop into *architects, artisans, and authors* of the 21st century community.

This will be accomplished through a four-tiered approach, requiring both commitment and investment from all members of our community:

Students will ...

- take ownership for their learning by being active participants in their own education
- be respectful and considerate citizens both in school and in the community
- encourage and support growth in themselves and others

Staff will ...

- equip students with the skills necessary to have an array of college and/or career choices upon graduation
- model improvement of skills while implementing a rigorous, relevant, and rich curriculum
- encourage and support each other in order to create an environment where everyone feels safe to grow and take intellectual risks

Caregivers will ...

- provide the at-home support necessary to be partners in education
- maintain clear and high expectations for student performance, in all areas, to foster the continual growth of each student
- guide their student towards continuous improvement

General Advisory will ...

- review and evaluate curriculum and instruction in order to advise on course materials
- support career and technical education with the current industry trends
- make administrators and instructors aware of potential internships and co-op opportunities for students

## COMMITMENT TO EQUITY AND OPPORTUNITY STATEMENT

Essex North Shore Agricultural & Technical School District (ENSATSD) is committed to equity for all students. It is the policy of the District to provide a safe, secure learning and work environment for all students and employees without distinction, where all school community members treat each other with respect. All programs, activities, and employment opportunities are offered without regard for race, color, sex, religion, national origin, ethnicity, sexual orientation, gender identity, homelessness, age, and/or disability. The ENSATSD School Committee is committed to the prevention, remediation, and accurate reporting of discrimination and harassment, bias incidents, and civil rights violations, including hate crimes, based on race, color, sex, religion, national origin, ethnicity, sexual orientation, gender identity, homelessness, age, and/or disability and any other class or characteristic protected by law. The District also prohibits other harmful conduct by reasons unrelated to the above characteristics. The School Committee has developed this policy to ensure that the educational opportunities of all students and the employment conditions of all employees are not threatened or limited by such violations of discrimination or harassment to ensure that differences are respected and individuals are free to work, learn, and develop relationships without fear of intimidation, humiliation, or degradation. Furthermore, no student shall be excluded from or discriminated against in admission to Essex North Shore Agricultural & Technical School, for admittance to State and Federally funded grant programs, or in obtaining the advantages, privileges, and courses of study offered on account of race, color, gender, gender identity, homelessness, disability, sexual orientation, religion, or national origin. This commitment to equity and opportunity applies to all persons. The school strives to create a positive learning environment in which individual differences are valued.



## SCHOOL PROFILE

Essex North Shore Agricultural & Technical School opened as a four-year Massachusetts public career technical and agricultural high school in September 2014 following the merger of North Shore Technical High School, Essex Agricultural & Technical High School, and the Automotive Collision Repair and Refinishing, Automotive Technology, and Carpentry career and technical education programs from Peabody Veterans Memorial High School. Students from 17 member districts are enrolled in one of the school's 25 career technical, animal science, agricultural or natural resources programs while students from across the Commonwealth of Massachusetts are eligible to earn admissions to one of the district's seven\* specialized animal science, agricultural, or plant science programs (see Appendix A). For more information see our Admissions Policy at [EssexNorthShore.org/Admissions](https://EssexNorthShore.org/Admissions).

Upon successful completion of curriculum aligned to the Massachusetts Vocational Technical Education Regulations ([603 CMR 4.00](#)), including the Massachusetts [Vocational Technical Education Frameworks](#) (2014), the [Massachusetts Curriculum Frameworks](#), and Massachusetts High School Program of Studies ([MassCore](#)), Essex North Shore Agricultural & Technical School graduates are awarded both a Massachusetts high school diploma and a certificate of completion from their career technical program.

College Board/ACT School Code: 220-980

## NEASC ACCREDITATION

Essex North Shore Agricultural & Technical School's NEASC accreditation determination was awarded Fall 2018 following a Spring 2018 review by the [The New England Association of Schools and Colleges](#).

## MA DEPARTMENT OF ELEMENTARY AND SECONDARY EDUCATION ACCOUNTABILITY

The Massachusetts Department of Elementary and Secondary Education did not issue an updated accountability report for Essex North Shore Agricultural & Technical School for the 2019-20 school year due to the pandemic. ENSATS made gains from 2018 to 2019 in the state accountability system, but remains in the *Partially Meeting Targets* designation, according to the Massachusetts Department of Elementary and Secondary Education (DESE). These targets are based on MCAS English Language Arts, Mathematics, and Biology achievement, MCAS English Language Arts and Mathematics growth, high school completion, student attendance, and advanced coursework completion. For more information, select the following link: <http://profiles.doe.mass.edu/accountability/>.

## PROMOTION & GRADUATION REQUIREMENTS

Each program at Essex North Shore Agricultural & Technical School is comprised of academic instruction as well as career and technical instruction aligned to the [Massachusetts Curriculum Frameworks](#) and the [Massachusetts Career Vocational Technical Education Frameworks](#) and the [Massachusetts High School Program of Studies \(MassCore\)](#).

Successful completion of the following courses and achievement of a competency determination based on MCAS state assessments or the equivalent in English Language Arts, Mathematics and Science (see below) are requirements for receiving an Essex North Shore Agricultural & Technical School diploma and a career technical program certificate.

Grade 9	Grade 10
English Mathematics Science History Spanish I* CTE Foundation Courses: Presentation Skills and Technology Skills Health & Physical Education CTE Exploratory Program CTE Program	English Mathematics Science History Spanish II* CTE Foundation Courses: US Government and Financial Literacy Health, Physical Education CTE Program
Grade 11	Grade 12
English Mathematics Science History Health, Physical Education CTE Pathway CTE Theory CTE Program	English Mathematics Electives (equivalent of 2 full year courses)** Health, Physical Education CTE Pathway CTE Theory CTE Program <i>**A 4th year of lab-based science is recommended for all students pursuing public or private post-secondary enrollment.</i>

\*Exceptions may apply.

Students must pass ALL courses, including OSHA 10 or the equivalent, and their Career Technical Program course requirements, EVERY year to be eligible for annual promotion and/or graduation. The completion of a Showcase Portfolio is also a graduation requirement. All students are required to maintain a working portfolio beginning freshman year. During senior year, a Showcase Portfolio will be prepared and presented to a committee for evaluation before graduation.

Students who earn a failing grade in one or two academic courses and/or their CTE Pathway or Theory courses or the equivalent must complete an online course approved by the district or a summer school course in the student's community the summer immediately following failure to adequately earn credit for promotion/graduation.

Students who fail their CTE program and/or fail three or more academic courses, including but not limited to CTE Pathway or Theory must request permission in writing from the Principal within five (5) school days following completion of the school year to either:

1. Repeat the grade at Essex North Shore Agricultural & Technical School. If a student is repeating a grade, they may not take the place of another qualified candidate in a CTE program, or
2. Be granted a waiver to enroll in online courses to make up the failed academic or related courses and be considered for promotion to the next grade.

## MCAS COMPETENCY DETERMINATION REQUIREMENTS

The Massachusetts Education Reform Law of 1993, state law, G.L. c. 69, § 1D, requires that all students who are seeking to earn a high school diploma, must meet the Competency Determination (CD) standard, in addition to meeting all local graduation requirements. Students must earn the equivalent of a scaled score of at least 240 on the grade 10 MCAS English Language Arts (ELA) and Mathematics tests, or earn a scaled score between 220 and 238 on these tests and fulfill the requirements of an Educational Proficiency Plan (EPP). Students must also earn a scaled score of at least 220 on the high school MCAS Biology test. For more information on MCAS graduation requirements, visit the following DESE website: <http://www.doe.mass.edu/mcas/graduation.html>.

## EDUCATIONAL PROFICIENCY PLANS (EPP)

An EPP is a plan that schools develop to help individual students make progress towards proficiency in ELA and/or Mathematics. The purpose of an EPP is to help a student acquire the knowledge and develop the skills he or she needs to be ready for higher education and/or a career after high school.

Each EPP must include:

- A review of the student's strengths and weaknesses based on MCAS tests and other assessment results, coursework, grades, and teacher input.
- A list of courses in the relevant ELA and/or Mathematics content areas that the student must take and complete successfully in grades 11 and 12.
- A description of assessments the school will use at least once each year to make sure that the student is making progress toward or has achieved proficiency.

For more information on EPP requirements visit the following DESE website:

<http://www.doe.mass.edu/ccr/epp/general/default.html>.



## GRADING SYSTEM

Letter grades will be given with the following numerical equivalent:

A+	100-97	B+	89-87	C+	79-77	D+	69-67	F	59-0
A	96-93	B	86-83	C	76-73	D	66-63		
A-	92-90	B-	82-80	C-	72-70	D-	62-60		

## ACADEMIC INTEGRITY

It is the expectation of the administration and faculty at Essex North Shore Agricultural & Technical School that all students will work to the best of their ability. We are committed to helping all students become successful learners. Therefore, it is the students' responsibility to submit work that is their own. If students do not submit their own work, teachers are unable to determine the needs of the student. Violations of the academic integrity policy, including cheating and plagiarism, will be documented in Aspen and parents will be notified.

## DISTRICT CURRICULUM ACCOMMODATION PLAN (DCAP)

Essex North Shore Agricultural & Technical School is an inclusive school where diversities of all types, including learning differences, are respected and embraced. We recognize that all students have individual learning needs. Our classroom instruction is designed to provide all learners with access to our curricula. Our [District Curriculum Accommodation Plan \(DCAP\)](#) describes accommodations that are available for all students.

## GRADE POINT AVERAGE DETERMINATION

Many courses carry a weighted Grade Point Average (GPA). The higher the level of a course, the higher the GPA weight. Thus, AP and Early College (EC) level courses carry a 5.0 value for earning an A in a designated course, Honors level may carry a 4.67 value for an A. ACP courses carry a 4.33 value, and College Prep courses carry a 4.0 value.

Grade Point Averages will be calculated based on a weighted 4.0 scale no less than once annually at the conclusion of the school year. Courses are be weighted accordingly:

***Course Weighting for Grade Point Average (GPA)***

<b>Letter Grade</b>	<b>Numerical Grade</b>	<b>College CP</b>	<b>College ACP</b>	<b>Honors</b>	<b>AP</b>
A+	97-100	4.3	4.7	5.0	5.3
A	93-96	4.0	4.33	4.67	5.0
A-	90-92	3.7	4.01	4.32	4.63
B+	87-89	3.3	3.58	3.86	4.13
B	83-86	3.0	3.25	3.5	3.75
B-	80-82	2.7	2.93	3.16	3.38
C+	77-79	2.3	2.49	2.68	2.88
C	73-76	2.0	2.17	2.34	2.5
C-	70-72	1.7	1.84	1.98	2.13
D+	67-69	1.3	1.41	1.52	1.63
D	64-66	1.0	1.08	1.16	1.25
D-	60-63	0.7	0.76	0.82	0.88
F	59 or below	0	0	0	0
NC	No Credit		M	Medical	
E	Exempt		I	Incomplete	

## PLACEMENT OF GRADE 9 STUDENTS IN CTE EDUCATION PROGRAMS

### GRADE 9 CAREER DISCOVERY PROGRAM

During the Career Discovery Program, all freshmen students will be introduced to the 24 programs offered at Essex North Shore Agricultural & Technical School. This will occur during the first five (5) Career Technical Education Program days of the school year.

### GRADE 9 EXPLORATORY PROGRAM

Students will participate in seven (7) CTE program areas during the seven (7) CTE cycles following the completion of Career Discovery for a maximum of five (5) days per cycle. During the exploratory experience, career technical instructors evaluate each student based upon a common rubric/scoring guide including the following:

40%	Weekly Assessment in Workmanship/Production, Safety, Career Awareness and Professionalism/Employability
20%	Performance-Based Assessment
20%	Written Assessment
20%	Reflection/Journal Entry

### GRADE 9 CAREER TECHNICAL AND AGRICULTURAL PROGRAM SELECTION

Students will make their program selections by rank ordering the CTE programs for which they earned a passing grade during the Exploratory Program in order of placement preference. Each student will identify the technical or agricultural program of choice, as well as their second through seventh choices from the explored technical or agricultural programs. This process will be electronic and will take place during the last exploratory cycle.

### GRADE 9 CAREER TECHNICAL AND AGRICULTURAL PROGRAM PLACEMENT

Students' program selection requests are sorted in rank order and are placed according to their score in the technical program the student requested as their first choice. In the event of a tie, tie scores are first broken by the cumulative average of all seven exploratory grades. If this initial tiebreaker results in another tie, students' academic and conduct reports will be considered to resolve the tiebreaker. In the event that a technical program exceeds its capacity for enrollment, every effort will be made to place a student in their next highest ranking choice based on availability and eligibility. Also, when students are placed in a program other than their first choice, yet would like to be in a different technical program that is at capacity, wait lists are created. Students on a waitlist are rank ordered by their exploratory grades. Wait listed students are notified when an opening occurs in their desired choice and given the option to change or remain in their current placement.

For more information see ENSATS Admissions Policy at [www.EssexNorthShore.org/admissions](http://www.EssexNorthShore.org/admissions).

## PLACEMENT OF STUDENTS IN ACADEMIC PROGRAMS

### Freshman

Once incoming ninth-grade students have been accepted to Essex North Shore Agricultural & Technical School, a placement exam will be administered in the spring. The purpose of this test is to ensure appropriate placement for each freshman in their academic courses. Course level recommendations are also requested from sending middle schools for incoming freshmen to further inform freshman scheduling.

### Sophomores, Juniors, and Seniors

Level recommendations (College Prep, Accelerated College Prep, Honors, and Advanced Placement) for required Courses in English Language Arts, History and Social Sciences, Mathematics, and Science are made by the sending teacher based on the results of each student's work in their course as well as all prior courses in the same content area. In some cases, such as upper level science courses (Chemistry and Physics), students' prior performance in mathematics courses is also taken into consideration when making a level recommendation due to the mathematics skills needed for higher levels of these courses.

Students may choose an academic elective in senior year when electives are offered in History, Mathematics, and Science. Please note that Spanish I for juniors will no longer be offered for the 2021-22 school year, and Spanish II for seniors will no longer be offered for the 2022-23 school year.

### Course Selection Process

For leveled core courses, teacher recommendations will determine placement for students entering Grades 10-12. Please note the recommendations and prerequisites in the course descriptions under all leveled courses. If students or parents/guardians are in disagreement with the recommended placement, the parent/guardian must document this request in writing during the course selection period.

### Schedule Changes

Schedule changes are disruptive to a student's education. Once the school year has begun, changes to class schedules are discouraged. Students and families are expected to select courses carefully during the course selection period in order for schedules and staffing to be completed. Please consult the recommendations for placement and pre-requisite course(s) in the course description.

Please follow the procedure in the *Student Handbook* to initiate schedule changes. The following are schedule change guidelines:

- There is a freeze on schedule changes for the first two academic cycles at the beginning of the term.
- Requests to change teachers will not be considered.
- Courses dropped after October 1 may result in the appearance of a Withdrawal "W" on the student's transcript. Changes approved in Quarter 1, but after progress reports are issued, may not be made until the start of Quarter 2. The same applies to new courses that commence Quarter 3.
- No changes will be made after four academic cycles into the term unless extenuating circumstances exist.



## COURSE STRUCTURE & IDENTIFICATION

All courses offered at Essex North Shore Agricultural & Technical School are college preparatory so that all students are college and career ready. Courses are structured using the following delineations:

### College Preparatory (CP)

College Preparatory is designed for college-bound and career-oriented students. The curriculum develops critical skills for college and career readiness and moves at a pace that focuses on content and skills essential to succeed after high school. Students will complete assignments independently and in small groups in a structured class environment and will have homework assignments and projects that extend concepts and skills practiced in class.

### Accelerated College Preparatory (ACP)

Accelerated College Preparatory is designed for students preparing for two- and four-year colleges. The curriculum develops critical skills for college and career readiness and moves at a moderate pace. Students should evidence a solid interest in learning and work well independently and in groups with teacher direction. Students are capable and willing to put time and effort into their assignments. These courses require daily homework, longer term projects, and consistent participation in various class activities.

### Honors (H)

This level is the most academically challenging of the three college preparatory levels, and it moves at a rigorous pace with nightly homework as well as independent projects. Students in honors courses should possess a strong interest in learning and have a high level of intellectual curiosity. Students are expected to be self-motivated and work well with others. Homework is required to be done on time to ensure participation in daily class discussions.

### Advanced Placement (AP)

Advanced Placement courses require students to apply advanced critical thinking and analytical skills that are typical of comparable college-level courses. This guiding Advanced Placement enrollment policy holds true for all Advanced Placement courses and exams, regardless of the grade level in which a student takes Advanced Placement coursework. Advanced Placement courses are specifically designed to provide challenging, college-level coursework for willing and academically prepared high school students. The amount of homework, independent research and reading is significantly more than in other courses. Students are expected to take the Advanced Placement exam in the spring. Advanced Placement courses follow specific guidelines and requirements set forth by the College Board. Students taking Advanced Placement courses are required to sign and return this *Advanced Placement Student & Parent/Guardian Contract*. For more information visit the AP Central website: <http://apcentral.collegeboard.com/home>.

### Early College Course (EC)

An Early College course will be collaboratively taught by a team of ENSATS instructor(s) and North Shore Community College faculty. Learning will take place on both the ENSATS and NSCC campuses throughout

the term of the course (transportation provided). Successful completion of an early college course will result in students earning both ENSATS high-school credit and NSCC college credit.

## COOPERATIVE EDUCATION PROGRAM

It is the expectation of Essex North Shore Agricultural & Technical School that all students participate in a Cooperative Education experience in their senior year. Students are able to go out on Co-op as early as midway through their junior year as long as they meet the criteria below.

Students are encouraged to meet with their program instructor and the Cooperative Education Coordinator to discuss requirements and steps necessary to complete the process.

### Cooperative Education Criteria:

- Minimum age of 16.
- Completion of 1½ years of full time study in the Vocational/Agricultural Program.
- No earlier than midway through junior year. (90 days)
- Career Plan, resume, letters of recommendation, competency listing updated and reviewed by the student's Vocational/Agricultural Instructor.
- OSHA 10 Credential (Construction, General Industry, or Health) and any other certification/credential specific to the student's Vocational/Agricultural program. (ie. CNA, Adobe, ServSafe, Radiology)
- Recommendation of Vocational/Agricultural Instructor: Student demonstrates the acquisition of the knowledge and skills in the vocational/agricultural program associated with 1½ years in the program.
- Vocational/Agricultural program coursework grade: minimum: "C" in the prior term and maintaining this standard at time of placement.
- Academic grade minimum: Passing all Core Academic classes in the prior term and maintaining this standard at the time of placement.
- Attendance: Demonstrate that they meet the Attendance Policy set forth in *The Student Handbook*.
- Discipline records will be reviewed by the Assistant Principal and CTE Director.
- Successful completion of all relevant placement paperwork.
- Coop students will need to provide their own transportation to the placement.
- Post-placement students will submit time cards and written entries weekly to the designated instructor.
- Students should notify the Coop Coordinator of any absence from work or injury that occurs at the workplace as soon as possible.
- After placement, students who do not meet coursework grade and/or attendance criteria will be placed on probation for two cycles as this gives the student the opportunity to return to good standing. Students would then remain on probation for the remainder of the term. Probation may consist of weekly progress reports, meetings, and other interventions to assist the student to remain on Coop.

For additional information, contact the ENSATS Cooperative Education Coordinator.

## SPECIAL EDUCATION

Essex North Shore Agricultural & Technical School is an inclusive school where diversities of all types, including learning differences, are respected and embraced. We recognize that all students have individual learning needs. Our classroom instruction is designed to provide all learners with access to our curricula. Students' special education programs are individualized. Some examples of supports and services are classes co-taught by general and special education teachers, or classes supported by special education paraprofessionals. Students may receive individual or small-group services, such as academic support, reading instruction or speech and language therapy. Decisions regarding the need for supports and services are made by the Individualized Education Program teams of eligible students. For additional information contact the ENSATS Director of Special Education.

## SECTION 504

Section 504 is a part of the Americans With Disabilities Rehabilitation Act of 1973, a federal law designed to protect the rights of individuals with disabilities in programs and activities that receive federal financial assistance from the U.S. Department of Education. Section 504 provides: "No otherwise qualified individual with a disability in the United States . . . shall, solely by reason of her or his disability, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."

To be protected under Section 504, a student must be determined to:

1. Have a physical or mental impairment that substantially limits one or more major life activities; or
2. Have a record of such an impairment; or
3. Be regarded as having such an impairment. Major life activities include caring for one's self, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, and working. This list is not exhaustive.
4. Essex North Shore Agricultural & Technical School recognizes its obligations under the law.
- 5.

The District 504 Coordinator has the overall responsibility for overseeing efforts to ensure full compliance including the identification, evaluation, and the determination of whether or not a child is eligible to receive accommodations under Section 504 of the Rehabilitation Act of 1973. For additional information, contact the ENSATSD District Section 504 Coordinator.

## TITLE I SERVICES

Title I is a federally-funded supplemental program (grant-funded) that provides additional reading and mathematics instruction and services to Essex North Shore Agricultural & Technical School students who have been identified through placement tests or teacher referrals. Reading and mathematics instruction take place during seminar blocks so students do not miss core academic classes. For additional information, contact the Title 1 Director.

## CTE AND LANGUAGE COURSES

In keeping with the [mission](#) of our school to “create a culture of academic and technical excellence” the Essex North Shore Agricultural & Technical School *Program of Studies* is transitioning our Spanish offerings over the next two years. As part of this process, we will require students to take two years of Spanish, Spanish I in Grade 9 and Spanish II in Grade 10, unless a student requires supportive learning services in place of these language courses.

We do want to remind everyone of the [Mass CORE](#) requirements and, in particular, language policies for students who attend Massachusetts vocational schools and their impact on admissions to the [Massachusetts State University System](#). What is established is that because vocational students require more credit hours related to their technical and agricultural areas, students who are unable to take Spanish I and Spanish II will be considered opt outs per MassCore that stipulates that "Students enrolled in a state-approved Career and Technical Education program of studies have the option of opting out of Foreign Language and Art and still fulfill MassCore."

## EARLY COLLEGE

“Early college programs are designed to blend elements of high school and college to provide students with the opportunity to experience and complete college level academic coursework on a clearly articulated pathway and simultaneously gain exposure to a variety of career opportunities. Early college programs also reduce the time and expense of earning a college credential while increasing the likelihood of completion (Source: <https://www.doe.mass.edu/ccte/early-college/>).”

ENSATS has partnered with North Shore Community College (NSCC) to offer Early College courses to enrolled ENSATS students beginning in Grade 10. Early College courses will be taught by NSCC instructors with an ENSATS support person always with students in person. Learning will take place on both the ENSATS and NSCC campuses throughout the term of the course. Successful completion of Early College courses will result in students earning both ENSATS high school credit and NSCC college credit. Early College course enrollment is free to eligible students.

### ANTICIPATED EARLY COLLEGE COURSE OFFERINGS\*

	NSCC Course	NSCC Course	ENSATS Crosswalk
Grade 10	<i>Understanding Higher Education</i> FFL 103		<i>Financial Literacy</i> Foundation Course: (1 Semester)
Grade 11	<i>Speech</i> SP 102	<i>Composition 101</i> CMP 101	<i>English 11</i> (1300, 1301, 1302 or 1304)
Grade 12 <i>(Anticipated SY 22-23)</i>	<i>Intro to Sociology</i> SOC 106	<i>Intro to Psychology</i> PSY 102	Senior Elective(s) (1 Full Year or 2 Semester)

\*Early College Offerings are subject to available funding.

## DUAL ENROLLMENT

Students and families who seek to independently enroll in college level courses to complement their high school experience are encouraged to do so. The Principal, in collaboration with the Assistant Superintendent of Curriculum, Assessment, & Instruction, CTE Director, and Director of School Counseling will review formal written requests for Dual Enrollment coursework to be included in the ENSATS student's transcript. Requests for Dual Enrollment approvals must be made in writing to the Director of School Counseling at least two (2) weeks prior to the commencement of enrollment in any Dual Enrollment courses. An official transcript, forwarded directly from the college or university to ENSATS, must be received upon completion of any Dual Enrollment course in order for ENSATS credit to be awarded to the student.

## ENGLISH LEARNERS

English Learners (ELs) are students whose first language is other than English and who are not yet sufficiently proficient in English in the four language domains of listening, speaking, reading, and writing. Essex North Shore Agricultural & Technical School uses a two-pronged approach to support English Learners. Students who are identified as ELs receive English as a Second Language (ESL) instruction and Sheltered English Immersion (SEI) instruction to assist them in developing the language skills necessary to participate fully in academic and career technical education classes. Additionally, the progress of Former English Learners (FELs), who receive the benefit of instruction that is consistent with the principles of Sheltered English Immersion, is monitored for a period of four years subsequent to their being identified as no longer requiring direct ESL instruction. EL students' skills are evaluated each year using the ACCESS for ELs test, as required by state law.

Essex North Shore Agricultural & Technical School actively encourages the participation of current and former English Learners in courses at all levels and ensures that the student's level of English proficiency does not impede a student's participation in advanced level courses. Additionally, current and former English Learners have access to and are actively encouraged to participate in all of the many extracurricular opportunities that ENSATS provides. For additional information, contact the ENSATSD District EL Coordinator.

## CTE PARTNERSHIP/AFTER DARK PROGRAM

The CTE Partnership/After Dark Program provides vocational education opportunities for juniors and seniors within our district who are not enrolled as full time students at ENSATS. These students receive core academics within their own participating districts in the morning and Chapter 74 vocational education in the afternoons on our campus. For the school year 2021-22 these Chapter 74 vocational programs include: Advanced Manufacturing, Auto Collision Repair and Refinishing, Automotive Technology, Construction Craft Laborer, Design and Media Communications, Electrical, Plumbing, and Sustainable Horticulture. Students receive 900 hours of technical training and the opportunity to earn industry recognized credentials. Upon completion of the program, students will receive nine articulated college credits towards an Associate's Degree in a related career pathway.

## KALEIDOSCOPE COLLECTIVE FOR LEARNING AND CTAAC INTEGRATION

We continue to explore creative ways to integrate career and technical education with academic content at Essex North Shore Agricultural & Technical School through our participation in the Kaleidoscope Collective for Learning, a cohort-based approach to spreading Deeper Learning throughout the Commonwealth. We do so through our Integration Academies, where students work with teachers to plan, design, prototype, and compete in engaging projects that integrate learning and encourage outside-the-box thinking.

## COMMUNITY SERVICE LEARNING

Beginning with the Class of 2025, Essex North Shore Agricultural & Technical School will introduce a Community Service Learning program requiring students to complete 40 hours of community-based service as part of their graduation requirement. Aligned to our mission, community service learning represents another way in which we can shape our students to be responsible community members who discover who they are through making a gift of themselves and their talents to others. Students will participate in reflections with their peers as they give to others and thereby extend the mission reach of our school to communities in need.

## CAREER TECHNICAL AND AGRICULTURAL CLUSTER PATHWAYS

As we prepare for the 2021-22 school year, we are excited to announce our new Career Cluster Pathway Courses. We believe that Pathway courses will better prepare our students for entrance into the future workforce with mid-level skilled careers. This extended learning will complement the work we do with students over their four years to acquire technical and agricultural skills and knowledge with the professional qualities necessary for success in the world of work beyond graduation. These courses align with the MA CVTE Curriculum Frameworks.

For freshman and sophomore years, all students participate in a pairing of required Pathway courses designed to transition them to the professional expectations of a career technical and agricultural school. Then, in junior and senior year, Pathway course offerings are differentiated by Career Cluster, again with the intention of preparing them for the workforce. Below, please find a graphic of the Pathway courses throughout the four years at Essex North Shore Agricultural & Technical School.

GRADE 9 PATHWAY COURSES	
<i>Presentation Skills - Semester</i>	<i>Technology Skills - Semester</i>

GRADE 10 PATHWAY COURSES	
<i>United States Government &amp; Politics - Semester</i>	<i>Financial Literacy - Semester</i>

GRADE 11 PATHWAY COURSES	
AGRICULTURAL CLUSTER - ANIMAL SCIENCES	
<i>Communication and Essential Skills - Semester</i>	<i>Animal Ethics and Agricultural Laws - Semester</i>
AGRICULTURAL CLUSTER - PLANT SCIENCES	
<i>Agricultural Sciences - Full Year</i>	
CONSTRUCTION CLUSTER	
<i>STEM for Construction - Semester</i>	<i>Understanding Specifications and Blueprints - Semester</i>
SERVICES CLUSTER	
<i>Services Leadership I - Full Year</i>	
HEALTH SCIENCES CLUSTER	
<i>Communication for Health Professionals - Semester</i>	<i>Medical Forensics - Semester</i>

MANUFACTURING, ENGINEERING, & TECHNOLOGY CLUSTER	
<i>Communication and Career Essentials - Semester</i>	<i>Professional Financial Literacy - Semester</i>

GRADE 12 PATHWAY COURSES
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AGRICULTURAL CLUSTER - ANIMAL SCIENCES
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<i>Laboratory Skills for Animal Sciences - Semester</i>	<i>Applied Mathematics in the Animal Sciences - Semester</i>
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AGRICULTURAL CLUSTER - PLANT SCIENCES
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<i>Agricultural Management - Full Year</i>
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CONSTRUCTION CLUSTER
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<i>Construction Management - Semester</i>	<i>Renewable Energy in Construction - Semester</i>
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SERVICES CLUSTER
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<i>Services Leadership II - Full Year</i>
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HEALTH SCIENCES CLUSTER
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<i>Data Analytics in Health Sciences - Full Year</i>
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MANUFACTURING, ENGINEERING, & TECHNOLOGY CLUSTER
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<i>Civic Humanitarianism - Semester</i>	<i>Professional Portfolio Presentation - Semester</i>
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ESSEX NORTH SHORE  
AGRICULTURAL & TECHNICAL SCHOOL

# CAREER TECHNICAL & AGRICULTURAL PROGRAMS

Essex North Shore Agricultural & Technical School admits students from our 17 member communities to our 25 career technical, animal science, and agricultural programs. Member communities include Beverly, Boxford, Danvers, Essex, Gloucester, Hamilton, Lynnfield, Manchester-by-the-Sea, Marblehead, Middleton, Nahant, Peabody, Rockport, Salem, Swampscott, Topsfield, and Wenham. Students from across the Commonwealth of Massachusetts are also eligible to apply for admission to Essex North Shore Agricultural & Technical School's animal science, agricultural, and natural resource programs (*See: [Specialized Agricultural and Natural Resources Programs Nonresident Student Enrollment Advisory, MA DESE](#)*).



**KALEIDOSCOPE**  
COLLECTIVE FOR LEARNING



NEW ENGLAND ASSOCIATION  
OF SCHOOLS AND COLLEGES



# AGRICULTURAL CLUSTER

## ANIMAL SCIENCES

**Companion Animals, Equine Sciences, Veterinary Science**



### CTE PATHWAY COURSES

CTE Pathway courses are cluster-based courses scheduled during the academic cycle to meet the needs of Strands 1, 3, 4, 5, 6 of the *Vocational Technical Education Frameworks* under Chapter 74 Regulations (CMR 603).

Communication and Essential Skills - Grade 11 Pathway

Course # paa301

Credits: 2

This semester-long course explores the communication, problem-solving and leadership skills necessary for success in the animal science fields of Companion Animals, Equine Sciences, and Veterinary Science. Students will be given multiple opportunities to practice individually and in groups the many interpersonal attributes required for success in the animal sciences pathway, including the ability to communicate, empathize, and collaborate effectively when dealing with people in the animal science workplace.

### Animal Ethics and Agricultural Laws - Grade 11 Pathway

Course # paa302

Credits: 2

This semester-long course is designed to build student understanding of the current debates about the nature and extent of our moral obligations to animals through the framework of agricultural laws. Topics will include theories of ethics and their application to animals, our moral relationship to animals, animal minds, and the uses of animals for food, clothing, experimentation, entertainment, hunting, as companions or pets, and other purposes. Students will develop positions based upon theoretical and legal issues concerning ethics and animals, giving reasons for their support, and defending their views from potential objections and criticism.

### Laboratory Skills for Animal Sciences - Grade 12 Pathway

Course # paa401

Credits: 2

This semester-long course is designed to introduce students to laboratory skills as they are applied to the animal sciences. Students explore the impact of laboratory skills and what these can tell us about animals, including animal reproduction, the equine industry, animal health and human health, production technology, processing, and distribution of agricultural animal products. Students will participate in classroom and laboratory activities that are complemented by cutting-edge research.

### Applied Mathematics in Animal Science - Grade 12 Pathway

Course # paa402

Credits: 2

This semester-long course is intended to build student understanding of animal science through real-world mathematical applications. Students will learn how to use indices, graphics, budgeting, interest calculations, compounding and discounting, along with basic statistical measures to broaden their ability to incorporate the use of these calculations into animal science knowledge. The goal of this course is to provide students with the opportunity to select, understand, and critically evaluate scientific studies in the animal sciences disciplines.

## CTE THEORY COURSES

CTE Theory courses are program specific courses scheduled during the academic cycle to strengthen the concepts defined in Strands 2 of the *Vocational Technical Education Frameworks* under Chapter 74 Regulations (CMR 603).

### COMPANION ANIMAL

Companion Animal Theory 11

Course # coa306

Credits: 4

This classroom-based theory course will examine animal health & nutrition, behavior & training, and animal grooming & husbandry. Students will develop skills pertaining to basic, and breed specific, grooming, an understanding of training theories, including agility, obedience, CGC (Canine Good Citizen), and gain knowledge of basic animal nutrition requirements, and anatomy and physiology theory.

## Companion Animal Theory 12

Course # coa406

Credits: 4

This classroom-based theory course will examine animal agribusiness skills, competing with and showing companion animals, advanced training of companion animals and advanced grooming skills. Students will develop advanced skills pertaining to the grooming industry and business ownership, breeding care and maintenance of companion animals and animal health and disease control.

## **EQUINE SCIENCES**

### Equine Sciences Theory 11

Course # eq306

Credits: 4

This classroom-based theory course will help students to understand the science behind horse colors, breeds, disciplines and blanketing. Students will also explore horse grooming and clipping. Stable management skills will focus on record keeping, tack, aids, equitation and showmanship. Equine careers and colleges will be discussed to help students plan for their future.

### Equine Sciences Theory 12

Course # eq406

Credits: 4

This classroom-based theory course will deepen student understanding of Equine Sciences. Theory topics will include equine care, training techniques, riding/driving, emergency care, barn management practices, riding instruction, equine health care, breeding and genetics, equine anatomy and physiology, nutrition and general wellness, laws and regulations, and practical horsemanship.

## **VETERINARY SCIENCE**

### Veterinary Science Theory 11

Course # vs306

Credits: 4

This classroom-based theory course is intended to provide students with further training in large and small animal medical health fields and will introduce them to the position of veterinary assistant. After a brief history and orientation of the veterinary assistant career, students will learn the basics of animal diseases, restraints, sterilization, radiology, wound healing, humane issues, and related lab procedures.

### Veterinary Science Theory 12

Course # vs406

Credits: 4

This classroom-based theory course is intended to provide students with further training in the medical care of animals. Topics will include: animal diseases, internal and external parasites, medications, and methods of administering: injection, pilling, and drenching animals. Students will also practice customer service skills in order to understand the roles and responsibilities of the veterinary healthcare team.



## Companion Animals

The Companion Animals program is designed to give students hands-on and theory-based learning in the areas of animal health & nutrition, behavior & training, and animal grooming & husbandry. This program will teach students a variety of companion animal skills such as restraints, breed ID, proper breeding technique, breed handling styles, pet grooming, care, and maintenance while working with rodents, reptiles, dogs, cats, and fish. Students will develop skills pertaining to basic grooming, an understanding of training theories, and gain knowledge of basic animal nutrition requirements, and anatomy and physiology theory. Students will practice customer service skills and understand the role and responsibilities of an effective employee in the companion animal industry. Each student will have the opportunity to earn an OSHA 10 hour card, and be certified to practice canine and feline CPR and first aid.

Course Number	Name	Credit	Grade Level
coa101	Companion Animals Exploratory	1.0	Grade 9
coa103	Exploratory/Companion Animals	10.0	Grade 9
coa201	Introduction to Grooming	2.4	Grade 10
coa202	Companion Animals Anatomy & Physiology 10	6.4	Grade 10
coa203	Companion Animals Health and Nutrition	11.2	Grade 10
coa301	Grooming Maintenance and Management	8.8	Grade 11
coa302	Animal Breeding/Training/Showing I	11.2	Grade 11
coa305	Companion Animals Cooperative Education 11	12.0	Grade 11
coa306	Companion Animals Theory 11	4.0	Grade 11
paa301	CTE Pathway: Communication & Essential Skills	2.0	Grade 11
paa302	CTE Pathway: Animal Ethics & Agricultural Laws	2.0	Grade 11
coa401	Advanced Grooming	11.2	Grade 12
coa402	Animal Breeding/Training/ Showing II	8.8	Grade 12
coa405	Companion Animals Cooperative Education 12	24.0	Grade 11
coa406	Companion Animals Theory 12	4.0	Grade 12
paa401	CTE Pathway: Laboratory Skills for Animal Sciences	2.0	Grade 12
paa402	CTE Pathway: Applied Mathematics in the Animal Sciences	2.0	Grade 12

\*Articulated Credit Agreement with Unity College



## Equine Sciences

The Equine Sciences program allows each student to build a successful career path by providing hands-on experiences. Throughout the courses in this program, students will explore many aspects of Equine Sciences including: Basic Equine Care, Training Techniques, Riding/Driving, Emergency Care, Barn Management Practices, Riding Instruction, Equine Health Care, Breeding and Genetics, Anatomy and Physiology, Nutrition and General Wellness, Laws and Regulations, and Practical Horsemanship.

Course Number	Name	Credit	Grade Level
eq101	Equine Sciences Exploratory	1.0	Grade 9
eq103	Exploratory/ Equine Sciences	10.0	Grade 9
eq201	Equine I	8.0	Grade 10
eq202	Equine Health and Nutrition	2	Grade 10
eq203	Equine Emergency Care	4.0	Grade 10
eq204	Equine Anatomy & Physiology	2	Grade 10
eq301	Equine Sciences Breeding and Genetics	4.0	Grade 11
eq302	Equine Sciences Health Management I	4.0	Grade 11
eq303	Equine Sciences Practical Horsemanship	8.0	Grade 11
eq305	Equine Sciences Cooperative Education 11	12.0	Grade 11
eq306	Equine Sciences Theory 11	4.0	Grade 11
paa301	CTE Pathway: Communication & Essential Skills	2.0	Grade 11
paa302	CTE Pathway: Animal Ethics & Agricultural Laws	2.0	Grade 11
eq401	Barn Management	4.0	Grade 12
eq402	Equine Methods of Riding, Training and Instruction	10.0	Grade 12
eq403	Equine Health Management II	4.0	Grade 12
eq405	Equine Sciences Cooperative Education 12	24.0	Grade 12
eq406	Equine Sciences Theory 12	4.0	Grade 12
paa401	CTE Pathway: Laboratory Skills for Animal Sciences	2.0	Grade 11
paa402	CTE Pathway: Applied Mathematics in the Animal Sciences	2.0	Grade 11



## Veterinary Science

The Veterinary Science program is designed to give students experience needed to work in the veterinary field. Throughout the course of this program, students will practice restraints and medical procedures on rodents, reptiles, dogs, cats, livestock animals, and horses. Students will also develop skills in laboratory work, including performing blood testing, urinalysis, and tests for internal and external parasites as well as gain the ability to administer medication. Students will practice customer service skills and understand the role and responsibilities of each member of the veterinary healthcare team. Students will earn an OSHA 10 hour card and be certified to practice canine and feline CPR and first aid.

Course Number	Name	Credit	Grade Level
vs101	Veterinary Science Exploratory	1.0	Grade 9
vs104	Exploratory/Intro to Veterinary Science	5.0	Grade 9
vs105	Exploratory/Animal Science Basics	5.0	Grade 9
vs201	Veterinary Sci Health and Nutrition	4.0	Grade 10
vs202	Fundamental Veterinary Science	6.0	Grade 10
vs203	Veterinary Anatomy & Physiology	6.0	Grade 10
vs204	Veterinary Clinical Skills	4.0	Grade 10
vs301	Practical Physiology	6.25	Grade 11
vs302	Veterinary Lab Techniques	6.25	Grade 11
vs303	Practical Veterinary Science	12.5	Grade 11
vs305	Veterinary Science Cooperative Education 11	12.0	Grade 11
vs306	Veterinary Science Theory 11	4.0	Grade 11
paa301	CTE Pathway: Communication & Essential Skills	2.0	Grade 11
paa302	CTE Pathway: Animal Ethics & Agricultural Laws	2.0	Grade 11
vs401	Animal Nursing	4.0	Grade 12
vs402	Applied Veterinary Science	8.0	Grade 12
vs403	Advanced Lab Technology	4.0	Grade 12
vs406	Veterinary Science Theory 12	4.0	Grade 12
vs405	Veterinary Science Cooperative Education 12	24.0	Grade 12
paa401	CTE Pathway: Laboratory Skills for Animal Sciences	2.0	Grade 12
paa402	CTE Pathway: Applied Mathematics in the Animal Sciences	2.0	Grade 12

\*Articulated Credit Agreement with Unity College

# AGRICULTURAL CLUSTER

## PLANT SCIENCES

**Arboriculture, Environmental Science,  
Landscaping & Turf Management,  
Natural & Environmental Sciences,  
Natural Resource Management,  
Sustainable Horticulture**



### CTE PATHWAY COURSES

CTE Pathway courses are cluster-based courses scheduled during the academic cycle to meet the needs of Strands 1, 3, 4, 5, 6 of the *Vocational Technical Education Frameworks* under Chapter 74 Regulations (CMR 603).

Agricultural Sciences - Grade 11 Pathway

Course # pap301

Credits: 4

This full-year course explores agricultural sciences to understand current challenges and to consider alternative or shifting approaches to agricultural productivity. Topics introduced include earth sciences, physics, botany, and soils. Students will have an opportunity to form a unified vision of these topics based upon ecology, agricultural productivity, and sustainability.

Agricultural Management - Grade 12 Pathway

Course # pap401

Credits: 4

This full-year course examines agricultural management through the business of agriculture and its products. Major units of study will look closely at the life cycle of materials, business and management practices, effective communication, and applied mathematical skills. Students will use case studies of agribusinesses to learn more about how agricultural management has grown more complex through financial risk, managing big budgets, and investing in the latest agricultural technology.

## CTE THEORY COURSES

CTE Theory courses are program specific courses scheduled during the academic cycle to strengthen the concepts defined in Strands 2 of the *Vocational Technical Education Frameworks* under Chapter 74 Regulations (CMR 603).

### ARBORICULTURE

Horticulture Theory 11

Course # ht301

Credits: 4

This classroom-based theory course continues to deepen student understanding of horticulture through botany, pest management, plant propagation, nutrition, production, and soil science. Topics will include a closer examination of irrigation, growing media, planting beds and sites; propagation; marketing; repair and maintenance of nursery equipment and facilities.

Horticulture Theory 12

Course # ht401

Credits: 4

This classroom-based theory course continues to deepen student understanding of horticulture through studying sustainable landscapes: green roofs, permeable hardscapes, rain gardens, pollinator gardens, drought tolerant plantings, heritage and perennial vegetables, native plants, drip irrigation and energy efficient landscape designs.

### ENVIRONMENTAL SCIENCE, NATURAL & ENVIRONMENTAL SCIENCES, NATURAL RESOURCES

Environmental Science Theory 11

Course # es301

Credits: 4

This classroom-based theory course will help students understand the concept of sustainability as it relates to various industries at each level of the supply chain. Topics will include the examination of environmental, economic, and social impacts on each industries' abilities as well as the factors that limit sustainability. By

analyzing sustainability at the local, national, and global level, students will understand both the challenges as well as the solutions to help industries become more environmentally friendly.

### Environmental Science Theory 12

Course # es401

Credits: 4

This classroom-based theory course will explore the theoretical skills necessary to collect, analyze, interpret, and communicate environmental data. Emphasis will be on deepening student understanding of the technical skills necessary for successful employment in the competitive environmental science field or to prepare students for further education. Students will study field skills, Geographic Information System digital mapping, water chemistry, aquaculture and fish science, and the impacts of manmade pollutants on the coastal ecosystems.

## **LANDSCAPING & TURF MANAGEMENT**

### Horticulture Theory 11

Course # ht301

Credits: 4

This classroom-based theory course continues to deepen student understanding of horticulture through botany, pest management, plant propagation, nutrition, production, and soil science. Topics will include a closer examination of irrigation, growing media, planting beds and sites; propagation; marketing; repair and maintenance of nursery equipment and facilities.

### Horticulture Theory 12

Course # ht401

Credits: 4

This classroom-based theory course continues to deepen student understanding of horticulture through studying sustainable landscapes: green roofs, permeable hardscapes, rain gardens, pollinator gardens, drought tolerant plantings, heritage and perennial vegetables, native plants, drip irrigation and energy efficient landscape designs.

## **SUSTAINABLE HORTICULTURE**

### Horticulture Theory 11

Course # ht301

Credits: 4

This classroom-based theory course continues to deepen student understanding of horticulture through botany, pest management, plant propagation, nutrition, production, and soil science. Topics will include a closer examination of irrigation, growing media, planting beds and sites; propagation; marketing; repair and maintenance of nursery equipment and facilities.

### Horticulture Theory 12

Course # ht401

Credits: 4

This classroom-based theory course continues to deepen student understanding of horticulture through studying sustainable landscapes: green roofs, permeable hardscapes, rain gardens, pollinator gardens, drought tolerant plantings, heritage and perennial vegetables, native plants, drip irrigation and energy efficient landscape designs.



# Arboriculture

Arboriculture is the cultivation, management, and study of individual trees, shrubs, vines, and other perennial woody plants. More than 80% of people in the United States live in areas filled with trees, and planting trees in all settings is increasing. As this trend continues, arborists and urban foresters strive to preserve trees in urban and suburban areas. In this program, students learn how arborists and urban foresters ensure healthy populations of trees to provide sustained benefits to people, including the removal and replacement of hazardous trees. Students are prepared for the following certifications: Massachusetts Pesticide License, ISA-Certified Tree Climbing Professional, and ISA Aerial Lift Professional.

Course Number	Name	Credit	Grade Level
ar101	Arboriculture Exploratory	1.0	Grade 9
ar103	Exploratory/Arboriculture	10.0	Grade 9
ar200	Arboriculture 10	20.0	Grade 10
ar300	Arboriculture 11	20.0	Grade 11
ar305	Arboriculture Cooperative Education 11	12.0	Grade 11
ht301	Horticulture Theory 11	4.0	Grade 11
pap301	CTE Pathway: Agricultural Sciences	4.0	Grade 11
ar400	Arboriculture 12	20.0	Grade 12
ar405	Arboriculture Cooperative Education 12	24.0	Grade 12
ht401	Horticulture Theory 12	4.0	Grade 12
pap401	CTE Pathway: Agricultural Management	4.0	Grade 12

# Environmental Technology

(Concluding with the Class of 2022)

The Environmental Technology program is an inquiry-based, project-oriented curriculum developing student skills in collecting and analyzing environmental data. Our field-based program immerses students into the full range of New England environments, including mountains, forests, ponds, streams, coastal shorelines, and the ocean. Our overall goal for each student is to develop a well-rounded portfolio, or “tool box”, of technical skills necessary for successful employment in the competitive environmental science field or for further education.

Course Number	Name	Credit	Grade Level
et101#	Environmental Technology Exploratory	1.0	Grade 9
et103#	Exploratory/Environmental Technology	4.0	Grade 9
et201#	Forest Ecology	8.0	Grade 10
et202#	Fisheries/Aquaculture	8.0	Grade 10
et301##	Environmental Impacts	8.0	Grade 11
et302##	Coastal Marine Ecology	8.0	Grade 11
et305##	Environmental Technology Cooperative Education 11	10.0	Grade 11
es301##	Environmental Science Theory 11	4.0	Grade 11
et401	Wetlands and Wastewater	6.0	Grade 12
et402	Hazmat & LEED	8.0	Grade 12
et403	Research Methods	6.0	Grade 12
es401	Environmental Science Theory 12	4.0	Grade 12
et405	Environmental Technology Cooperative Education 12	24.0	Grade 12
pap401	CTE Pathway: Agricultural Management	4.0	Grade 12

#Discontinued SY 20-21; ##Discontinued SY 21-22

# Landscaping & Turf Management

The Landscape & Turf Management program teaches the necessary skills in the design, maintenance, and management aspects of landscaping and the broad range of turf management, from sports turf installation and maintenance through commercial property landscaping and management. Students learn to plan for and deal with climate and moisture, how to design landscape and hardscape effects for various conditions and settings, such as urban, suburban or rural, and how to accommodate climate and weather. Landscape/Turf management takes a broad approach to providing students with a wide range of experiences that will allow them to choose a focus for careers or for further education.

Course Number	Name	Credit	Grade Level
ls101	Landscaping & Turf Mgt Exploratory	1.0	Grade 9
ls103	Exploratory/Landscaping & Turf Management	10.0	Grade 9
ls200	Landscape Design 10	16.0	Grade 10
ls201	Landscape Theory 10	4.0	Grade 10
ls300	Landscape Design 11	20.0	Grade 11
ht301	Horticulture Theory 11	4.0	Grade 11
ls305	Landscape Cooperative Education 11	12.0	Grade 11
pap301	CTE Pathway: Agricultural Sciences	4.0	Grade 11
ls400	Landscape Design 12	20.0	Grade 12
ht401	Horticulture Theory 12	4.0	Grade 12
ls405	Landscape Cooperative Education 12	24.0	Grade 12
pap401	CTE Pathway: Agricultural Management	4.0	Grade 12



# Natural & Environmental Sciences

(Commencing with the Class of 2023)

The Natural & Environmental Sciences program uses inquiry-based projects to develop student skills in observation, assessment, analysis, and management of our most vital resources; water, soil, forests, and wildlife. Our field-based program immerses students into the full range of New England environments, including mountains, forests, ponds, streams, and coastal shorelines. Our goal for each student is to equip them with the necessary skills, knowledge, and experience that will give them an edge in the expansive field of natural resources, environmental science, and civil engineering.

Course Number	Name	Credit	Grade Level
nes101	Natural & Environmental Sciences Exploratory	1.0	Grade 9
nes103	Exploratory/Natural & Environmental Sciences	10.0	Grade 9
nes201	Forest & Wildlife Ecology (SY 21-22)	12.0	Grade 10
nes202	Fisheries Technology (SY 21-22)	8.0	Grade 10
nes301	Resource Management & Climate Science	12.0	Grade 11
nes302	Marine Ecology	8.0	Grade 11
es301	Environmental Science Theory 11	4.0	Grade 11
nes305	Natural & Environmental Sciences Cooperative Education 11	10.0	Grade 11
pap301	CTE Pathway: Agricultural Sciences	4.0	Grade 11
nes401	Wetlands and Wastewater	6.0	Grade 12
nes402	Hazmat	8.0	Grade 12
nes403	Research Methods	6.0	Grade 12
es401	Environmental Science Theory 12	4.0	Grade 12
pap401	CTE Pathway: Agricultural Management	4.0	Grade 12

# Natural Resource Management

(Concluding with the Class of 2022)

The Natural Resource Management program uses inquiry-based projects to develop student skills in observation, assessment, analysis, and management of our most vital resources; water, soil, forests, and wildlife. Our field-based program immerses students into the full range of New England environments, including mountains, forests, ponds, streams, and coastal shorelines. Our goal for each student is to equip them with the necessary skills, knowledge, and experience that will give them an edge in the expansive field of natural resources, environmental science, and civil engineering.

Course Number	Name	Credit	Grade Level
nr101#	Natural Resource Management Exploratory	1.0	Grade 9
nr103#	Exploratory/Natural Resource Management	10.0	Grade 9
nr201#	Hydrology 10	8.0	Grade 10
nr202#	Forestry and Silviculture	8.0	Grade 10
nr301##	Hydrology/Soils/Surveying	8.0	Grade 11
nr302##	Wildlife/Parks Interpretation	8.0	Grade 11
nr305##	Natural Resource Management Cooperative Education 11	10.0	Grade 11
nr401	Wetlands/Management	12.0	Grade 12
nr402	Sustainability	8.0	Grade 12
es401	Environmental Science Theory 12	4.0	Grade 12
nr405	Natural Resource Management Cooperative Education 12	24.0	Grade 12
pap401	CTE Pathway: Agricultural Management	4.0	Grade 12

Articulated Credit Agreement with [Unity College](#)

#Discontinued SY 20-21; ##Discontinued SY 21-22

## Sustainable Horticulture

Students in Sustainable Horticulture enjoy working with plants and flowers. In our labs and greenhouses, students will learn how to create marketable floral designs for a variety of occasions, maintain interior plants in a variety of settings and also learn how to grow a variety of crops, including seasonal foliage and flowering plants, tropical plants and bedding plants. In this hands-on major, students are provided with real-world work experiences for careers in the floral industry where a broad understanding of floriculture and botany are important. Students can expect to find jobs in the greenhouse industry, within interior landscape firms, as well as in floral shops.

Course Number	Name	Credit	Grade Level
sh101	Sustainable Horticulture Exploratory	1.0	Grade 9
sh103	Exploratory/Sustainable Horticulture 9	10.0	Grade 9
sh200	Sustainable Horticulture 10	20.0	Grade 10
sh300	Sustainable Horticulture Technology	20.0	Grade 11
sh305	Sustainable Horticulture Cooperative Education 11	12.0	Grade 11
ht301	Horticulture Theory 11	4.0	Grade 11
pap301	CTE Pathway: Agricultural Sciences	4.0	Grade 11
sh400	Advanced Concepts in Sustainable Horticulture	20.0	Grade 12
ht401	Horticulture Theory 12	4.0	Grade 12
sh405	Sustainable Horticulture Cooperative Education 12	24.0	Grade 12
pap401	CTE Pathway: Agricultural Management	4.0	Grade 12

Articulated Credit Agreement with [Unity College](#)

# CONSTRUCTION CLUSTER

**Carpentry, Construction Craft Laborers,  
Electricity, HVAC/R, Masonry, Plumbing**



## CTE PATHWAY COURSES

CTE Pathway courses are cluster-based courses scheduled during the academic cycle to meet the needs of Strands 1, 3, 4, 5, 6 of the *Vocational Technical Education Frameworks* under Chapter 74 Regulations (CMR 603).

STEM for Construction - Grade 11 Pathway

Course # pcn301

Credits: 2

This introductory semester-long course will use science, technology, and mathematics to understand real-world applications of production processes used in construction systems. The focus will be on the engineering design process, applying mathematics, science, and engineering standards to hands-on construction projects. Classwork will require students to work both individually and in teams to design solutions to a variety of problems using software and an engineering notebook to document their work.

Understanding Specifications and Blueprints - Grade 11 Pathway

Course # pcn302

Credits: 2

This semester-long course is designed to develop student understanding of the role that blueprints and written specifications play in the development, adjustments, and completion of real-world projects. Students will explore design decisions made as drawings proceed from schematic sketches to blueprints documents where

writing defines both the scope of work and acts as a set of instructions. Topics will include interpreting scales, lines, symbols, elevations, sections, and details of a blueprint drawing, along with the quality criteria for materials, specified project standards, installation and construction methods.

#### Construction Management - Grade 12 Pathway

Course # pcn401

Credits: 2

This semester-long course is designed to introduce students to managing all phases of construction management. Major units will include understanding industry codes, calculating materials and equipment, using blueprints, identifying safety procedures, and estimating project costs. Using real-world projects, students will learn the fundamentals to manage the construction process from footing and foundation, concrete flatwork, framing, plumbing, electrical, HVAC/R, finish carpentry, sheetrock and plaster, roofing, window and door installation, hardwood and tile flooring, painting, and hardware. Students will work together on teams and be responsible for the overall planning, coordination, and control of a project from inception to completion.

#### Renewable Energy in Construction - Grade 12 Pathway

Course # pcn402

Credits: 2

This semester-long course explores the reasons for the significant growth in the renewable energy and green building industry in the past 20 years. Topics will include the principles behind the broad spectrum of renewable energy technologies, a systems perspective to analyze energy technologies, technical challenges for each renewable source, and the economic and sustainability issues involved in the integration of renewable energy systems. Students will review case studies of award-winning green building projects to deepen their understanding of renewable energy through every stage of the construction or upgrading process.

## CTE THEORY COURSES

CTE Theory courses are program specific courses scheduled during the academic cycle to strengthen the concepts defined in Strands 2 of the *Vocational Technical Education Frameworks* under Chapter 74 Regulations (CMR 603).

### CARPENTRY

Carpentry Theory 11

Course # cp301

Credits: 4

This classroom-based theory course is designed to introduce students to up-to-date information on building materials and techniques. Detailed coverage of all aspects of light framing construction, including site lay-out, foundation forming, sheathing, roofing, windows and doors, exterior finish, interior walls, floor and ceiling. Special emphasis is placed on the use of modern tools, materials and prefabricated components.

Carpentry Theory 12

Course # cp401

Credits: 4

This classroom-based theory course is designed to strengthen student understanding of advanced framing techniques, exterior and interior trim along with local, state, and international residential codes. Finally, students will learn about the stretch code part of Strand 1 Part 2K.01 for energy efficient systems related to the carpentry frameworks.

## **CONSTRUCTION CRAFT LABORERS**

### Masonry & Construction Theory 11

Course # mc301

Credits: 4

This classroom-based theory course examines the principles and theory of concrete block construction, block types, modular planning, estimating, installation of windows, doors and lintels, bonding, chimneys, concrete construction, planning, mixing, pouring, finishing, curing, testing, jointing and reinforcing. Operation of various hand and power equipment and estimating masonry materials will also be covered.

### Masonry & Construction Theory 12

Course # mc401

Credits: 4

This classroom-based theory course will help students learn technical theory, blueprint reading, project estimating, and the use of appropriate hand and power equipment. Topics will include concrete flatwork, footings, brick, block and stone walls along with project maintenance, repair, and computer estimating. Students will study in theory situations from outside projects in the community.

## **ELECTRICITY**

### Electricity Theory 11

Course # e1301

Credits: 4

This classroom-based theory course formalizes concepts introduced in grade 10 by associating them with the National Electrical Code. Specific practices include sizing wires for various circuits, sizing raceways and conduits to protect wiring, sizing electrical fittings, boxes, enclosures, and selecting the proper materials to complete various projects. Emphasis is placed on navigating the National Electrical Code and applying the correct sections. This course partially satisfies the theory requirement for hours necessary to sit for Journeyman Examination and is consistent with Massachusetts Board of Examiners of Electricians and DESE rules and regulations. (237 CMR 13.00 Eligibility for initial licensure criteria).

### Electricity Theory 12

Course # e1401

Credits: 4

This classroom-based theory course continues the formalized concepts introduced in grade 11 and expands those concepts by adding National Electrical Code based calculations for various individual circuits, building equipment, and entire dwelling units. Specific practices include calculating circuit requirements for appliances, general lighting, receptacle outlets, motors, and entire building services. Emphasis is placed on navigating the National Electrical Code and applying the correct sections. This course partially satisfies the theory requirement for hours necessary to sit for Journeyman Examination and is consistent with Massachusetts Board of Examiners of Electricians and DESE rules and regulations. (237 CMR 13.00 Eligibility for initial licensure criteria)

## **HEATING, VENTILATION, AIR CONDITIONING & REFRIGERATION**

### HVAC/R Theory 11

Course # hv301

Credits: 4

This classroom-based theory course is designed to provide students with experience using refrigerants, refrigeration and system components. In addition to shop and workplace safety, students will review electrical circuits, symbols, and controls. Students will review for the EPA Section 608 test and learn employability skills to prepare them for cooperative education opportunities.

HVAC/R Theory 12

Course # hv401

Credits: 4

This classroom-based theory course is designed to provide students with a deeper understanding of furnace and air conditioning installation and troubleshooting, including split-central, multi-zone hydronic systems, and refrigeration systems: ice machines, walk-in refrigerated coolers and freezers. Students will study the proper maintenance procedures for refrigeration systems, including walk-in refrigerators and freezers. Students will also practice job estimating and business practices relevant to HVAC careers.

## **MASONRY**

Masonry & Construction Theory 11

Course # mc301

Credits: 4

This classroom-based theory course examines the principles and theory of concrete block construction, block types, modular planning, estimating, installation of windows, doors and lintels, bonding, chimneys, concrete construction, planning, mixing, pouring, finishing, curing, testing, jointing and reinforcing. Operation of various hand and power equipment and estimating masonry materials will also be covered.

Masonry & Construction Theory 12

Course # mc401

Credits: 4

This classroom-based theory course will help students learn technical theory, blueprint reading, project estimating, and the use of appropriate hand and power equipment. Topics will include concrete flatwork, footings, brick, block and stone walls along with project maintenance, repair, and computer estimating. Students will study in theory situations from outside projects in the community.

## **PLUMBING**

Plumbing 11 Theory

Course # pl301

Credits: 4

This classroom-based theory course will introduce students to the Massachusetts State Plumbing and Fuel Gas Code. Plumbing codes will be reinforced throughout the year in order to prepare for Tier 2, as set by the Massachusetts State Plumbing Board. Students must be able to identify vents, drains and water pipes, as well as construction symbols associated with related trades. The student will learn to recognize by sight the different types of fittings, hangers and pipes and will be introduced to related Mathematics and Physics.

Plumbing Theory 12

Course # pl401

Credits: 4

This classroom-based theory course will deepen student understanding of the Massachusetts State Plumbing and Fuel Gas Code through applied mathematics, physics, and plumbing theory. Students will also learn the installation, operation, and maintenance of hydronic heating systems, blueprint reading, and how to estimate

and propose plumbing projects. Theory hours will count toward students needing 330 classroom instruction hours toward their Journeyman Plumbing License.

## Carpentry

Carpentry is one of the oldest and most respected professions. In this program, students begin with small woodworking projects to learn how to use basic tools and gain experience, as well as learning different concepts of building. Students learn measuring, cutting, fastening, and hand/power tool use. All students will be certified in the 10-Hour OSHA CareerSafe program. Licenses that may be obtained through the Carpentry program include: Hilti and Ramset Powder Actuated Tool Licenses, ICC Certification for Residential Building Codes, and One-Year Creditable Service towards the Construction Supervisor License (CSL) work requirements.

Course Number	Name	Credit	Grade Level
cp101	Carpentry Exploratory	1.0	Grade 9
cp103	Exploratory/Carpentry	10.0	Grade 9
cp200	House Carpentry 10	16.0	Grade 10
cp201	Carpentry 10 Theory	4.0	Grade 10
cp300	House Carpentry 11	20.0	Grade 11
cp301	Carpentry 11 Theory	4.0	Grade 11
cp305	Carpentry Cooperative Education 11	12.0	Grade 11
pcn301	CTE Pathway: STEM for Construction	2.0	Grade 11
pcn302	CTE Pathway: Understanding Specifications & Blueprints	2.0	Grade 11
cp400	House Carpentry 12	20.0	Grade 12
cp401	Carpentry 12 Theory	4.0	Grade 12
cp405	Carpentry Cooperative Education 12	24.0	Grade 12
pcn401	CTE Pathway: Construction Management	2.0	Grade 12
pcn402	CTE Pathway: Renewable Energy in Construction	2.0	Grade 12

Statewide articulation agreement available for [Carpentry](#)



## Construction Craft Laborers

The construction industry is one of the most diverse and rewarding industries in the world. The program prepares students for meaningful employment in a variety of areas. The major types of construction are grouped into the following categories:

1. Building-construction and reconstruction of residential and commercial buildings.
2. Highway, Utilities and Land Development-construction and reconstruction of the following: major and minor highways, subdivisions, bridges, dams, tunnels and airfields, underground utilities (telephone & electric), piping systems (petroleum, water, sewer, natural gas and collection systems).
3. Environmental-remediation and activities associated with the following; asbestos abatement, decontamination and demolition of nuclear facilities, hazard waste removal, lead abatement, permit-required confined spaces, erosion control

Course Number	Name	Credit	Grade Level
ccl101	Construction Craft Laborers Exploratory	1.0	Grade 9
ccl103	Exploratory/Construction Craft Laborers	10.0	Grade 9
ccl200	Construction Craft Laborers 10	16.0	Grade 10
ccl201	Construction Craft Laborers 10 Theory	4.0	Grade 10
ccl300	Construction Craft Laborers 11	20.0	Grade 11
mc301	Masonry & Construction Theory 11	4.0	Grade 11
ccl305	Construction Craft Laborers Cooperative Education 11	12.0	Grade 11
pcn301	CTE Pathway: STEM for Construction	2.0	Grade 11
pcn302	CTE Pathway: Understanding Specifications & Blueprints	2.0	Grade 11
ccl400	Construction Craft Laborers 12	20.0	Grade 12
mc401	Masonry & Construction Theory 12	4.0	Grade 12
ccl405	Construction Craft Laborers Cooperative Education 12	24.0	Grade 12
pcn401	CTE Pathway: Construction Management	2.0	Grade 12
pcn402	CTE Pathway: Renewable Energy in Construction	2.0	Grade 12

# Electricity

The Electricity Program prepares students for meaningful employment in the fields of electrical contracting, design, or engineering. Achieving proficiency in Electricity requires a systematic progression beginning with apprenticeship during high school (Co-op) or upon graduation. Students are placed with local electrical contractors based on their specific skill sets and applicability to contractor business models. Prior to internships or co-op work, the students are prepared with a comprehensive curriculum based on Massachusetts frameworks and National Standards.

Course Number	Name	Credit	Grade Level
el101	Electricity Exploratory	1.0	Grade 9
el103	Exploratory/Electricity	10.0	Grade 9
el200	Electricity 10	16.0	Grade 10
el201	Electricity 10 Theory	4.0	Grade 10
el300	Electricity 11	20.0	Grade 11
el301	Electricity Theory 11	4.0	Grade 11
el305	Electricity Cooperative Education 11	12.0	Grade 11
pcn301	CTE Pathway: STEM for Construction	2.0	Grade 11
pcn302	CTE Pathway: Understanding Specifications & Blueprints	2.0	Grade 11
el400	Electricity 12	20.0	Grade 12
el401	Electricity Theory 12	4.0	Grade 12
el405	Electricity Cooperative Education 12	24.0	Grade 12
pcn401	CTE Pathway: Construction Management	2.0	Grade 12
pcn402	CTE Pathway: Renewable Energy in Construction	2.0	Grade 12

Graduates earn up to 300 of the 600 required hours of classroom time and up to 1500 of the 8000 hours of the required on-the-job training time toward their electrical apprenticeship.

## Heating, Ventilation, Air Conditioning & Refrigeration

Students in the Heating, Ventilation, Air Conditioning & Refrigeration (HVAC/R) Program learn to troubleshoot issues, install, and repair a broad range of heating and cooling systems, including window and central air conditioning, refrigeration systems, and various heating systems. All HVAC/R students receive the OSHA 10-Hour CareerSafe certification and are taught how to adhere to safety guidelines in the HVAC/R industry. Students study different heating systems, for example, gas, oil, and electrical. Experience troubleshooting oil- and gas-fired burners for heating systems extends students' experience. The curriculum includes significant experience with electricity, because electrical controls are involved. Students are prepared for the EPA 608 certification exam.

Course Number	Name	Credit	Grade Level
hv101	HVAC/R Exploratory	1.0	Grade 9
hv103	Exploratory/HVAC & Refrigeration 9	10.0	Grade 9
hv200	HVAC/R 10	16.0	Grade 10
hv201	HVAC/R 10 Theory	4.0	Grade 10
hv300	HVAC/R 11	20.0	Grade 11
hv301	HVAC/R 11 Theory	4.0	Grade 11
hv305	HVAC/R Cooperative Education 11	12.0	Grade 11
pcn301	CTE Pathway: STEM for Construction	2.0	Grade 11
pcn302	CTE Pathway: Understanding Specifications & Blueprints	2.0	Grade 11
hv400	HVAC/R 12	20.0	Grade 12
hv401	HVAC/R Theory 12	4.0	Grade 12
hv405	HVAC/R Cooperative Education 12	24.0	Grade 12
pcn401	CTE Pathway: Construction Management	2.0	Grade 12
pcn402	CTE Pathway: Renewable Energy in Construction	2.0	Grade 12

Students enrolled in HVAC/R can earn up to 361 Theory hours and up to 1152 shop hours towards their refrigeration technician license.

## Masonry & Tile Setting

Throughout the Masonry and Tile Setting program students learn the fundamentals of masonry for construction and landscaping. Included is the art of laying brick, block, glass block, and stone, along with pouring concrete and tile setting. Through a series of projects, students will have hands-on experience constructing segmented retaining walls and installing concrete pavers, building chimneys, designing and installing brick and stone facing, decorative stone and concrete, as well as various floors and walks using stone, slate, brick, tile or pavers. Working with the Massachusetts Building Codes, reading blueprints, creating proposals and working on team projects both in our labs and off-campus provide students with hands-on masonry experience.

Course Number	Name	Credit	Grade Level
ms101	Mason and Tile Setting Exploratory	1.0	Grade 9
ms103	Exploratory/Mason and Tile Setting 9	10.0	Grade 9
ms200	Mason and Tile Setting 10	16.0	Grade 10
ms201	Mason and Tile Setting 10 Theory	4.0	Grade 10
ms300	Masonry and Tile Setting 11	20.0	Grade 11
mc301	Masonry & Construction Theory 11	4.0	Grade 11
ms305	Mason and Tile Setting Cooperative Education 11	12.0	Grade 11
pcn301	CTE Pathway: STEM for Construction	2.0	Grade 11
pcn302	CTE Pathway: Understanding Specifications & Blueprints	2.0	Grade 11
ms400	Mason and Tile Setting 12	20.0	Grade 12
mc401	Masonry & Construction Theory 12	4.0	Grade 12
ms405	Mason and Tile Setting Cooperative Education 12	24.0	Grade 12
pcn401	CTE Pathway: Construction Management	2.0	Grade 12
pcn402	CTE Pathway: Renewable Energy in Construction	2.0	Grade 12

# Plumbing

Plumbing is a licensed trade that requires not only specific technical knowledge and skill, but also a thorough understanding of the Massachusetts State Plumbing and Fuel Gas Code as well as a general understanding of the construction trades. Graduates will be working across the building and construction industry and, therefore, need to understand the relationship of plumbing to the wider arena of construction trades such as electrical, carpentry, masonry and HVAC. Students learn water supply and distribution, sanitary waste and venting, natural gas supply and distribution, pipe fitting, as well as fixture and appliance installation. Students learn the installation, operation and maintenance of hydronic heating systems, how to read blueprints, and how to estimate and propose plumbing projects.

Course Number	Name	Credit	Grade Level
pl101	Plumbing Exploratory	1.0	Grade 9
pl103	Exploratory/Plumbing	10.0	Grade 9
pl200	Plumbing 10	16.0	Grade 10
pl201	Plumbing 10 Theory	4.0	Grade 10
pl300	Plumbing 11	20.0	Grade 11
pl301	Plumbing 11 Theory	4.0	Grade 11
pl305	Plumbing Cooperative Education 11	12.0	Grade 11
pcn301	CTE Pathway: STEM for Construction	2.0	Grade 11
pcn302	CTE Pathway: Understanding Specifications & Blueprints	2.0	Grade 11
pl400	Plumbing 12	20.0	Grade 12
pl401	Plumbing 12 Theory	4.0	Grade 12
pl405	Plumbing Cooperative Education 12	24.0	Grade 12
pcn401	CTE Pathway: Construction Management	2.0	Grade 12
pcn402	CTE Pathway: Renewable Energy in Construction	2.0	Grade 12

Plumbing students can earn up to 330 total Theory hours (Tiers 1, 2, and 3) and 1700 workshop hours toward their plumbing apprenticeship.

# HEALTH SCIENCES CLUSTER

## Biotechnology, Dental Assisting & Health Assisting



### CTE PATHWAY COURSES

CTE Pathway courses are cluster-based courses scheduled during the academic cycle to meet the needs of Strands 1, 3, 4, 5, 6 of the *Vocational Technical Education Frameworks* under Chapter 74 Regulations (CMR 603).

Communication for Health Professionals - Grade 11 Pathway

Course # phs301

Credits: 2

This semester-long course will focus on how effective communication skills have a direct impact on the health professional's office image, patient satisfaction, and professional relationships. Units of study will include communication principles; interpersonal communication; voice quality and speaking style; communication clarity; and linguistics and visual strategies. Students will deliver presentations in order to improve their confidence and competence when explaining health-related information to individuals and audiences.

Medical Forensics - Grade 11 Pathway

Course # phs302

Credits: 2

This semester-long course will focus on the role of medical forensics in the health sciences. Students will explore the ability to identify, analyze, and process logically using deductive reasoning and problem solving. Topics will include laboratory skills and safety, microscopy, toxicology, measurement, physical evidence identification, and pathology. Students will develop skills through practice collecting and categorizing crime scene biomedical evidence, conducting scientific analysis of evidence, working with various scientific reports relevant to an investigation, and sharing their findings through documentation.

Data Analytics in Health Sciences - Grade 12 Pathway

Course # phs401

Credits: 2

This full-year course is designed to provide students with experience using statistical analysis to formulate and test hypotheses related to health sciences. Students will begin with basic analyses and how to phrase testable hypotheses using examples from medical research and work through public health data sets as they occur in the real world. Objectives of this course are to: describe a data set from scratch using descriptive statistics and graphical methods, apply appropriate methods to formula and examine statistical associations between variables within a data set, and to interpret the analysis and appraise the role of chance and bias in findings.

## CTE THEORY COURSES

CTE Theory courses are program-specific courses scheduled during the academic cycle to strengthen the concepts defined in Strands 2 of the *Vocational Technical Education Frameworks* under Chapter 74 Regulations (CMR 603).

### BIOTECHNOLOGY

DNA, RNA, and Proteins

Course # bt301

Credits: 4

This classroom-based theory course will use models and graphics to help students understand explanations of: how genetic information is stored in DNA, how DNA is replicated, and how genetic information from DNA is used to create new proteins. Students will learn about the use and development of primers to study genes and to test for the presence of mutations. DNA sequencing methods will also be explored.

Computer Programming

Course # bt401

Credits: 4

This classroom-based theory course will introduce students to the basics of computer programming, a skill useful in the field of Biotechnology for data analysis and modeling. Students will learn to create computer programs in Python, a popular language in both industry and academia, and one that is easily transferable to other languages. Students will create their own programs to solve complex problems, or to speed up tedious processes. An emphasis will be placed on creating programs for modeling biological systems, or analyzing data gathered in the Biotechnology program.

### DENTAL ASSISTING

Dental Assisting Theory 11

Course # da301

Credits: 4

This classroom-based theory course is designed to introduce students to all phases of dental assisting. Major units will include preparing patients for dental care, setting up dental charts for review, and providing assistance to the dentist. This course surveys dental terminology as well as discusses dental diseases and pathology. There will be a strong emphasis on learning advanced chairside dental assisting techniques including but not limited to amalgam, composite, and crown and bridge procedures. Students will be trained to expose intraoral and extraoral radiographs while learning the theory behind safety in Radiology. Students will also handle and mount dental radiographs as well as learn various anatomical landmarks on dental radiographs.

Anatomy & Physiology Theory 12 [Dental Assisting Theory 12]

Course # 3450

Credits: 4

This lab-based theory course is designed to give students an in-depth understanding of human anatomy and physiology which will expand upon in far greater detail the basic topics covered in Biology I and II. Students will gain knowledge through inquiry-based research projects as well as intensive dissections.

## **HEALTH ASSISTING**

Anatomy & Physiology [Health Assisting Theory 11]

Course # 3330

Credits: 4

This lab-based theory course is designed to give students an in-depth understanding of human anatomy and physiology which will expand upon in far greater detail the basic topics covered in Biology I and II. Students will gain knowledge through inquiry-based research projects as well as intensive dissections.

Health Assisting Theory 12

Course # ha401

Credits: 4

This classroom-based theory course will focus on the aging process. Emphasis is placed on anatomy & physiology and the physical changes associated with health problems which require professional care. Other topics include communication skills, ethics, and problem solving methods.



## Biotechnology

Biotechnology is the science of using living organisms, their products, or their component parts, for human benefit along with using technical applications that turn biological knowledge into products. Biotechnology is an interdisciplinary field that merges biology, chemistry, mathematics, computer science and engineering. It is also one of the fastest growing commercial industries, with Massachusetts being a major center for growth and innovation. This program provides students with an introduction to biotechnology and offers hands-on experience with the equipment, instrumentation, and techniques frequently used in the field.

Course Number	Name	Credit	Grade Level
bt101	Biotechnology Exploratory	1.0	Grade 9
bt103	Exploratory/Biotechnology 9	10.0	Grade 9
bt200	Biotechnology 10	20.0	Grade 10
bt300	Biotechnology 11	20.0	Grade 11
bt301	DNA, RNA, and Proteins	4.0	Grade 11
bt305	Biotechnology Cooperative Education 11	12.0	Grade 11
phs301	CTE Pathway: Communication for Health Professionals	2.0	Grade 11
phs302	CTE Pathway: Medical Forensics	2.0	Grade 11
bt400	Biotechnology 12	20.0	Grade 12
bt401	Computer Programming	4.0	Grade 12
bt405	Biotechnology Cooperative Education 12	24.0	Grade 12
phs401	CTE Pathway: Data Analysis in Health Sciences	4.0	Grade 12

## Dental Assisting

Dental Assisting provides a comprehensive education in the field. Each student is given the opportunity to learn dental procedures through academic and practical instruction. Students receive clinical experience at Tufts University School of Dental Medicine as well as in our state-of-the-art dental clinic. Upon successful completion of a rigorous three-year curriculum, students will be prepared for the certification examinations required for licensing by the Dental Assisting National Board. Students at Essex North Shore Agricultural & Technical School will be prepared to sit for the Infection Control Examination (ICE), the Radiology Health and Safety (RHS) examinations, and the Anatomy, Morphology and Physiology (AMP) examination, leading to NELDA certification through the Dental Assistant National Board (DANB). Students complete Healthcare Provider CPR and First Aid as juniors.

Course Number	Name	Credit	Grade Level
da101	Dental Assisting Exploratory	1.0	Grade 9
da103	Exploratory/Dental Assisting	10.0	Grade 9
da200	Dental Assisting 10	20.0	Grade 10
da300	Dental Assisting 11	20.0	Grade 11
da301	Dental Assisting Theory 11	4.0	Grade 11
phs301	CTE Pathway: Communication for Health Professionals	2.0	Grade 11
phs302	CTE Pathway: Medical Forensics	2.0	Grade 11
da305	Dental Assisting Cooperative Education 11	12.0	Grade 11
da400	Dental Assisting 12	20.0	Grade 12
3450	Anatomy & Physiology Theory 12	4.0	Grade 12
da405	Dental Assisting Cooperative Education 12	24.0	Grade 12
phs401	CTE Pathway: Data Analysis in Health Sciences	4.0	Grade 12

## Health Assisting

The Health Assisting program trains students to become certified nursing assistants with advanced skill training in electrocardiology and phlebotomy. This program is also an excellent foundation for nursing, physical therapy, athletic training or other health-related fields requiring college degrees. In this program, students will have the opportunity to become certified in both ECG and phlebotomy through the National Healthcare Association. Medical terminology is taught throughout the senior year, and students can receive three credits at North Shore Community College upon completion with a B grade or higher for this class. Students become certified in both CPR-Healthcare Provider and First Aid.

Course Number	Name	Credit	Grade Level
ha101	Health Assisting Exploratory	1.0	Grade 9
ha103	Exploratory/Health Assisting	10.0	Grade 9
ha200	Health Assisting 10	20.0	Grade 10
ha300	Health Assisting 11	20.0	Grade 11
3330	Anatomy & Physiology	4.0	Grade 11
ha305	Health Assisting Cooperative Education 11	12.0	Grade 11
phs301	CTE Pathway: Communication for Health Professionals	2.0	Grade 11
phs302	CTE Pathway: Medical Forensics	2.0	Grade 11
ha400	Health Assisting 12	20.0	Grade 12
ha401	Health Assisting Theory 12	4.0	Grade 12
ha405	Health Assisting Cooperative Education 12	24.0	Grade 12
phs401	CTE Pathway: Data Analysis in Health Sciences	4.0	Grade 12

Articulated Credit Agreement with [North Shore Community College](#)  
 Statewide Articulation agreement is available for [Health Assisting](#).

# MANUFACTURING, ENGINEERING & TECHNOLOGY CLUSTER

**Advanced Manufacturing, Design & Media Communications,  
Design & Visual Communications,  
Engineering & Automation Technology,  
Graphic Communications, Information Technology Services**



## CTE PATHWAY COURSES

CTE Pathway courses are cluster-based courses scheduled during the academic cycle to meet the needs of Strands 1, 3, 4, 5, 6 of the *Vocational Technical Education Frameworks* under Chapter 74 Regulations (CMR 603).

Communication and Career Essentials - Grade 11 Pathway

Course # pmet301

Credits: 2

This semester-long course examines effective communication techniques in the fields of manufacturing, engineering, and information technology. Students will be introduced to the core principles central to the study and practice of communication: community engagement; communication literacy, workplace interaction, and

communication and culture. Communication techniques will be practiced that emphasize choice and organization of material, sound reasoning, audience analysis, and delivery.

#### Professional Financial Literacy - Grade 11 Pathway

Course # pmet302

Credits: 2

This semester-long course is designed to help students use their knowledge and skills to manage their financial resources effectively using professional financial strategies. Major units will include developing a financial plan, capital budgeting, managing payroll, increasing productivity and profits, and employer liability. A case-study approach will allow students to apply financial concepts in workplace scenarios related to CTE program areas and have them make informed decisions related to professional finance.

#### Civic Humanitarianism - Grade 12 Pathway

Course # pmet401

Credits: 2

This semester-long course is designed to help students develop positive work habits through connections between civic responsibility informed by humanitarian ethics. Topics will include what professionalism is and why it is important; positive workplace habits, the role of teamwork, assuming positive intent, and professional collaboration. Students will study workplace models of humanitarian initiatives and develop a plan for civic engagement related to their particular CTE area.

#### Professional Portfolio Presentation - Grade 12 Pathway

Course # pmet402

Credits: 2

This semester-long course will help students to create a portfolio that represents their professional identity that will culminate in a presentation. Students will build their professional portfolios using career and professional artifacts. Topics will include the critical components of a professional portfolio; the use of a portfolio in professional activities such as job searches, networking, and interviews; techniques for personalizing a portfolio so that it draws attention; and ways to create an online professional presence. The culminating activity will involve a portfolio presentation and engagement in constructive class feedback to help students form a supportive professional learning community each sharing a similar goal.

## CTE THEORY COURSES

CTE Theory courses are program-specific courses scheduled during the academic cycle to strengthen the concepts defined in Strands 2 of the *Vocational Technical Education Frameworks* under Chapter 74 Regulations (CMR 603).

### ADVANCED MANUFACTURING

Advanced Manufacturing Theory 11

Course # am301

Credits: 4

This classroom-based theory course introduces students to thread cutting, types of files and saws and the use of milling machines and milling cutters, along with a study of ferrous and non-ferrous metals. Students will explore metal manufacturing blueprint reading and sketching. Students will also learn advanced programming techniques as they write computer numerical controls (CNC) programs for the CNC lathe and machining center using G&M codes.

## Advanced Manufacturing Theory 12

Course # am401

Credits: 4

This classroom-based theory course is intended to teach students the underlying theories that accompany the Advanced Manufacturing program. There is an emphasis on computer-aided design and computer-aided manufacturing, machining calculations, cutting theory, additive manufacturing, job planning workflow, geometric dimensioning and tolerancing, as well as cost analysis.

## **DESIGN & MEDIA COMMUNICATIONS/DESIGN & VISUAL COMMUNICATIONS**

Design & Media Communication Theory 11

Course # dm301

Credits: 4

This classroom-based theory course will help students design a web page based on their portfolio of work including computer graphics, illustrations, and printing projects. Students will practice interview skills and will focus on their employability skills. Students will also research job opportunities in their chosen area of Design and Media Communication.

Design & Media Communication Theory 12 (for GC and DVC Grade 12 SY 21-22)

Course # dm401

Credits: 4

This classroom-based theory course will help students learn by designing a media communications project and create their own animation. Students will also learn videography by writing scripts and plans for a video project. Students will focus throughout on team-building skills and will continue to work on employability skills as part of career preparation.

## **ENGINEERING & AUTOMATION TECHNOLOGY**

Engineering Theory 11

Course # eng301

Credits: 4

This classroom-based theory course will explore electronic circuits that are used to process and control digital signals. The focus of the course is to expose students to the process of combinational and sequential logic design, teamwork, communication methods, engineering and technical standards and documentation. Students will apply digital concepts to control systems and through programmable logic boards and robotic automation.

Engineering Theory 12

Course # eng401

Credits: 4

This classroom-based theory course will explore engineering design by creating computer-aided drawings (CAD) using AutoCAD and SolidWorks, and acquiring programming language skills. Students will also study the theory behind basic machine principles and programming related to the operation of the CNC mill and lathe.

## **INFORMATION TECHNOLOGY SERVICES**

Applied Computer Science: Data Collection and Analysis

Course # its301

Credits: 4

This classroom-based theory course is an extension of the programming knowledge students learn as part of their IT curriculum. Students take their understanding of programming in Python, and use it to dive deeper into applications involving data collection and analysis. The primary programming skills covered include how to write and read from files in Python and the matplotlib python library as a tool for data analysis and graphing.

Students will also learn about microcontrollers, specifically Raspberry Pis, and use these to build sensors to collect a variety of data to be analyzed. Students will learn the basics of electronics and circuitry design to accomplish this goal.

### Applied Computer Science: Robotics

Course # its407

Credits: 4

This classroom-based theory course will focus on deepening students' understanding of computer programming. Students will learn about more advanced programming skills such as object oriented programming, threading, file input/output, and computer vision techniques. They will also learn about electronics, including basic components and circuit design. All of this knowledge will be put together to design, build, and program a self driving car over the course of the class.

## Advanced Manufacturing

Advanced Manufacturing provides training and work experience across the broad spectrum of manufacturing equipment. Students learn how to manufacture metal parts using lathes, milling machines, drilling machines, and grinders. Students learn to design components on Computer Aided Design (CAD) software and build components of complex machinery including engines and tooling systems, to make robotics parts, and other projects that require precision design, manufacturing and assembly using principles of engineering.

Course Number	Name	Credit	Grade Level
am101	Advanced Manufacturing Exploratory	1.0	Grade 9
am103	Exploratory/Advanced Manufacturing	10.0	Grade 9
am200	Advanced Manufacturing 10	16.0	Grade 10
am201	Advanced Manufacturing 10 Theory	4.0	Grade 10
am300	Advanced Manufacturing 11	20.0	Grade 11
am301	Advanced Manufacturing 11 Theory	4.0	Grade 11
am305	Advanced Manufacturing Cooperative Education 11	12.0	Grade 11
pmet301	CTE Pathway: Communication & Career Essentials	2.0	Grade 11
pmet302	CTE Pathway: Professional Financial Literacy	2.0	Grade 11
am400	Advanced Manufacturing 12	20.0	Grade 12
am401	Advanced Manufacturing 12 Theory	4.0	Grade 12
am405	Advanced Manufacturing Cooperative Education 12	24.0	Grade 12
pmet401	CTE Pathway: Civic Humanitarianism	2.0	Grade 12
pmet402	CTE Pathway: Professional Portfolio Presentation	2.0	Grade 12

Articulated Credit Agreement with [Central Maine Community College](#)  
 Statewide articulation agreement in place for [Advanced Manufacturing](#)



# Design & Media Communications

(Commencing with the Class 2023)

In Design & Media Communications, artistic and technical skills are developed through the creation and presentation of graphic and multimedia projects. Students will become versed in principles of design such as color theory, composition, and illustration. They will learn the basics of page layout and design, typography, digital photography, video production, storyboarding, web design and communication with a client. They learn to take an idea from concept to preflight and understand the principles of prepress and outsourcing, as well as the practical aspects of the printing processes, silk screening, and various bindery equipment. Students design and produce communication products using the latest Adobe Creative Cloud software and Macintosh computer hardware, outputting files to a wide format printer, digital copier, vinyl cutter or silk screen. Integral to the program is a student-run design and copy center that trains students in customer service and business-related procedures.

Course Number	Name	Credit	Grade Level
dm101	Design & Media Comm Exploratory	1.0	Grade 9
dm103	Exploratory/Design & Media Communications	10.0	Grade 9
dm200	Design & Media Communications 10	16.0	Grade 10
dm201	Design & Media Communications 10 Theory	4.0	Grade 10
dm300	Design & Media Communications 11	20.0	Grade 11
dm301	Design & Media Communications 11 Theory	4.0	Grade 11
dm305	Design & Media Communications Cooperative Education 11	12.0	Grade 11
pmet301	CTE Pathway: Communication & Career Essentials	2.0	Grade 11
pmet302	CTE Pathway: Professional Financial Literacy	2.0	Grade 11
dm400	Design & Media Communications 12	20.0	Grade 12
dm401	Design & Media Communications 11 Theory	4.0	Grade 12
dm405	Design & Media Communications Cooperative Education 12	24.0	Grade 12
pmet401	CTE Pathway: Civic Humanitarianism	2.0	Grade 12
pmet402	CTE Pathway: Professional Portfolio Presentation	2.0	Grade 12

Statewide articulation agreement is available for [DVC](#).

# Design & Visual Communications

(Concluding with the Class of 2022)

The Design & Visual Communications program provides training to students in all aspects of digital and visual communications. Students will become versed in the principles of design such as color theory, composition, and illustration and gain the ability to take an idea from concept through the design process, to preflight and understand the principles of prepress and outsourcing. They will learn the basics of page layout and design, typography, digital photography and manipulation, storyboarding, web design as well as communication with a client.

Course Number	Name	Credit	Grade Level
<i>dv101#</i>	<i>Design &amp; Visual Communications Exploratory</i>	<i>1.0</i>	<i>Grade 9</i>
<i>dv103#</i>	<i>Exploratory/Design &amp; Visual Communications</i>	<i>4.0</i>	<i>Grade 9</i>
<i>dv200#</i>	Design & Visual Communications 10	<i>12.0</i>	<i>Grade 10</i>
<i>dv201#</i>	Design & Visual Communications 10 Theory	<i>4.0</i>	<i>Grade 10</i>
<i>dv300##</i>	Design & Visual Communications 11	<i>12.0</i>	<i>Grade 11</i>
<i>dv301##</i>	Design & Visual 11 Communications Theory	<i>4.0</i>	<i>Grade 11</i>
<i>dv305##</i>	Design & Visual Communications Cooperative Education 11	<i>10.0</i>	<i>Grade 11</i>
dv400	Design & Visual Communications 12	20.0	Grade 12
dm401	Design & Media Communications 11 Theory	4.0	Grade 12
dv405	Design & Visual Communications Cooperative Education 12	24.0	Grade 12
pmet401	CTE Pathway: Civic Humanitarianism	2.0	Grade 12
pmet402	CTE Pathway: Professional Portfolio Presentation	2.0	Grade 12

Statewide articulation agreement is available for DVC.

# Discontinued SY 20-21; ##Discontinued SY 21-22

## Engineering & Automation Technology

Engineering Technology & Automation Technology is a new Chapter 74 Career and Technical program (Fall 2018) for students who are interested in understanding the design processes and applying them with real-world experiences in robotics, CNC machining, and CAD. Students in this program will learn skills related to electrical, mechanical, and manufacturing engineering, including the components and process of a system, technical writing, blueprint reading and design, and project management. Students will develop a working knowledge of electrical engineering principles and the use of 3D modeling, laser and plasma cutting, precision metal, and basic welding methods.

Course Number	Name	Credit	Grade Level
eng101	Engineering Exploratory	1.0	Grade 9
eng103	Exploratory/Engineering Technology	10.0	Grade 9
eng200	Engineering Technology 10	16.0	Grade 10
eng201	Engineering Technology Theory 10	4.0	Grade 10
eng300	Engineering Technology 11	20.0	Grade 11
eng301	Engineering Technology Theory 11	4.0	Grade 11
en305	Engineering Technology Cooperative Education 11	12.0	Grade 11
pmet301	CTE Pathway: Communication & Career Essentials	2.0	Grade 11
pmet302	CTE Pathway: Professional Financial Literacy	2.0	Grade 11
eng400	Engineering Technology 12	20.0	Grade 12
eng401	Engineering Technology Theory 12	4.0	Grade 12
eng405	Engineering Technology Cooperative Education 12	24.0	Grade 12
pmet401	CTE Pathway: Civic Humanitarianism	2.0	Grade 12
pmet402	CTE Pathway: Professional Portfolio Presentation	2.0	Grade 12

Statewide articulation agreement is available for Engineering and Automation Technology.

# Graphic Communications

(Concluding with the Class of 2022)

Graphic Communications is a course of study that prepares students for employment opportunities in visual communications. We prepare students for traditional publishing methods and publishing with digital media. Students design and produce communications products using the latest Adobe Creative Suite (CS) design software and Macintosh computer hardware. Integral to the program is a student-run copy center that trains students in customer service and business related procedures.

Course Number	Name	Credit	Grade Level
gc101#	Graphic Communications Exploratory	1.0	Grade 9
gc103#	Exploratory/Graphic Communications	10.0	Grade 9
gc200#	Graphic Communications 10	12.0	Grade 10
gc201#	Graphic Communications 10 Theory	4.0	Grade 10
gc300##	Graphic Communications 11	12.0	Grade 11
gc301##	Graphic Communications 11 Theory	4.0	Grade 11
gc305##	Graphic Communications Cooperative Education 11	10.0	Grade 11
gc400	Graphic Communications 12	20.0	Grade 12
dm401	Design & Media Communications 11 Theory	4.0	Grade 12
gc405	Graphic Communications Cooperative Education 12	24.0	Grade 12
pmet401	CTE Pathway: Civic Humanitarianism	2.0	Grade 12
pmet402	CTE Pathway: Professional Portfolio Presentation	2.0	Grade 12

#Discontinued SY 20-21; ##Discontinued SY 21-22

## Information Technology Services

As both a Cisco and CompTIA Academy, our Information Technology Services program (ITS) prepares students for CompTIA A+, CompTIA Network+, Cisco CCENT, and Microsoft Certifications. In the course of the program, students actively learn the fundamentals of computer and networking technologies to meet the demands of the dynamic industry of Information and Communications Technology (ICT). Introduction to coding (programming) and web design are integral to the curriculum, as are opportunities for students to work at the Essex North Shore Agricultural & Technical School Help Desk, which is responsible for maintaining, upgrading, and repairing the school's computers and printers on our Local Area Network (LAN). The Help Desk also provides technical support for the 1:1 i-Pad initiative, which provides iPads to all students, teachers and administrative staff and integrates a wide range of interactive digital media throughout the school.

Course Number	Name	Credit	Grade Level
its101	Information Tech Services Exploratory	1.0	Grade 9
its103	Exploratory/Information Technology Services	10.0	Grade 9
its200	IT Essentials	16.0	Grade 10
its201	Information Science Theory	4.0	Grade 10
its300	Introduction to Networks and Cyber Security	20.0	Grade 11
its301	Applied Computer Science: Data Collection and Analysis	4.0	Grade 11
its305	ITS Cooperative Education 11	12.0	Grade 11
pmet301	CTE Pathway: Communication & Career Essentials	2.0	Grade 11
pmet302	CTE Pathway: Professional Financial Literacy	2.0	Grade 11
its400	Routing and Switching Essentials	16.0	Grade 12
its401	Linux Essentials	4.0	Grade 12
its407	Applied Computer Science: Robotics	4.0	Grade 12
its405	ITS Cooperative Education 12	24.0	Grade 12
pmet401	CTE Pathway: Civic Humanitarianism	2.0	Grade 12
pmet402	CTE Pathway: Professional Portfolio Presentation	2.0	Grade 12

Statewide articulation agreement in place for [Information Technology Services](#)

# SERVICES CLUSTER

**Automotive Technology, Automotive Collision Repair & Refinishing,  
Cosmetology, Culinary Arts & Hospitality**



## CTE PATHWAY COURSES

CTE Pathway courses are cluster-based courses scheduled during the academic cycle to meet the needs of Strands 1, 3, 4, 5, 6 of the *Vocational Technical Education Frameworks* under Chapter 74 Regulations (CMR 603).

Services Leadership I - Grade 11 Pathway

Course # pcs301

Credits: 4

This full-year, introductory business course provides students with an overview and understanding of core leadership themes that are necessary for students in the various Services Cluster CTE areas of Automotive Collision Repair & Refinishing, Automotive Technology, Cosmetology, Culinary Arts & Hospitality, and Design & Media Communications. Quarterly topics will include Business Ethics Through the Lens of

Diversity, Equity, and Inclusion; Business Etiquette; Leadership Skills and Styles; and, Collaboration and Creative Problem Solving. Students will learn through a balanced approach of theory and application with attention to the knowledge and skills necessary for success in any service-related profession.

#### Services Leadership II - Grade 12 Pathway

Course # pcs401

Credits: 4

This full-year course explores trends in corporate social responsibility and the impact on employees and customers. The core vision that inspires a good corporate citizen is that of being guided by strong moral and ethical standards in interactions with customers, shareholders, and employees. Key topics will examine responsible business practices; environmental impact of business operations; and carefully balancing the company needs with those of the community. Students will work collaboratively to develop a capstone project involving a community impact event that encompasses all their pathway learning and culminates in a school-wide community service project.

## CTE THEORY COURSES

CTE Theory courses are program-specific courses scheduled during the academic cycle to strengthen the concepts defined in Strands 2 of the *Vocational Technical Education Frameworks* under Chapter 74 Regulations (CMR 603).

### **AUTOMOTIVE TECHNOLOGY**

Automotive Technology Theory 11

Course # at301

Credits: 4

This classroom-based theory course will provide students with a theoretical overview of steering and suspension systems. Topics include linkage steering, rack-and-pinion steering, power assist steering, steering column service, suspension design, Macpherson Struts, coil springs, leaf springs, torsion bars, air and electronic control suspensions, bearing and spindle service, tires, wheels, and vehicle alignment. Students will also explore the function of electronic systems: electrical test equipment, battery, starters and charging systems, electronic and body accessories systems, and computer systems.

Automotive Technology Theory 12

Course # at401

Credits: 4

This classroom-based theory course provides students with systems overview of the diagnosis and repair of engine performance and control systems. Systems topics explored include ignition, fuel delivery, emissions, computer control, heating, ventilation, and air conditioning, including refrigerants, compressor service, air distribution, climate control and environmental regulations.

### **AUTOMOTIVE COLLISION REPAIR & REFINISHING**

Automotive Collision & Repair Theory 11

Course # cr301

Credits: 4

This classroom-based theory course helps students understand the science and related theory behind automotive collision specific safety practices, I-car training, fasteners, measuring procedures, hand tools, power tools, analyzing structural damage, and cutting and welding.

## Automotive Collision & Repair Theory 12

Course # cr401

Credits: 4

This classroom-based theory course helps students understand the science and related theory behind refinishing procedures, refinishing equipment and refinishing materials. Students will also learn the key differences between solvent based paints as well as waterborne paints.

## **COSMETOLOGY**

Cosmetology Theory 11

Course # co301

Credits: 4

This classroom-based theory course is intended to help students develop the ability to analyze cosmetology by demonstrating an understanding of disinfectants, skin care, hair color, nail care, artificial hair enhancements, and professional styling products. Students will continue to use online software with tests, reviews and comprehensive reports of their progress to prepare for the licensing exam.

Cosmetology Theory 12

Course # co401

Credits: 4

This classroom-based theory course helps students continue to explore all topics related to Cosmetology from advanced styling, hair coloring, chemical texture services, anatomy, histology, job interviews and salon management. This will allow students when they have completed the mandatory hours to take the required State Board Examination to qualify for their Cosmetology license.

## **CULINARY ARTS & HOSPITALITY**

Culinary Arts Theory 11

Course # cu301

Credits: 4

This classroom-based theory course offers students an opportunity to explore cooking methods, food-type identification, and baking fundamentals. Students will also be trained in ServSafe, a nationally recognized program, so that students can obtain a five-year certificate in sanitation that is accepted everywhere in the country. Food safety topics include purchasing, receiving, and storing food properly to help students understand the day-to-day importance of food safety.

Culinary Arts Theory 12

Course # cu401

Credits: 4

This classroom-based theory course offers students an opportunity to deepen their understanding of entrepreneurship. Students will do so by creating a business plan to run a food service business with marketing concepts, recipe cost analysis, and a floor plan design. Students will also learn more about the science of baking and nutrition and the ingredients used in baking can be substituted to meet dietary restrictions.



## **Automotive Collision Repair & Refinishing**

Automotive Collision Repair & Refinishing has a curriculum based on Massachusetts *Vocational Technical Educational Frameworks* and hands-on experience working on a wide range of vehicles. Using the latest technology in damage assessment, materials, and electronics, students learn techniques to repair vehicles with collision or cosmetic damage. Students gain experience in all areas, including welding, metal straightening, frame repair, refinishing, plastic repair, computerized paint-mixing, mechanical system repairs, electrical repairs, and damage estimating for insurance requirements.

Course Number	Name	Credit	Grade Level
cr101	Auto Collision & Repair Exploratory	1.0	Grade 9
cr103	Exploratory/Auto Collision & Repair	10.0	Grade 9
cr200	Automotive Collision, Repair & Refinishing 10	16.0	Grade 10
cr201	Auto Collision & Repair 10 Theory	4.0	Grade 10
cr300	Automotive Collision, Repair & Refinishing 11	20.0	Grade 11
cr301	Auto Collision & Repair 11 Theory	4.0	Grade 11
cr305	Auto Collision & Repair Cooperative Education 11	12.0	Grade 11
pcs301	CTE Pathway: Services Leadership I	4.0	Grade 11
cr400	Automotive Collision, Repair & Refinishing 12	20.0	Grade 12
cr401	Auto Collision & Repair 11 Theory	4.0	Grade 12
cr405	Auto Collision & Repair Cooperative Education 12	24.0	Grade 12
pcs401	CTE Pathway: Services Leadership II	4.0	Grade 12

# Automotive Technology

Automotive Technology provides students with comprehensive training and hands-on experience working with automobiles that are complex systems, and which combine computer technology and integrated systems that include gasoline, hybrid and battery-powered engines, electronic braking systems and automated support systems for drivers. Students in the Automotive Technology program learn to diagnose automotive system problems, to repair them, and to handle general maintenance on automobiles of all kinds. The program focuses on the latest techniques and diagnostic procedures used in the industry. Students work on vehicles donated by automobile manufacturers and private citizens, as well as on automobiles needing repairs from customers within the community.

Course Number	Name	Credit	Grade Level
at101	Auto Tech Exploratory	1.0	Grade 9
at103	Exploratory/Automotive Technology	10.0	Grade 9
at200	Automotive Technology 10	16.0	Grade 10
at201	Automotive Technology Theory 10	4.0	Grade 10
at300	Automotive Technology 11	20.0	Grade 11
at301	Automotive Technology Theory 11	4.0	Grade 11
at305	Automotive Technology Cooperative Education 11	12.0	Grade 11
pcs301	CTE Pathway: Services Leadership I	4.0	Grade 11
at400	Automotive Technology 12	20.0	Grade 12
at401	Automotive Technology Theory 12	4.0	Grade 12
at405	Automotive Technology Cooperative Education 12	24.0	Grade 12
pcs401	CTE Pathway: Services Leadership II	4.0	Grade 12

Statewide articulation agreement in place for Automotive Technology

## Cosmetology

Students in Cosmetology will develop the creative and technical skills required to be successful in the field which encompasses a broad range of services and customer-focused products. Students will learn how to perform all aspects of the program including hair, skin, nail care and personal responsibility, as well as the professional work ethic needed to secure employment in the industry. Hours spent learning and practicing these skills are eligible to be recorded with the state (towards a Massachusetts Cosmetology Operator’s License requirements) once a student turns 16 years of age. Upon the completion of 1000 theory and practical hours, each student will have the opportunity to take the State Board Licensing Exam and receive an operator’s license to become a contributing professional in the industry. Each graduate of the Cosmetology program has the opportunity to receive a high school diploma, a certificate of completion, and be able to sit for the State Board License Exam.

Course Number	Name	Credit	Grade Level
co101	Cosmetology Exploratory	1.0	Grade 9
co103	Exploratory/Cosmetology	10.0	Grade 9
co200	Cosmetology 10	16.0	Grade 10
co201	Cosmetology 10 Theory	4.0	Grade 10
co300	Cosmetology 11	20.0	Grade 11
co301	Cosmetology Theory 11	4.0	Grade 11
co305	Cosmetology Cooperative Education 11	12.0	Grade 11
pcs301	CTE Pathway: Services Leadership I	4.0	Grade 11
co400	Cosmetology 12	20.0	Grade 12
co401	Cosmetology Theory 12	4.0	Grade 12
co405	Cosmetology Cooperative Education 12	24.0	Grade 12
pcs401	CTE Pathway: Services Leadership II	4.0	Grade 12

## Culinary Arts & Hospitality

The Culinary Arts Professional Certification Program provides students with experience in the foodservice, culinary arts, and baking industries. This program simulates a live working laboratory (i.e., restaurant, commercial bake shop, professional table service and front-of-the-house management, banquet and catering services). Students become knowledgeable and proficient with industry standards, safety, and quality workmanship. Students follow Core Curriculum based on the State of Massachusetts *Vocational Technical Educational Frameworks*.

Course Number	Name	Credit	Grade Level
cu101	Culinary Arts Exploratory	1.0	Grade 9
cu103	Exploratory/Culinary Arts	10.0	Grade 9
cu202	Baking & Pastry Arts 10	5.0	Grade 10
cu203	Culinary Production 10	5.0	Grade 10
cu204	Culinary Service Line 10	5.0	Grade 10
cu206	Hospitality 10	5.0	Grade 10
cu302	Baking & Pastry Arts 11	5.0	Grade 11
cu303	Culinary Production 11	5.0	Grade 11
cu304	Culinary Service Line 11	5.0	Grade 11
cu306	Hospitality 11	5.0	Grade 11
cu305	Culinary Arts Cooperative Education 11	12.0	Grade 11
cu301	Culinary Arts 11 Theory	4.0	Grade 11
pcs301	CTE Pathway: Services Leadership I	4.0	Grade 11
cu402	Baking & Pastry Arts 12	5.0	Grade 12
cu403	Culinary Production 12	5.0	Grade 12
cu404	Culinary Service Line 12	5.0	Grade 12
cu406	Hospitality 12	5.0	Grade 12
cu405	Culinary Arts Cooperative Education 12	24.0	Grade 12
cu401	Culinary Arts 12 Theory	4.0	Grade 12
pcs401	CTE Pathway: Services Leadership II	4.0	Grade 12

Articulated Credit Agreement with [Culinary Institute of America](#)

Articulated Credit Agreement with [Johnson & Wales University](#)

Articulated Credit Agreement with [New England Culinary Institute](#)

Articulated Credit Agreement with [North Shore Community College](#)

Statewide articulation agreement is available for [Culinary Arts](#).

# Partnership / After Dark Programs

## **Advanced Manufacturing, Automotive Technology, Automotive Collision Repair & Refinishing Construction Craft Laborer, Design & Media Communications, Electricity, Plumbing, Sustainable Horticulture**

Chapter 74 Partnership "After Dark" designation allows school districts offering Chapter 74 vocational technical education programs to partner with other school districts to provide Chapter 74 VTE opportunities.

Key Program Features include:

- Partnership between traditional high schools and schools with established C74 programs and facilities
- Altered schedule for participating students
  - Core academics at local high school
  - 900+ total hours of C74 instruction at technical school
- Alignment with regional economic and workforce development priorities or other evidenced labor market demand
- Upon successful completion of the ENSATS Partnership Program, students may receive nine articulated college credits towards an Associate's Degree in a related career pathway.

Adapted from: <https://www.doe.mass.edu/ccte/cvte/afterdark/>

## Advanced Manufacturing

Advanced Manufacturing provides training and work experience across the broad spectrum of manufacturing equipment. Students learn how to manufacture metal parts using lathes, milling machines, drilling machines, and grinders. Students learn to design components on Computer Aided Design (CAD) software and build components of complex machinery including engines and tooling systems, to make robotics parts, and other projects that require precision design, manufacturing and assembly using principles of engineering.

Course Number	Name	Credit	Grade Level
Pam300	Advanced Manufacturing 11	24.0	Grade 11
Pam400	Advanced Manufacturing 12	24.0	Grade 12
Pam405	Advanced Manufacturing Cooperative Education 12	12.0	Grade 12

## Automotive Collision Repair & Refinishing

Automotive Collision Repair & Refinishing has a curriculum based on Massachusetts *Vocational Technical Educational Frameworks* and hands-on experience working on a wide range of vehicles. Using the latest technology in damage assessment, materials, and electronics, students learn techniques to repair vehicles with collision or cosmetic damage. Students gain experience in all areas, including welding, metal straightening, frame repair, refinishing, plastic repair, computerized paint-mixing, mechanical system repairs, electrical repairs, and damage estimating for insurance requirements.

Course Number	Name	Credit	Grade Level
Pcr300	Automotive Collision, Repair & Refinishing 11	24.0	Grade 11
Pcr400	Automotive Collision, Repair & Refinishing 12	24.0	Grade 12
Pcr405	Auto Collision & Repair Cooperative Education 12	12.0	Grade 12

# Automotive Technology

Automotive Technology provides students with comprehensive training and hands-on experience working with automobiles that are complex systems, and which combine computer technology and integrated systems that include gasoline, hybrid and battery-powered engines, electronic braking systems and automated support systems for drivers. Students in the Automotive Technology program learn to diagnose automotive system problems, to repair them, and to handle general maintenance on automobiles of all kinds. The program focuses on the latest techniques and diagnostic procedures used in the industry. Students work on vehicles donated by automobile manufacturers and private citizens, as well as on automobiles needing repairs from customers within the community.

Course Number	Name	Credit	Grade Level
Pat300	Automotive Technology 11	24.0	Grade 11
Pat400	Automotive Technology 12	24.0	Grade 12
Pat405	Automotive Technology Cooperative Education	12.0	Grade 12

Statewide articulation agreement in place.

# Construction Craft Laborers

The construction industry is one of the most diverse and rewarding industries in the world. The program prepares students for meaningful employment in a variety of areas. The major types of construction are grouped into the following categories:

1. Building-construction and reconstruction of residential and commercial buildings.
2. Highway, Utilities and Land Development-construction and reconstruction of the following: major and minor highways, subdivisions, bridges, dams, tunnels and airfields, underground utilities (telephone & electric), piping systems (petroleum, water, sewer, natural gas and collection systems).
3. Environmental-remediation and activities associated with the following; asbestos abatement, decontamination and demolition of nuclear facilities, hazard waste removal, lead abatement, permit-required confined spaces, erosion control

Course Number	Name	Credit	Grade Level
Pccl300	Construction Craft Laborers 11	24.0	Grade 11
Pccl400	Construction Craft Laborers 12	24.0	Grade 12
Pccl405	Construction Craft Laborers Cooperative Education 12	12.0	Grade 12





## Design & Media Communications

(After Dark~Partnership for DMC is concluding with the Class of 2022)

In Design & Media Communications, artistic and technical skills are developed through the creation and presentation of graphic and multimedia projects. Students will become versed in principles of design such as color theory, composition, and illustration. They will learn the basics of page layout and design, typography, digital photography, video production, storyboarding, web design and communication with a client. They learn to take an idea from concept to preflight and understand the principles of prepress and outsourcing, as well as the practical aspects of the printing processes, silk screening, and various bindery equipment. Students design and produce communication products using the latest Adobe Creative Cloud software and Macintosh computer hardware, outputting files to a wide format printer, digital copier, vinyl cutter or silk screen. Integral to the program is a student-run design and copy center that trains students in customer service and business-related procedures.

Course Number	Name	Credit	Grade Level
Pdm300	Design & Media Communications 11	24.0	Grade 11
Pdm400	Design & Media Communications 12	24.0	Grade 12
Pdm405	Design & Media Communications Cooperative Education 12	11.0	Grade 12

Statewide articulation agreement in place.

## Electricity

The Electricity Program prepares students for meaningful employment in the fields of electrical contracting, design, or engineering. Achieving proficiency in Electricity requires a systematic progression beginning with apprenticeship during high school (Co-op) or upon graduation. Students are placed with local electrical contractors based on their specific skill sets and applicability to contractor business models. Prior to internships or co-op work, the students are prepared with a comprehensive curriculum based on Massachusetts frameworks and National Standards.

Course Number	Name	Credit	Grade Level
Pel300	Electricity 11	24.0	Grade 11
Pel400	Electricity 12	24.0	Grade 12
Pel405	Electricity Cooperative Education 12	12.0	Grade 12

Graduates earn up to 300 of the 600 required hours of classroom time and up to 1500 of the 8000 hours of the required on-the-job training time toward their electrical apprenticeship.

# Plumbing

Plumbing is a licensed trade that requires not only specific technical knowledge and skill, but also a thorough understanding of the Massachusetts State Plumbing and Fuel Gas Code as well as a general understanding of the construction trades. Graduates will be working across the building and construction industry and, therefore, need to understand the relationship of plumbing to the wider arena of construction trades such as electrical, carpentry, masonry and HVAC. Students learn water supply and distribution, sanitary waste and venting, natural gas supply and distribution, pipe fitting, as well as fixture and appliance installation. Students learn the installation, operation and maintenance of hydronic heating systems, how to read blueprints, and how to estimate and propose plumbing projects.

Course Number	Name	Credit	Grade Level
Ppl300	Plumbing 11	24.0	Grade 11
Ppl400	Plumbing 12	24.0	Grade 12
Ppl405	Plumbing Cooperative Education 12	12.0	Grade 12

Plumbing students can earn up to 330 total Theory hours (Tiers 1, 2, and 3) and 1700 workshop hours toward their plumbing apprenticeship.

# Sustainable Horticulture

Students in Sustainable Horticulture enjoy working with plants and flowers. In our labs and greenhouses, students will learn how to create marketable floral designs for a variety of occasions, maintain interior plants in a variety of settings and also learn how to grow a variety of crops, including seasonal foliage and flowering plants, tropical plants and bedding plants. In this hands-on major, students are provided with real-world work experiences for careers in the floral industry where a broad understanding of floriculture and botany are important. Students can expect to find jobs in the greenhouse industry, within interior landscape firms, as well as in floral shops.

Course Number	Name	Credit	Grade Level
Psh300	Sustainable Horticulture Technology	24.0	Grade 11
Psh404	Advanced Concepts in Sustainable Horticulture	24.0	Grade 12
Psh405	Sustainable Horticulture Cooperative Education 12	12.0	Grade 12

Statewide articulation agreement in place.

Articulated Credit Agreement with [Unity College](#)

## EARLY COLLEGE AFTER DARK~PARTNERSHIP with NSCC

“Early college programs are designed to blend elements of high school and college to provide students with the opportunity to experience and complete college level academic coursework on a clearly articulated pathway and simultaneously gain exposure to a variety of career opportunities. Early college programs also reduce the time and expense of earning a college credential while increasing the likelihood of completion (Source: <https://www.doe.mass.edu/ccte/early-college/>).”

ENSATS has partnered with North Shore Community College (NSCC) to offer Early College courses to students enrolled in our After Dark~Partnership Program. Successful completion of Early College Partnership courses will result in students earning both high school credit and NSCC college credit. Early College course enrollment is free to eligible students.

### EARLY COLLEGE AFTER DARK~ CTE PARTNERSHIP COURSE OFFERINGS\*

	SUMMER	FALL	SPRING
Grade 11		<i>Speech</i> SP 102	<i>Composition 101</i> CMP 101
Grade 12 <i>(Anticipated SY 22-23)</i>	<i>Precalculus 1</i> MAT 151	<i>Macroeconomics</i> EC 103	<i>Pre-Calculus 2</i> MAT 152

\*Early College course offerings are subject to change and subject to available funding.

## GRADE 9 CTE PATHWAY FOUNDATION COURSES

### Presentation Skills - Grade 9

Course #: ps007

Level: CP

Credits: 4

This semester-long Pathway course is designed to prepare freshmen to become better public speakers through learning new techniques and practices. Students will learn concepts and models of communication, how to adapt a presentation for different occasions and audiences, how to support your ideas effectively, how to select and organize materials in preparation for a presentation, and how to utilize multimedia tools in presentations, among other skills. Students will learn techniques and tips for delivering an effective PowerPoint presentation, how to present themselves in a job interview, and how to give a speech on a particular topic. This course is relevant in academic, trade, business, and social settings. This is a semester-long course.

### Technology Skills - Grade 9

Course #: ps008

Level: CP

Credits: 4

This semester-long Pathway course is to prepare freshmen to have engaging and empowering learning experiences that prepare them to be active, creative, knowledgeable, and ethical participants in our globally-connected society. Guided by the ISTE (International Society for Technology in Education), students will learn the following standards: Empowered Learner, Digital Citizen, Knowledge Constructor, Innovative Designer, Computational Thinker, Creative Communicator, and Global Collaborator. Students will also be introduced to appropriate communication through Social Media, accessibility tools and features, and research tools and skills.

## GRADE 10 CTE PATHWAY FOUNDATION COURSES

### United States Government & Politics - Grade 10

Course #: 4210

Level: CP

Credits: 2

This required Pathway course is designed to provide tenth-grade students with knowledge of the purpose, structure, and operation of the national and state governmental systems. Based on the *History, Social Science, and Civics Education: Implementation Updates (2020-2021)*, the primary focus will be on the Federal system and its underlying principles as they are related to national, state, and local levels. This course will be a thought-provoking exploration taught through the lens of current events and political issues. Topics will include: the Constitution, civil rights, interest groups, politics, voting, Congress, the Presidency, the Judiciary, laws, public policies, state and local government. This is a semester course and is paired with Financial Literacy, both designed to help students become responsible citizens in a representative republic (Course #: 2250).

### Financial Literacy - Grade 10

Course #: 2250

Level: CP

Credits: 2

This required Pathways course is essential in meeting the financial challenges of the 21st century, with understanding and managing personal finances the key to one's future financial success. Based on the *Massachusetts Mathematics Curriculum Framework (2017)* learning standards, this course teaches students to apply the knowledge and skills to various financial situations they will encounter later in life to make critical

decisions regarding personal finances. Students will learn money management, savings and investing, income, and spending strategies. This course will teach students to identify and prioritize their personal money management goals, develop personal spending, savings, and investing plans, tax implications and understand the cost of using credit along with asset protection. This is a semester class and is paired with United States Government & Politics (Course #: 4210).

## **OTHER CTE COURSES**

### Career Enrichment 10

Course #: ce201

Credits: 2

This course examines professional workplace behavior while focusing on the important steps necessary for preparing to enter the workplace. Students work individually and in small groups to learn about jobs vs. careers, the job search process, interview skills, effective workplace communication, resume and cover letter writing, as well as developing a professional work ethic. This is a semester class.

### Career Enrichment 11

Course #: ce301

Credits: 2

This course continues to examine professional workplace skills necessary to be successful in today's complex and dynamic job market. Students work individually and in small groups to explore important workplace qualities such as dependability, consistency, and responsibility, the decision-making process, teamwork, professionalism, while revisiting the job search process, refining and customizing resume and cover letter writing, and strategies to use during the interview process.

### Career Enrichment 12

Course #: ce401

Credits: 2

This course completes the three-year Career Enrichment sequence in order to transition students well to enter the workplace beyond high school. Students learn how to conduct online job searches, apply for senior awards and scholarships, discuss important financial literacy skills, explore professionalism in the workplace, and finalize senior portfolios.



ESSEX NORTH SHORE  
AGRICULTURAL & TECHNICAL SCHOOL

# ACADEMIC COURSE OFFERINGS



Massachusetts Department of  
ELEMENTARY & SECONDARY  
EDUCATION



**KALEIDOSCOPE**  
COLLECTIVE FOR LEARNING



NEW ENGLAND ASSOCIATION  
OF SCHOOLS AND COLLEGES

# ENGLISH CORE COURSES

## English Grade 9

Course #: 1102, 1101, 1100

Level: Honors, ACP, CP

Credits: 4

This course begins the four-year English Language Arts curriculum aligned with *The Massachusetts Curriculum Framework for English Language Arts and Literacy*. Students experience a broad range of literature, including non-fiction informational texts, fiction, drama, and poetry with an emphasis on critical thinking and analysis. Each unit is anchored by a text that allows students to learn critical reading and various writing modes to establish a foundation for success in all subsequent years. Students will be expected to participate in class discussion, respond to daily, in-class writing-to-learn activities, and deliver frequent oral presentations. MCAS close reading sets and test taking strategies are embedded into the curriculum and students will complete a series of common formative and summative assessments throughout the year.

## English Grade 10

Course #: 1202, 1201, 1200

Level: Honors, ACP, CP

Credits: 4

This course deepens students focus on acquiring the reasoning and analytical skills associated with literature and rhetoric, and the course will continue to focus on helping students make connections between literary and thematic elements and text-based support established in freshman year. Anchor and linking texts span long and short fiction, drama, and nonfiction. Synthesis of multiple texts will be integral to the curriculum, and students will complete classroom activities along with formative and summative assessments requiring synthesis throughout the year. Students will complete a series of common formative and summative assessments throughout the year.

## English Grade 11

Course #: 1302, 1301, 1300

Level: Honors, ACP, CP

Credits: 4

This course examines American literature through fiction, nonfiction, poetry and drama from multiple perspectives. Students will analyze texts through stylistic, social, economic, historical, and critical lenses. The emphasis of this course is evaluating the relationship between form and content in a literary work, and then analyzing how both the author's intent and reader's perspective illuminate the meaning of the text. Students will produce short narratives, dramatic scenes, oral presentations, and analytical essays.

## Advanced Placement in English Language and Composition - Grade 11

Course #: 1303

Level: AP

Credits: 4

In the A.P. English Language and Composition course—the rhetoric course—students learn how to analyze, synthesize, and evaluate nonfiction texts, including essays, biographies and autobiographies, speeches, sermons, and passages from writings in the arts, history, social science, politics, science, and other areas of study. Students learn to evaluate and construct arguments drawn from articles in newspapers, magazines, and online “zines” and “blogs.” The course cannot help but be interdisciplinary, immersing students in a variety of sources. Students are expected to take the College Board A.P. English Language and Composition Exam in May. College credit may be applied with a score of three or higher on the College Board exam.

## English Grade 12

Course #: 1402, 1401, 1400

Level: Honors, ACP, CP

Credits: 4

This course focuses on a variety of literary and informational texts that include the Western cultural philosophies of nihilism, modernism, idealism, existentialism, and magical realism, including rigorous practice in research, informational writing, and personal narrative. Students will identify critical lenses, recognize multiple themes, analyze in concrete and abstract perspectives, and evaluate multiple interpretations from secondary sources. Students will draw evidence from literary or informational texts to support their analysis, reflection, and research. Essays and discussions will relate the work to its historical circumstances, trace a symbol through a work or works, or consider a moral or philosophical question. The major works and ideas of Western literature will be addressed.

## Advanced Placement English Literature and Composition - Grade 12

Course #: 1403

Level: AP

Credits: 4

In the A.P. English Literature and Composition course, students engage in becoming skilled readers of prose and poetry written in a variety of rhetorical contexts, and in becoming skilled writers who compose for a variety of purposes. Through critical analysis and focused writing, students learn the interactions among a writer's purposes, audience expectations, and subjects, as well as the way genre conventions and the resources of language contribute to effectiveness in writing. The course follows A.P. curricular guidelines and prepares students for the A.P. test, given in the spring. Students should expect challenging college-level content and a workload requiring nightly preparation and independent study. The accelerated pace of A.P. coursework is designed to parallel an introductory college semester course. Students are expected to take the College Board A.P. English Literature and Composition Exam in May. College credit may be applied with a score of three or higher on the College Board exam.

# HISTORY CORE COURSES

## World History - Grade 9

Course #: 4102, 4101, 4100

Level: Honors, ACP, CP

Credits: 4

This course examines the major changes that shaped the modern world, beginning with the Middle Ages through the eve of World War I. Major units include the Renaissance, the Age of Exploration, the Reformation and Counter-Reformation, Scientific Revolution and the Enlightenment, the Age of Absolutism, the French Revolution, the early Industrial Revolution, and Imperialism. The emphasis will be on the skills students need to become discerning historical thinkers: understanding geography; reading charts, graphs and tables; recognizing and understanding diverse viewpoints; comparing and contrasting information; conducting research, writing historical essays; working with primary and secondary source documents, and making presentations. Student learning will be assessed through homework, research, class participation, tests, quizzes, document-based questions, and historical analysis essays.



### United States History I - Grade 10

Course #: 4202, 4201, 4200

Levels: Honors, ACP, CP

Credits: 4

This course is the first part of a sequence of United States history that will be completed the following year in Grade 11. The goal is to deepen student understanding of the United States by examining the events leading up to the American Revolution to the early twentieth century. Major units include the study of the Constitution, the Early Republic, Jacksonian Democracy, Manifest Destiny, sectionalism, the U.S. Civil War, industrialization in the U.S., and U.S. Imperialism. Students will conduct critical reading and analysis using a variety of content to hone proficiency in primary and secondary source evaluation, evaluate cause and effect, develop and prove claims with evidence, and make inferences by critically evaluating content and writing supported arguments. Students will also begin publishing formal research papers with cited sources. Independent reading is a component of United States History I.

### United States History II - Grade 11

Course #: 4302, 4301, 4300

Levels: Honors, ACP, CP

Credits: 4

This course completes the second part of a sequence of United States history begun in Grade 10, by examining the major events in U.S. history from World War I to the 1960s. Major units include the study of World War I, the Great Depression and the New Deal, the Rise of Dictators, World War II, the Cold War, Civil Rights, the Vietnam War and Social Changes in the 1960s. As in previous years, students will continue to refine their critical reading and analytical writing, source evaluation, use of primary source documents, ability to make claims, evidence, and interpretation, and research methods. Honors students will pursue an accelerated program adding document analysis, debate, and rigorous practice writing supported essays based on synthesizing multiple sources. Please note that the U.S. History II Honors program is a pre-Advanced Placement curriculum that will require regular and significant preparation by reading and writing outside of class.

### Advanced Placement United States History - Grade 11

Course #: 4303

Level: AP

Credits: 4

A.P. United States History is designed to give grade 11 students a thorough understanding of United States History, requiring students to master historical interpretation, critical and analytical thinking, essay writing, and the integration of primary and secondary sources. The class prepares students to assess historical data and documents, evaluate relevance and reliability, and demonstrate historical knowledge of United States History. This course is equivalent to a full-year introductory college class and, therefore, all students enrolled in this course are expected to demonstrate their content mastery by taking the Advanced Placement exam in May. Please note that summer work is required.

## MATHEMATICS CORE COURSES

### Algebra I - Grade 9

Course #: 2102, 2101, 2100

Level: Honors, ACP, CP

Credits: 4

This course addresses the Common Core Standards for Algebra 1. Algebra I focuses on four critical areas: (1) deepen and extend understanding of linear and exponential relationships; (2) contrast linear and exponential relationships with each other and engage in methods for analyzing, solving, and using quadratic functions; (3)

extend the laws of exponents to square and cube roots; and (4) apply linear models to data that exhibit a linear trend.

## Geometry - Grade 9

Course #: 2122

Level: Honors

Credits: 4

This course transitions capable students who have successfully completed Algebra I in Grade 8 to introduce students to the *Massachusetts Mathematics Curriculum Framework (2017)* learning standards for Geometry. Geometry focuses on six critical areas: (1) establish criteria for congruence of triangles based on rigid motions; (2) establish criteria for similarity of triangles based on dilations and proportional reasoning; (3) informally develop explanations of circumference, area, and volume formulas; (4) apply the Pythagorean Theorem to the coordinate plane; (5) prove basic geometric theorems; and (6) extend work with probability. As the year progresses, students explore more complex geometric situations and deepen their explanations of geometric relationships by presenting and hearing formal mathematical arguments.

## Algebra II - Grade 10

Course #: 2232, 2231

Level: Honors and ACP

Credits: 4

Continuing the progression for entering Grade 10 students who successfully completed Geometry in Grade 9, this course addresses the *Massachusetts Mathematics Curriculum Framework (2017)* learning standards for Algebra II. The focus is on the following four critical areas: (1) relate arithmetic of rational expressions to arithmetic of rational numbers; (2) expand understandings of functions and graphing to include trigonometric functions; (3) synthesize and generalize functions and extend understanding of exponential functions to logarithmic functions; and (4) relate data display and summary statistics to probability and explore a variety of data collection methods. Students work closely with the expressions that define the functions, are facile with algebraic manipulations of expressions, and continue to expand and hone their abilities to model situations and to solve equations, including solving quadratic equations over the set of complex numbers and solving exponential equations using the properties of logarithms.

## Geometry - Grade 10

Course #: 2202, 2201, 2200

Level: Honors and ACP

Credits: 4

This course addresses the Common Core Standards for Geometry. Geometry focuses on six critical areas: (1) establish criteria for congruence of triangles based on rigid motions; (2) establish criteria for similarity of triangles based on dilations and proportional reasoning; (3) informally develop explanations of circumference, area, and volume formulas; (4) apply the Pythagorean Theorem to the coordinate plane; (5) prove basic geometric theorems; and (6) extend work with probability.

## Algebra II - Grade 11

Course #: 2302, 2301, 2300

Level: Honors, ACP, CP

Credits: 4

This course is a continuation of algebraic concepts. Topics include functions and graphs and more complex problem solving, complex numbers, matrices to solve linear systems, vectors, analytic trigonometry, and relates the connections between the fundamental concepts of algebra, trigonometry and analytic geometry. Several standards in the Algebra II course were moved to the Enhanced Algebra I course which made it possible to add standards from the Pre-calculus Course to the Enhanced Algebra II course. In this way students will be prepared for Calculus after successful completion of Enhanced Algebra II. This is a course which covers material at a fast pace and in great depth, with the expectation of stronger student performance. A greater emphasis will be placed on algebraic approaches to problem-solving.



### Precalculus - Grade 11

Course #: 2322

Level: Honors and ACP

Credits: 4

Continuing the progression for entering Grade 11 students who successfully completed Algebra II in Grade 10 and based on the *Massachusetts Mathematics Curriculum Framework (2017)* learning standards, this course combines the trigonometric, geometric, and algebraic techniques needed to prepare students for the study of calculus, and strengthens students' conceptual understanding of problems and mathematical reasoning in solving problems. Facility with these topics is especially important for students intending to study calculus, physics, and other sciences, and/or engineering in college. Because the standards for this course are (+) standards, students selecting this Model Precalculus course should have met the college and career ready standards. Instructional time will focus on four critical areas: (1) extend work with complex numbers; (2) expand understanding of logarithms and exponential functions; (3) use characteristics of polynomial and rational functions to sketch graphs of those functions; and (4) perform operations with vectors.

NOTE: Students who have not met the Competency Determination in Mathematics by earning the equivalent of a *Proficient* score of 240 or better on the Grade 10 Mathematics MCAS will be required to enroll in Algebra III during Grade 12. For more information see: <http://www.doe.mass.edu/ccr/epp/qa.html>

### Algebra III/Trigonometry - Grade 12

Course #: 2400

Level: CP

Credits: 4

This course is a continuation of concepts presented in Algebra II. It will emphasize the connection between algebra, geometry and trigonometry. The focus of this course is exponential/logarithmic functions, polynomials, trigonometric functions and trigonometric identities.

### Precalculus - Grade 12

Course #: 2402, 2401

Level: Honors and ACP

Credits: 4

This course addresses the Learning Standards for Precalculus and focuses on four critical areas: (1) extend work with complex numbers; (2) expand understanding of logarithms and exponential functions; (3) use characteristics of polynomial and rational functions to sketch graphs of those functions; and (4) perform operations with vectors.

### Calculus - Grade 12

Course #: 2412

Level: Honors

Credits: 4

This course is for students who have successfully completed Algebra II Enhanced. The course will include a brief review of the critical concepts and skills covered in Algebra II Enhanced followed by the concepts of limit, derivative, and definite and indefinite integral. Techniques of numerical and closed form integration with applications of the definite and indefinite integrals will be studied.

### Advanced Placement Calculus AB - Grade 12

Course #: 2443

Level: AP

Credits: 4

A.P. Calculus AB is a full year mathematics course, structured to closely resemble a first semester Calculus course in college. It is the intent of the course to develop a conceptual understanding and computational fluency in the basics of differential and integral calculus. This course will emphasize basic techniques, problem solving skills, critical thinking, and an understanding of various applications of calculus. Technology will also be

emphasized as a problem-solving tool. Students will apply the techniques learned to a variety of different types of functions as well as different representations of functions, and use these to model real-world situations. The course will also introduce basic differential equations, and use them to model growth.

## SCIENCE CORE COURSES

### Biology I - Grade 9

Course #: 3102, 3101, 3100

Level: Honors, ACP, CP

Credits: 4

This course introduces students to a two-year sequence in the study of biological sciences and the specific terminology and methodology relating to the basic concepts of life and its processes. It begins with a short, standards-based, introductory unit: Scientific Skills and Metrics that will be used to review and enhance student understanding of scientific investigation. The remaining learning standards for Biology I provide the foundation for the following three units: Chemistry of Life; Cell Biology; DNA and Genetics and are based on the Massachusetts Science and Technology/Engineering Curriculum Framework.

### Biology II - Grade 10

Course #: 3202, 3201, 3200

Level: Honors, ACP, CP

Credits: 4

This course completes the second year of the two-year sequence in the study of biological sciences and the specific terminology and methodology relating to the basic concepts of life and its processes. Learning standards for Biology II serve as the foundation for the following three units: Ecology; Evolution and Biodiversity; Anatomy and Physiology and are based on the Massachusetts Science and Technology/Engineering Curriculum Framework.

### Advanced Placement Biology - Grade 10

Course #: 3203

Level: AP

Credits: 8

A.P. Biology is an introductory college-level course. Students cultivate their understanding of biology through inquiry-based investigations as they explore the following topics: evolution, cellular processes-energy and communication, genetics, information transfer, ecology, and interactions. Students are expected to take the College Board A.P. Biology Exam in May. College credit may be applied with a score of three or higher on the College Board exam.

### Chemistry - Grade 11

Course #: 3302, 3301, 3300

Level: Honors, ACP, CP

Credits: 4

This course is designed to teach students the concepts of composition, structure and properties of substances and the changes they will undergo. Topics will include the classification of matter, atomic structure, periodic table and chemical formulas, chemical reactions and gas laws. Students will utilize qualitative as well as quantitative approaches to predict outcomes and identify unknowns. Use of a scientific calculator is required. Strong math skills are recommended for the Honors Level.

### Physics - Grade 11

Course #: 3312, 3311, 3310

Level: Honors, ACP, CP

Credits: 4

This Physics course will introduce key concepts of the physical world including motion, energy, and electromagnetism. Hands on labs will reinforce these concepts. Measurement and problem solving including graphing and critical thinking will be introduced. Technology will be used to analyze data collected in lab activities. Use of a scientific calculator is required. Strong math skills are recommended for the Honors Level.

#### Sustainability Science - Grade 11

Course #: 3350 Level: CP Credits: 4

This lab-based course focuses on the application of science through the lens of sustainability to better understand the interrelationship between humans and their impact on the planet. After examining energy in the Earth, the structure and composition of the atmosphere, circulation of the oceans and atmosphere, and climate variations over time, students will learn about sustainable practices that are best suited to help promote and maintain a better ecological balance. Students will conduct research, analyze case studies, participate in several hands-on labs, and develop a problem-solving project using the scientific method.

#### Chemistry - Grade 12

Course #: 3402, 3401, 3400 Level: Honors, ACP, CP Credits: 4

This course is designed to teach students the concepts of composition, structure and properties of substances and the changes they will undergo. Topics will include the classification of matter, atomic structure, periodic table and chemical formulas, chemical reactions and gas laws. Students will utilize qualitative as well as quantitative approaches to predict outcomes and identify unknowns. Use of a scientific calculator is required. Strong math skills are recommended for the Honors Level.

#### Physics - Grade 12

Course #: 3412, 3411, 3410 Level: Honors, ACP, CP Credits: 4

This Physics course will introduce key concepts of the physical world including motion, energy, and electromagnetism. Hands on labs will reinforce these concepts. Measurement and problem solving including graphing and critical thinking will be introduced. Technology will be used to analyze data collected in lab activities. Use of a scientific calculator is required. Strong math skills are recommended for the Honors Level.

#### Advanced Placement Physics - Grade 12

Course #: 3413 Level: AP Credits: 4

A.P. Physics 1 is an algebra-based, introductory college-level physics course that will address the principles of Newtonian mechanics; work, energy, and power; mechanical waves and sound; and introductory, simple circuits. Laboratory-based inquiry learning will develop students' scientific critical thinking and reasoning skills. There is a mandatory summer assignment. Students are expected to take the College Board A.P. Physics Exam in May. College credit may be applied with a score of three or higher on the College Board exam. (Exam is scored from 1 – 5).

#### Forensic Science - Grades 12

Course #: 3440 Level: CP Credits: 4

This is a lab-based elective designed to give students an in-depth look at the world of forensics. Students will be introduced to the basic application of science to the law. Students will learn how forensic scientists combine today's technology with the skills of the scientific community in order to help solve crimes. Topics covered

include crime scene evaluation, fingerprinting, and DNA analysis as well as the examination of current cases as they relate to these topics.

## SPANISH CORE COURSES

### Spanish I - Grade 9

Course #: 6100, 6102

Level: Honors, CP

Credits: 4

This required course introduces students to the Spanish language by learning Spanish in preparation for the workplace. Students learn vocabulary and concepts of basic grammar acquisition, allowing them to communicate information about themselves and others using simple sentences, both orally and in writing. The practice of all four language skills: listening, speaking, reading, and writing, helps students solidify their acquisition of the Spanish language. Active participation in class activities and completion of homework assignments are required.

### Spanish I - Grade 10

Course #: 6210

Level: CP

Credits: 4

This required course introduces students to the Spanish language by learning Spanish in preparation for the workplace. Students learn vocabulary and concepts of basic grammar acquisition, allowing them to communicate information about themselves and others using simple sentences, both orally and in writing. The practice of all four language skills: listening, speaking, reading, and writing, helps students solidify their acquisition of the Spanish language. Active participation in class activities and completion of homework assignments are required.

### Spanish II - Grade 10

Course #: 6200, 6202

Level: Honors, CP

Credits: 4

This required course continues and solidifies the introduction to the Spanish language and culture with more extended vocabulary and grammar concepts. Students will continue to practice reading, writing, listening, and speaking in Spanish. Students learn how to conjugate stem-changing verbs in the present tense, as well as both types of past-tense verbs. Spanish I is a prerequisite.

### Spanish I - Grade 11

Course #: 6300

Level: CP

Credits: 4

This required course introduces students to the Spanish language by learning Spanish in preparation for the workplace. Students learn vocabulary and concepts of basic grammar acquisition, allowing them to communicate information about themselves and others using simple sentences, both orally and in writing. The practice of all four language skills: listening, speaking, reading, and writing, helps students solidify their acquisition of the Spanish language. Active participation in class activities and completion of homework assignments are required.

### Spanish II - Grade 12



Course #: 6401, 6400

Level: ACP, CP

Credits: 4

Spanish II continues and solidifies the introduction to the Spanish language and culture with more extended vocabulary and grammar concepts. Students will continue to practice reading, writing, listening, and speaking in Spanish. Students learn how to conjugate stem-changing verbs in the present tense, as well as both types of past-tense verbs. Spanish I is a prerequisite. **This Grade 12 class will not be offered in the 2022-23 school year and beyond.**

## GRADE 12 ACADEMIC ELECTIVE COURSES

### HISTORY & SOCIAL SCIENCES

Genocide Studies - Grade 12

Course #: 4481, 4482

Level: ACP, Honors

Credits: 4

This course examines the 20th century as “the century of genocide,” beginning with the Armenian genocide, the horrors of the Holocaust, and ending with the atrocities in Bosnia and Rwanda and the violence in Darfur, the Democratic Republic of Congo, and Northern Iraq. We will consider many questions in this course: What is genocide? Where did the term come from and how has it been defined and examined over time? What conditions lead to genocide? What are the warning signs? What allows people to act in such evil ways and what causes others to stand by? How can genocide be prevented? Which genocides have been emphasized, and which have been overlooked? We will explore these and other ideas through a historical lens, with critical review of primary sources and research, and through a literary lens, with first-hand accounts and survivor testimony. This course is a semester class.

Using History to Understand Contemporary Issues - Grade 12

Course #: 4410

Level: CP

Credits: 2

The 21st century has brought with it unprecedented access to information through various media sources. This presents an amazing opportunity for students to explore contemporary topics with an eye toward critical discernment of sources, and the agendas and motives behind them. This course will actively explore complex issues in our contemporary society through the prism of history. Topics include: globalism and nationalism, bias in media, the Culture War, economic trends of the modern world, and major social issues and their change over time. In order to become better-informed citizens, students will practice evaluating various sources of media and bias. This will be accomplished in a variety of ways including socratic seminar, project-based learning, and facilitated debates and oral presentations. This course is a semester class and is paired with Accounting CP (Course #2460).

### MATHEMATICS

Accounting - Grade 12

Course #: 2460

Level: CP

Credits: 2

Accounting is an applied mathematics course where students learn about the operational principles necessary for success in the workplace. Topics include basic accounting procedures, debits and credits, customer needs assessment, investment activities, analyzing, evaluating, and creating financial reports, and technology

applications for operating systems and budgets. This is a semester class and is paired with Using History to Understand Contemporary Issues (Course #: 4410).

## SCIENCE

Forensic Science - Grades 12

Course #: 3440

Level: CP

Credits: 4

This is a lab-based elective designed to give students an in-depth look at the world of forensics. Students will be introduced to the basic application of science to the law. Students will learn how forensic scientists combine today's technology with the skills of the scientific community in order to help solve crimes. Topics covered include crime scene evaluation, fingerprinting, and DNA analysis; and the examination of current cases as they relate to these topics.

# EARLY COLLEGE COURSES

## Understanding Higher Education and Career Pathways - Grade 10

NSCC Course # FFL103

NSCC Credits: 3

ENSATS Course # ec4204

ENSATS Credits: 4

This course provides an introduction to higher education, including the different purposes, functions, and structures of postsecondary institutions. Students will gain a comprehensive understanding of degree and career pathways available across institutional types as well as familiarity with the social and emotional factors that influence student persistence and completion across educational settings. A variety of contemporary issues in higher education will be explored, with particular emphasis on the ways in which student experiences intersect with these issues. Topics include but are not limited to: academic discourse, social-emotional learning, educational planning, financial planning, college placement options, prerequisites/corequisites, and teaching and learning modalities. While this course focuses on higher education specifically, course topics will have application to educational settings and successful learning more broadly. This NSCC course will be taught by an NSCC instructor-of-record in collaboration with ENSATS faculty. Learning will take place on both the ENSATS and NSCC campuses and transportation will be provided\*. Successful completion of this Early College course will result in students earning both ENSATS' high school credit along with NSCC college credit. \*Grade 10 students enrolled in UHE/CP 101 will be waived from enrolling in and completing US Government & Politics.

## Speech - Grade 11

ENSATS Course # ec1304

ENSATS Credits: 4

NSCC Course # SPE102

NSCC Credits: 3

This Early College Program course focuses on the nature and effects of verbal communication. Students will become familiar with the communication process, including some of the following: principles of organization, purpose, language structure, effective delivery, and audience analysis. Students individually will use these elements in informative and persuasive speaking in the traditional speaker-audience relationship. Speech will be taught by an NSCC instructor-of-record in collaboration with ENSATS faculty. Learning will take place on both the ENSATS and NSCC campuses and transportation will be provided\*. Successful completion of this Early College course will result in students earning both ENSATS' high school credit along with NSCC college credit and may fulfill an open, liberal arts and/or social science elective requirement at NSCC and/or other Massachusetts public universities. This course is a Semester 1 only class.

## Composition 101 - Grade 11

NSCC Course # CMP101

NSCC Credits: 3

ENSATS Course # ec1305

ENSATS Credits: 4

Emphasis is on developing skills of writing, reading, analytical thinking, and research. Students are introduced to thought provoking ideas in readings from a variety of disciplines and learn to organize material, analyze ideas, and produce clear writing. This NSCC course will be taught by an NSCC instructor-of-record in collaboration with ENSATS faculty. Learning will take place on both the ENSATS and NSCC campuses and

transportation will be provided\*. Successful completion of this Early College course will result in students earning both ENSATS' high school credit along with NSCC college credit..

### Introduction to Sociology - Grade 12

NSCC Course # SOC 106

NSCC Credits: 3

ENSATS Course # ec4404

ENSATS Credits: 4

This Early College Program course introduces students to the study of society, employing all the basic concepts of sociology, such as: the structure and functions of society, culture, norms, roles and status. Attention is given to the origins of sociology, its methods and its place as one of the social sciences. "Introduction to Sociology" will be taught by an NSCC instructor-of-record in collaboration with ENSATS faculty. Learning will take place on both the ENSATS and NSCC campuses and transportation will be provided. Successful completion of this Early College course will result in students earning both ENSATS' high school credit along with NSCC college credit and may fulfill an open, liberal arts and/or social science elective requirement at NSCC and/or other Massachusetts public universities. This course is a Semester 1 only class.

### Introduction to Psychology - Grade 12

NSCC Course # PSY 102

NSCC Credits: 3

ENSATS Course # ec4405

ENSATS Credits: 4

This Early College Program course engages students in systematic study of behavior including the development of psychology as a science, the biological basis of behavior, learning and memory, motivation, sensation and perception, personality development, cognitive processes, maturation and development, and adjustment. "Introduction to Psychology" will be taught by an NSCC instructor-of-record in collaboration with ENSATS faculty. Learning will take place on both the ENSATS and NSCC campuses and transportation will be provided. Successful completion of this Early College course will result in students earning both ENSATS' high school credit along with NSCC college credit and may fulfill an open, liberal arts and/or social science elective requirement at NSCC and/or other Massachusetts public universities. This course is a Semester 1 only class.

# ADDITIONAL COURSES

## Curriculum Seminar - Grade 9, 10, 11, 12

Course #: 7100i, 77200i, 7300i, 7400i

Level: CP

Credits: 4

Curriculum Seminar is designed to support the academic learning and organizational needs of students seeking additional support to complete their academic coursework at Essex North Shore Agricultural & Technical School. In addition to providing students with focused in-school time to continue working on their academic coursework assignments, the Academic Seminar classroom also provides explicit instruction in organizational strategies and ongoing support to help students successfully complete their academic work. With that in mind, the daily classroom protocols must (a) maximize instructional time, (b) create a supportive, predictable environment, and (c) foster self-regulating learning skills.

## Academic Seminar 11, 12

Course #: 7311, 7411

Level: CP

Credits: 4

The Academic Seminar is designed to support the academic learning and organizational needs of students seeking additional support to complete their academic coursework at Essex North Shore Agricultural & Technical School. In addition to providing students with focused in-school time to continue working on their academic coursework assignments, the Academic Seminar classroom also provides explicit instruction in organizational strategies and ongoing support to help students successfully complete their academic work. With that in mind, the daily classroom protocols must (a) maximize instructional time, (b) create a supportive, predictable environment, and (c) foster self-regulating learning skills. Students taking Academic Seminar courses are required to sign and return this [Academic Seminar Student & Parent/Guardian Contract](#)

## Mathematics Skills Seminar - Grade 9, 10

Course #: 8110, 8220

Level: CP

Credits: 4

This course acts as an intervention designed to support freshmen and sophomores who may struggle with number sense and mathematical problem solving skills. The course will focus instruction on effective strategies such as using mathematical equations that will inform problem solving. Students take part in pre- and post-assessment of their mathematics level as a part of this course.

## Reading Skills Seminar - Grade 9, 10

Course #: 8100, 8200

Level: CP

Credits: 4

This course acts as an intervention designed to support freshmen and sophomores who may struggle with reading in the content areas due to below average reading skills. The course will focus identifying text structures and will aid in comprehension of content-area reading. Students take part in pre- and post-assessment of their reading level.

## Math & Science Seminar - Grade 11

Course #: 7301

Level: CP

Credits: 4

This course is intended to provide ongoing support for juniors who still need to meet the passing level of the MCAS Mathematics and/or end-of-course MCAS Biology tests to meet their Competency Determination.

Students take a diagnostic assessment to identify areas of focus and instruction is customized to meet the needs of every learner in this small-group classroom seminar.

## WELLNESS COURSES

### Wellness - Grade 9

Course #: 5100

Level: CP

Credits: 4

Freshmen will be enrolled in a semester of Physical Education and a semester of Health Education. Wellness courses take place during the CTE Week.. During Physical Education, students will learn how to safely use the equipment in the fitness center, participate in cooperative activities, and utilize the adventure course to teach appropriate risk taking and team building. During Health Education, students will learn and understand the leading causes of death in the U.S. and how their lifestyle choices can help prevent them. They will become aware of the signs and symptoms of the most commonly diagnosed mental illness. Students will also be exposed to the proper nutritional guidelines around food preparation, serving sizes, food labels, and counting calories. In addition, students will learn about how to manage their time better to reduce stress.

### Wellness - Grade 10

Course #: 5200

Level: CP

Credits: 2

Sophomores will be enrolled in Physical Education and Health Education. Wellness courses take place during the CTE Week. During Health Education, students will talk about the many risks youth face today, including drug/alcohol abuse, violence, and sexual transmitted diseases. One of the goals of this course is to help teens understand the causes of drug/alcohol abuse and to prevent its onset. The Human Sexuality unit will present factual information and encourage students to apply the information when making responsible decisions. Other topics that will be discussed include: anatomy, physiology, sexual responsibility, danger of teenage pregnancy, contraception, and sexually transmitted diseases. During Physical Education, students will continue to learn how to safely use the equipment in the fitness center, participate in cooperative activities, and utilize the adventure course to teach appropriate risk taking and team building.

### Wellness - Grade 11

Course #: 5300

Level: CP

Credits: 2

Juniors will be enrolled in Physical Education and Health Education. Wellness courses take place during the CTE Week. During Health Education, students will learn and explore more complex aspects of nutrition. Students will have an opportunity to understand the essential components of nutrition and their personal needs based on their current health, activity level and future goals. Focus will also be spent on developing healthy relationships, while learning about effective communication and understanding and respecting differences. Lastly, an in depth look at the components of physical fitness will be explored. Students will understand these components and learn about the various types of exercises that can be done to increase their overall physical fitness. During Physical Education, students will have the opportunity to design personal workout routines, participate in cooperative activities, and utilize the adventure course. Personal workout routines are designed daily by students using a workout template sheet and may consist of favorite exercise routines or exercises they have been exposed to previously in the fitness center. Cooperative activities consist of net games, invasion games, and team building activities.



Wellness - Grade 12

Course #: 5400

Level: CP

Credits: 2

Seniors will be enrolled in Physical Education and Health Education. Wellness courses take place during the CTE Week. During Physical Education, students will have the opportunity to design personal workout routines, participate in cooperative activities, and utilize the adventure course. Students must commit to either choice for an entire cycle. Personal workout routines are designed daily by students using a workout template sheet and may consist of favorite exercise routines or exercises they have been exposed to previously in the fitness center. Cooperative activities consist of net games, invasion games, and team building activities. During Health Education, students will learn about First Aid/CPR education. Students will understand how to perform CPR correctly and in what situations it would be used. Students will also gain knowledge in First Aid and how to perform various fundamental treatments on others when needed. Another focus of this course will be to provide students with an understanding of the responsibilities of parenthood and different factors they will encounter in their lives. This unit will go into how those specific factors will influence an individual as well as the entire family's ability to raise a child and how their components of wellness are affected differently. The last aspect of this course will cover a community based service learning project where students will take an active role as a class to help out around the community or to create a fundraising event for good causes around the area.



## **STUDENT SUPPORT SERVICES**

### **SCHOOL COUNSELING SERVICES**

The Essex North Shore Agricultural & Technical School Guidance faculty provides comprehensive, school-based services to all students with the goal of nurturing skills for students' success during high school and beyond. Freshman students are assigned to a Grade 9 freshman counselor who assists them with their transition to a regional, career technical high school. The Grade 9 counselor also works closely with Grade 9 students to assess their career interests in preparation for participation in the Grade 9 Exploratory Program and the ensuing career technical program placement. These freshman counselors continue to work with students throughout their ninth grade experience. Beginning in Grade 10 to Grade 12, students are assigned to a CTE program-specific Guidance Counselor.

At all grade levels, students participate in developmental academic and career guidance lessons delivered by guidance counselors throughout each year and students graduate having developed a Four-Year Career Plan with the support of their guidance counselors. Students and their families may access information in their respective student's Career Plan and explore career and college opportunities on their student's *Naviance Student* account (link below).

All students have access to supportive interventions from guidance counselors and school adjustment counselors to address their developmental, social, and emotional needs. Collaboration with caregivers is also an essential component of our guidance model. Caregivers are encouraged to contact their student's counselor as circumstances arise. Appointments with guidance and school adjustment counselors are welcome and can be scheduled by emailing or calling the counselor directly.

In addition to providing regular parent/family support on an individual basis, the Essex North Shore Agricultural & Technical School Guidance Department also sponsors the following parent information sessions annually:

- New Student Parent Orientation
- College Fair
- Senior Parent College & Career Planning Night
- College Financial Aid Night (hosted by MEFA)
- FAFSA on the Spot Session
- Freshmen CTE Program Selection Parent Info Night
- Sophomore & Junior Post Secondary Planning Parent Night

### **HEALTH SERVICES**

The Essex North Shore Agricultural & Technical School Health Office is staffed by two full time School Nurses (RN's). The School Nurses promote health and safety and facilitate the success and well-being for all members of the ENSATS school community by intervening with actual and potential health problems and by building student and family capacity for adaptation, self-management, self-advocacy and lifelong learning as it relates to wellness. Specifically, our School Nurses address/implement:

- First aid for injuries and initial care for illness for students and staff
- Assessment of students health, growth and development
- Detection, treatment, and follow-up on health issues interfering with student learning
- Referrals to parent or physician as necessary
- Student medication administration
- State-Mandated Health Screenings
- Coordinate receipt and review of physical exams and immunization records
- Responsible for communicable disease reporting and control.

For students with specific health care needs due to chronic or emergent needs or conditions, including those whose Individual Education Programs or 504 Accommodation Plans document health related needs and services, the School Nurses may be identified as a school based service provider. In doing so, ENSATS School Nurses are frequently in communication with family contacts, health care providers and community resources as necessary and appropriate.

The School Nurses are also available to facilitate health education, social welfare referrals, health insurance referrals and/or dental referrals. They guide and develop school and district health policies, nutritional guidance and encourage staff wellness. Our School Nurses also share responsibility for crisis intervention and education and are active participants in awareness training and response to crises teams.

## **EDUCATIONAL STABILITY**

### **EDUCATIONAL OPPORTUNITIES FOR HOMELESS CHILDREN & YOUTH**

The McKinney-Vento Homeless Assistance Act and the Elementary and Secondary Education Act (ESEA), as amended by the Every Student Succeeds Act (ESSA) of 2015, ensure educational rights and protections for children and youth experiencing homelessness. The Massachusetts Department of Elementary and Secondary Education has adopted Section 725(2) of this Act regarding the definition of homeless children and youth to include:

Individuals who lack a fixed, regular, and adequate nighttime residence or have a primary nighttime residence in a supervised, publicly or privately, operated shelter for temporary accommodations (including welfare hotels, congregate shelters, and transitional housing for the mentally ill), an institution providing temporary residence for individuals intended to be institutionalized, or a public or private place not designated for, or ordinarily used as, a regular sleeping accommodation for human beings. This definition shall include: children and youth who are sharing the housing of other persons due to loss of housing, economic hardship, or a similar reason; are living in motels, hotels, trailer parks, or camping grounds due to the lack of alternative adequate accommodations; are living in emergency or transitional shelters; are abandoned in hospitals; children and youth who have a primary nighttime residence that is a public or private place not designed for or ordinarily used as a regular sleeping accommodation for human beings; children and youth who are living in cars, parks, public spaces, abandoned buildings, substandard housing, bus or train

stations, or similar settings; migratory children (as such term is defined in section 1309 of the Elementary and Secondary Education Act of 1965) who qualify as homeless because they are living in circumstances described above; and unaccompanied youth a youth not in the physical custody of a parent or guardian.

### **EDUCATIONAL OPPORTUNITIES FOR CHILDREN IN FOSTER CARE**

The Essex North Shore Agricultural & Technical School District (ENSATSD hereafter) and Essex North Shore Agricultural & Technical School (ENSATS hereafter) are committed to ensuring continued enrollment, attendance, and the opportunity to succeed in school for youth engaged in the foster care system consistent with ESSA (2015) excerpts related to Title 1 Part A foster care enrollment provisions. The purpose of this policy is to ensure the educational stability of students in foster care and their equal access to the same free and appropriate public education through high school graduation as provided to other students as required by law. Educational stability has a lasting impact on students' academic achievement and wellbeing. ENSATSD is committed to supporting school and community efforts to ensure that students in foster care have access to high-quality, stable educational experiences.

### **EDUCATIONAL OPPORTUNITIES FOR MILITARY CHILDREN**

The Essex North Shore Agricultural & Technical School District (ENSATSD hereafter) and Essex North Shore Agricultural & Technical School (ENSATS hereafter) are committed to ensuring continued enrollment, attendance, and the opportunity to succeed in school for students experiencing housing or living transitions due to a family member's military status or connection as it is appropriate and necessary to remove barriers to educational success imposed on children of military families because of their parents'/guardians' frequent moves and deployment. In an effort to facilitate the placement, enrollment, graduation, data collection and provision of special services for students transferring into or out of the District because of their parents'/guardians being on active duty in the U.S. Armed Services, ENSATSD supports and will implement its responsibilities as outlined in the [Interstate Compact on Educational Opportunity for Military Children](#).

To view these policies in their entirety, visit: [EssexNorthShore.org/district/](https://EssexNorthShore.org/district/). For additional information on these district policies, or to refer a student for support and intervention consistent with these district policies contact the ENSATSD District Homeless Education Liaison and/or Foster Care Point of Contact.

### **STUDENT ACTIVITIES**

Participation in extracurricular clubs and student government can be a rewarding and meaningful educational experience that enhances a child's secondary education. It is important that students realize the time demands, responsibility, dedication and sacrifices required when making this kind of commitment. The following information defines the extra-curricular policies and procedures for all students participating in our High School activities. Please refer to the Student Activities Handbook for a better understanding of our philosophy, goals, and policies, or when a question about your child's extra-curricular experience arises.

#### **FFA**

FFA is an intra-curricular student organization for those interested in agriculture and leadership. It is one of the three components of agricultural education. FFA makes a positive difference in the lives of students by

developing their potential for premier leadership, personal growth and career success through agricultural education. FFA develops members' potential and helps them discover their talent through hands-on experiences. FFA members can compete in Career Development Events (CDE) that cover job skills.

### SKILLSUSA

SkillsUSA is a partnership of students, teachers, and industry working together to ensure America has a skilled workforce. We provide educational programs, events, and competitions that support career and technical education (CTE) in the nation's classrooms. SkillsUSA's mission is to empower its members to become world-class workers, leaders and responsible American citizens. SkillsUSA improves the quality of America's skilled workforce through a structured program of citizenship, leadership, employability, technical and professional skills training.

### ART CLUB

Students are encouraged to come to this club to explore their creative talents and enjoy some DIY projects, art appreciation and have fun!

### CHORUS

Chorus and Advanced Chorus offer students an opportunity to sing acapella and contemporary choral pieces. Chorus meets on Thursdays until 4:00, and Advanced Chorus meets on Thursdays until 5:45. The Chorus season runs from September – December. Singers will work towards a December concert. All levels of singers welcome!

### COMMUNITY SERVICE-KEY CLUB

Key Club is a service leadership organization for high school students who love to help in their communities and get involved.

### CULTURAL AWARENESS COLLECTIVE (CAC)

The Cultural Awareness Collective at Essex North Shore Agricultural and Technical School has as its mission to educate our school community to respect the differences within our culture, and that our similarities far outweigh our differences. Our goal is to create an atmosphere where all who enter our school community feel comfortable being a part of our school.

### DECA

DECA (Distributive Education Clubs of America) Club is an intra-curricular organization that prepares emerging leaders and entrepreneurs as they pursue careers in business management and administration, entrepreneurship, finance, hospitality and tourism, marketing, and personal financial literacy. Students compete with other DECA members in state and national competitions. Student leadership, social endeavors, and philanthropic activities are the focus of this program.

### DRAMA CLUB

Drama Club promotes creativity, community, and an opportunity for students to be involved in all aspects of production – from acting to stagecraft. The year will include a fall play, a winter entry into the Massachusetts Educational Theater Guild’s High School Festival, and a spring musical.

#### ENVIRONMENTAL ACTION CLUB

Activities include recycling, trail maintenance, setting up bat or bird boxes, composting, outdoor recreation, beach cleanup and volunteer work with other organizations.

#### EQUESTRIAN CLUB DRILL TEAM

An equestrian drill team is a group of horses and riders performing choreographed maneuvers to music.

#### GOAT CLUB

Learn more about goats! Activities include completing an agility course, maintaining their coats and nails, and providing environmental enrichment.

#### GSA

Gay Straight Alliance (GSA), also known as Essex North Shore Agricultural & Technical School Awareness Group (ETAG), is a forum of support for every sort of diversity, including but not limited to gender and sexual orientation issues, religious issues, and racial issues. GSA is a group of thoughtful and caring Essex North Shore Agricultural & Technical School citizens who are excited to belong to a school where diversity is not only accepted but encouraged. GSA sponsors social activities as well as forums for the education of the school community about the importance of tolerance and diversity.

#### HORROR LITERATURE CLUB

Horror Literature Club is for students who are interested in reading and writing horror stories. Participants will examine classic and contemporary horror stories and novels from Edgar Allan Poe to Stephen King. Participants will learn about the development of the horror genre by focusing on the six elements of effective horror.

#### LITERARY MAGAZINE (The Hawk and the *Quill*)

The purpose of the “Magazine” is to provide the experience of writing, evaluating, and publishing creative works—paintings, line art, photography, graphic art, stories, poetry, and personal narratives—by students. All students are welcome to participate—contributions will be accepted throughout the year, focused on two publications—Winter and Spring, depending on interest and contribution.

#### LIVESTOCK SHOWING-CATTLE CLUB

This club is for students who want to learn to show cattle in fitting and showmanship competitions. Students will choose a school cow to work with and train to show in local cattle shows, such as the Topsfield Fair.

#### MATH TEAM

If you love math and a challenge, the Math Team is for you! Members collaborate to solve puzzles, brain teasers, and challenging math problems in the areas of Algebra 1, Geometry, Algebra 2, and Related Tech. We are always coming up with new ways to think "outside the box!" All grade levels and math backgrounds are welcome.

## MODEL UNITED NATIONS

Model United Nations (or UN) is a club for students interested in sharing views on global issues, diplomacy, and current events, along with those looking to improve their negotiation and public speaking skills. Student delegates attend Model UN conferences at colleges and high schools in the area during the school year. At these conferences, members act as diplomats from various nations and negotiate solutions to pressing problems facing our world today.

## MUSIC CLUB

Music club invites any student who has a passion for music to bring and play instruments, sing or just appreciate the bands and music they love with like-minded peers. This will be an informal gathering for music lovers; voluntary performances are a possibility if students are interested, but no musical ability is required to attend.

## NATIONAL HONOR SOCIETY & NATIONAL TECHNICAL HONOR SOCIETY

Celebrating outstanding educational achievement and advancement in career and technical education. Open to juniors and seniors with a cumulative grade point average of 3.5 who demonstrate leadership, service, and good character. This is an application process through invitation.

## POLITICAL ACTION CLUB

ETPAC (Essex North Shore Agricultural & Technical School Political Action Club) is a forum for allowing students to explore politics and have civil discourse on issues relating to federal, state, and local government.

## SCIENCE TEAM

The Essex North Shore Agricultural & Technical School Science Team participates in the North Shore Science League. In the North Shore Science League, schools compete against each other in events involving building, invention, engineering, lab techniques, and application of knowledge. All areas of science are included in events during the year. Students travel to seven meets over the course of the year.

## SNAPSHOT PHOTOGRAPHY CLUB

Snapshot Photography club welcomes any student who wants to learn more about photography, use high-quality cameras, edit photos in Photoshop, or simply just have fun snapping cool shots. This club offers complete creative freedom since students will choose their own projects and can work in groups or individually.

## STUDENT MENTORS

The Student Mentors are a select group of upperclass students who are committed to helping our freshmen transition to Essex North Shore Agricultural & Technical School. These students help at orientation and make connections with freshmen throughout their first year as Essex North Shore Agricultural & Technical School students.

## WEIGHTLIFTING CLUB

Physical fitness plays an essential role in longevity, health and character building. The education that can be attained in this club will not only help students stay fit and healthy, but they will also learn the significance and fundamentals of dedication, loyalty, and setting goals.

## YEARBOOK

Come and make some lasting memories while creating and organizing the School Yearbook. Yearbook is open to all students to work on a student-designed yearbook that covers the whole school and school year. If you are creative, like to take photos and create some cool pages – we'd love to have you.

## VIDEO GAME CLUB

Video Game Club is the place to go to play and discuss games. Video Game Club is dedicated to not only working on cooperation and teamwork through exciting games but also about having fun and working on social skills with the other players. Games and consoles may vary, but some of the games that are often brought in include Mario Kart 8, Super Smash Bros, and Kirby Star Allies. Video Game Club and their adviser believe in equality and friendliness.

## ATHLETICS

At Essex North Shore Agricultural & Technical School, athletics are considered an integral part of the educational experience. Athletics provides opportunities which will help students develop physically, mentally and emotionally. Participation in athletics is viewed as a healthy, educational and psychological activity. It challenges each student to excel, discover their physical limits, and requires students to work cooperatively as members of a team. While competition and winning are natural goals in the pursuit of excellence, the principles of good sportsmanship and competition take precedence at all times and enhance the educational value of contests. For more information contact the ENSATS Athletic Director or visit <http://ma.8to18.com/essextech/>.

### FALL SPORTS

- Cheerleading (Varsity, JV)
- Cross Country (Varsity)
- Field Hockey - (Varsity, JV) – Coop with Georgetown host school
- Football (Varsity, JV, Freshman)
- Golf (Varsity)
- Soccer - Boys (Varsity, JV)
- Soccer - Girls (Varsity, JV)
- Volleyball - Girls (Varsity, JV, Freshmen)

### WINTER SPORTS

- Basketball - Boys (Varsity, JV, Freshman)
- Basketball - Girls (Varsity, JV, Freshman)
- Cheering (Varsity)
- Gymnastics - Coed (Varsity)
- Ice Hockey – Boys (Varsity, JV)
- Ice Hockey – girls (Varsity, JV) – Coop with Bishop Fenwick host school
- Indoor Track and Field – Boys & Girls (Varsity, JV)
- Swimming/Diving – Boys & Girls (Varsity, JV) – Coop with Peabody host school
- Wrestling – (Varsity)

### SPRING SPORTS

- Baseball (Varsity, JV, Freshman)
- Lacrosse - Boys (Varsity, JV)
- Lacrosse - Girls (Varsity, JV)
- Track and Field - Boys & Girls (Varsity, JV)
- Softball (Varsity, JV, Freshman)
- Volleyball – Boys (Varsity, JV)



- Tennis - Boys (pending coop with Peabody High School)
- Tennis - Girls (pending coop with Peabody High School)

## APPENDIX

### POST-SECONDARY PLANNING

#### Post-Secondary Statistics for the Class of 2019:

4 year College, University	63.4%	Career	16.8%
2 year College, University or Post Secondary Education	19.0%	Military	.08%

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### STANDARDIZED ASSESSMENT INFORMATION FOR COLLEGE ADMISSIONS

There are many preparation tests and general information regarding scoring and statistics found on this website.

SAT information and registration can be found at [www.collegeboard.org](http://www.collegeboard.org).

ACT information and registration can be found at [www.act.org](http://www.act.org).

ACCUPLACER information can be found at [www.accuplacer.collegeboard.org](http://www.accuplacer.collegeboard.org).

### DUAL ENROLLMENT

The Commonwealth Dual Enrollment Partnership (CDEP) provides opportunities for Massachusetts high school students to take college-level courses at a discounted price that may be used toward their future college degrees. College courses will be factored into a student's grade point average at Essex North Shore Agricultural & Technical School at a weight consistent with the AP course weighting.

CDEP eases the transition from high school to college, allows students to get a head start on their college careers and provides meaningful and challenging academic experiences to qualified students who otherwise may not have access to an early college experience. The ultimate goal of CDEP is to increase the population of high school graduates who are college ready. Student participation in CDEP is at the discretion of the participating institution of higher education, subject to capacity constraints and state appropriation.

### ARTICULATION AGREEMENTS

Articulation agreements are formal agreements or partnerships between Essex North Shore Agricultural & Technical School and participating colleges or post-secondary educational institutions (Community College, Technical Program or 4 year college) documenting transfer policies that define a pathway from an academic or technical program in one place to the other. Eligible students may access course articulations to not only ensure that the courses they complete while in high school will not have to be repeated at the post secondary institution which they are attending but also to earn advanced college credit when applicable.