

## **Administration**

Superintendent:	Kevin Farr
Assistant Superintendent/Principal:	Robert Dutch
Director of Special Education:	Mark Dufresne
Director of Curriculum, Instruction & Guidance:	Roger Forget
Technical Supervisor:	Thomas Silvia
Technical Supervisor:	James McCue
Dean of Students:	Sue White

### **Mission Statement**

The mission of Upper Cape Cod Regional Technical School is to educate a diverse student population in order to actualize their personal, social, academic, and technical potential within a collegial learning community.

### **Vision Statement**

Our vision is the Upper Cape Cod Regional Technical School graduates will be personal and professional role models in the workplace, post-secondary schools, and in their communities.

### **Equal Opportunity**

Upper Cape Cod Regional Technical School admits students and makes available to them high school advantages, privileges and courses of study without regard to race, color, religion, national origin, sexual orientation, gender or disability.

# Upper Cape Cod Regional Technical School Program of Studies

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## **Forward**

Upper Cape Cod Regional Technical School provides a unique educational experience that integrates academic and occupational instruction on an alternating week schedule. Instruction at the Upper Cape Cod Regional Technical School is designed to enable all students to develop their individual and personal potential for a lifetime of learning and for responsible, productive participation in a technologically diverse and changing world.

Upon entering Upper Cape Cod Regional Technical School, all grade 9 students are enrolled in a four-month exploratory program which exposes students to the academic and technical requirements of all thirteen technical programs. This program also allows students to match their abilities and interests with specific requirements in the occupational programs.

All students at Upper Cape Cod Regional Technical School are exposed to a rigorous course of academic and technical study. The school's approach to designing the best possible educational experience is based on the integration of academic and technical learning. Academic and occupational instructors work together utilizing project-based learning to link academic and technical areas.

Academic programs are offered to meet the needs of a diverse student body. Courses are offered at the Technical Prep, College Prep, Honors, and Advanced Placement levels. Upper Cape Tech also offers students opportunities to earn college credit through Dual Enrollment and articulated courses.

## **Philosophy**

The Upper Cape Cod Regional Technical School is committed to the development of self-reliant, responsible, lifelong learners capable of successfully competing in a rapidly changing technological world. Administration, faculty, and staff seek to educate the whole student by preparing graduates who know how to think, lead healthy lives, behave ethically, and assume the responsibility of citizenship in the pluralistic society in which we live and work.

We are committed to developing students who enter the workforce prepared for change, with employability skills that can be transferred and adapted as technology advances. We must equip students to be able to find answers to questions that have not yet been asked. We adhere to the philosophy of intensive occupationally specific instruction integrated with strong academic preparation. These high standards will enable students to realize their post-secondary employment and educational goals.

We recognize our responsibility to the communities we serve by providing quality equal opportunity post-secondary programs to educate and retrain workers in preparation for the challenges of the 21<sup>st</sup> century. Upper Cape Cod Regional Technical School addresses the ancillary needs of our communities by providing services and facilities to business, labor, public service, and recreational organizations.

Success in fulfilling our goals is contingent on a sufficient and qualified multicultural staff and on policies that foster professional development and a positive work environment. We believe open communication and participation with all segments of the school and the community will create an atmosphere of mutual respect and cooperation necessary for successful teaching and learning.

1. Strengthen academic and technical knowledge and inspire excellence.
2. Develop intellectual curiosity, logical judgment, and critical thinking skills.
3. Create an environment that supports concern for the welfare of all students and their right to learn.

## Counseling Services

The Counseling Services Department consists of four areas: Guidance, Title I, 504, and Health. The Counseling Services Department works as a TEAM to maximize each student's potential and to support parents and teachers.

### **GUIDANCE**

In this area counselors are available to assist and advise students about academic problems, course selection, post-secondary plans, and personal issues. A four-year developmental "in class" guidance program, based on the Massachusetts Model for Comprehensive School Counseling Programs, offers students a series of regularly scheduled lessons and activities which address the following areas:

1. Educational and occupational exploration and career planning
2. Decision making skills
3. Knowledge of self and others
4. Understanding of the global market place

Upper Cape Tech's guidance department consists of three school counselors and one school adjustment counselor. The Director of Student Services oversees the guidance department's staff, its curriculum, and related programming.

<u>Counselor</u>	<u>Extension</u>
Mrs. Rachel Kerrigan, School Counselor	x311
Ms. Sheila Leonard, School Counselor	x245
Mrs. Jennifer McGuire, School Counselor	x247
Ms. Elizabeth Griffin, School Adjustment Counselor	x248

### **SCHEDULE CHANGES**

Every effort will be made to place students in courses that are appropriate for their abilities and future educational or career interests. Maximum student and parent input will be allowed during the time course selections are made. Once those selections are made, we will honor them to the extent possible. No changes will be made in selections after this except for the following reasons:

1. Valid Teacher Reason or
2. Exceptional Circumstances

*(In the case of exceptional circumstances, the student requesting the change and the student's parent/guardian will need to meet with the guidance counselor to discuss the change.)*

### **INFORMATION SERVICES**

Counselors assist students with locating career, college and placement information. The internet provides the most up to date information and counselors teach students how to search for this type of information as part of

the guidance curriculum. Additionally, College representatives, military personnel and social service agency representatives are scheduled throughout the year to provide up-to-date information for interested students.

### **THE COLLEGE CONNECTION PROGRAM**

The College Connection Program provides equal access to higher education and reduces educational barriers by offering enrollment management services and academic resources on site at participating high schools. This program aims to raise individual awareness and expectations about college options. Students who participate in The College Connection Program will have access to a variety of higher education resources and staff to assist them with inquiries regarding admissions, college readiness assessment, financial aid, advising and registration. The College Connection Program was created by Cape Cod Community College in partnership with local school districts and is partly supported by private donations and grants.

### **EXPLORATORY PROGRAM**

All ninth grade students participate in the exploratory. Students will explore all thirteen shop areas for one day each and then they will explore five shops for one week each. During the exploratory period, students will receive counseling in the areas of decision-making and career planning, and will participate in a computerized career assessment. Permanent shop placement will be determined at the end of the exploratory cycle, based upon performance evaluations throughout the exploratory period.

### **ADMISSIONS**

Students are admitted to Upper Cape Tech from September to March. Admissions are based on student point totals related to grades, discipline, and attendance. Admissions occur throughout the year until all vacancies are filled. All Regional students are offered a tour of Upper Cape Tech and a presentation by Upper Cape Tech guidance Staff at their school.

### **NONTRADITIONAL SUPPORT GROUP**

Students entering the freshman class are encouraged to explore all areas with an open mind. The non-traditional support group offers students who have chosen shops which are non-traditional by gender an opportunity to support each other and address mutual concerns. Presentations and speakers are scheduled throughout the school year.

### **TITLE I**

The Title 1 Program offers “in class” support for struggling student learners. Students qualify for “in class” Title 1 support based on a multi-criteria checklist.

### **ENGLISH LANGUAGE LEARNERS**

The Upper Cape Cod Regional Technical School district uses qualified staff and appropriate procedures and assessments to identify students who are Limited English Proficient and assess their levels of English Proficiency.

### **SPECIAL EDUCATION**

Access to the general education curriculum is the foundation of the Special Education Program. The Special Education Program is based on the concept that all students have the opportunity to obtain challenging courses, which will allow them to achieve high levels of performance. Through the inclusion model, special education

students are supported in the mainstream by special education team teachers who provide accommodations, modifications and differentiated instruction. Academic support classes provide small group instruction and the opportunity to develop organization skills related to content area classes. The Upper Cape Tech Special Education Program reflects the philosophy that the least restrictive environment is the most appropriate placement to maximize a student's educational experience.

### **MCAS PREP CLASSES**

Juniors and seniors who have yet to attain an MCAS competency determination will be provided additional MCAS assistance. This will include special MCAS prep classes during academic week and tutoring after school and during shop week. MCAS remediation is required unless exempted by parent request and signature.

### **FRESHMAN ORIENTATION**

Each summer incoming ninth grade students are invited to participate in a four day freshman orientation program held at Upper Cape Tech. This program is a collaboration between academic and technical programs to help students transition to high school.

### **HEALTH OFFICE**

The Health Office assists students in maintaining good health through education and preventive practices. Students must have a physical examination, immunizations, and screenings prior to school admission.

## **Student Requirements**

### **Homework**

Homework assignments are part of every curriculum in both technical and academic areas. Each teacher will assign homework according to specific curricular requirements and these assignments will vary in length, time, and content. Homework is part of the student's daily or weekly grade, which will influence the final grade.

### **Career Portfolio**

The ability to assemble a professional portfolio is necessary in today's corporate world. Students at Upper Cape Cod Regional Technical School are taught to develop a career portfolio. As they progress through each year, students collect samples of work produced in both academic and technical areas which will demonstrate proficiency in each of these areas as well as exemplary skills and achievements. All portfolios should include, but are not limited to the following:

- Evidence of project completion in occupational programs
- Course work samples such as essays, exams, and research projects
- A resume and letters of recommendation
- Academic work samples
- Certificates and awards

Freshman and sophomore students accumulate initial product materials. Juniors and seniors will continue to add to their personal portfolios through proficient product materials including the addition of a resume and documentation of skills and special talents.

The student's personal portfolio is a useful tool in showcasing accomplishments and information, and will become an impressive visual resource to be shared during interviews with prospective employers or post-secondary institutions. The successful development and completion of a personal portfolio is an exit requirement of Upper Cape Cod Regional Technical School and becomes the personal property of each graduating student.

## **Graduation Requirements**

### **GRADING SYSTEM - GRADING / PROMOTION**

#### **Numerical Value of Letter Grades**

A	= 94 to 100	C	= 74 to 76
A-	= 90 to 93	C-	= 70 to 73
B+	= 87 to 89	D+	= 67 to 69
B	= 84 to 86	D	= 64 to 66

B- = 80 to 83 D- = 60 to 63  
C+ = 77 to 79 F = Below 60 (No Credit)

### **PROMOTION REQUIREMENTS**

- Any Grade 9 student failing English, Math, and/or Science will be required to attend summer school.
- Any Grade 10 student failing English and/or Math will be required to attend summer school.
- Any Grade 11 student failing English and/or any other full-credit course will be required to attend summer school.
- Any Grade 12 student failing English, or failing more than one half-credit, or falling short of graduation requirements, will be required to attend summer school and will not receive a diploma until graduation requirements are met.

### **GRADUATION REQUIREMENTS**

Students will be assisted by their guidance counselor in selecting appropriate coursework and levels based upon individual goals and strengths. Each year, students will take English, math, and science courses. Students will be enrolled in a technical program of study each year. (Ninth grade students will take Exploratory for the first half of the year prior to placement.) Additionally, social studies, computer technology, and physical education and health courses are assigned to meet graduation requirements. In some cases, students will have the opportunity to choose from a list of electives to satisfy requirements (such as social studies, science, and senior English courses).

Student will have the potential to earn eight (8) credits each school year. Students must have a total of 30 credits to graduate. The 30 credits must include, at a minimum, the following:

- 4 credits of English
- 3 math credits (including Algebra 1, Geometry, Algebra 2 at a minimum)
- 2 ½ credits of science, including Biology and Chemistry
- 1 credit of Social Studies, including US History 1 and World History 1
- ½ credit of Phys Ed/Health
- 1 ½ credits of electives
- 1 ½ credits of technical related
- 16 credits of Technical program.

### **HONOR ROLL**

The honor roll system is established to provide students the opportunity to achieve recognition and distinction for academic and technical achievement. There is no limit to the number of students listed on the honor roll. Each student's effort and ability are the only controlling factors.

### **REQUIREMENTS FOR HIGH HONOR ROLL**

1. Grades for the marking period must be all A's, except one B.
2. All attitude marks average or above.
3. Any negative comment will prevent student from making the HIGH HONOR ROLL.

## **REQUIREMENTS FOR HONOR ROLL**

1. Grades for the marking period must be all A's and B's
2. All attitude marks average or above.
3. Any negative comment will prevent a student from making the HONOR ROLL.

## **GRADE POINT AVERAGE AND CLASS RANK**

Grade point averages (GPA) and class rank are important to students seeking college acceptance, scholarships, financial assistance, and other post-secondary endeavors. Upper Cape Tech uses an unweighted GPA. This means that GPA is a simple average of grades for all courses taken. Class rank is calculated using a system of levels and credits. Each academic and elective course is assigned the appropriate level based on the rigor of the curriculum and performance expectations.

## **EXTRA HELP**

Students who experience difficulty with their school work may request extra help from classroom teachers. Each teacher is available at least one afternoon a week for students to make up tests and work missed for valid reasons and to provide additional instruction to students who are having difficulty with work presented during regular classes. Late bus transportation is provided.

## **COOPERATIVE EDUCATION PROGRAM**

Upper Cape Tech maintains a placement service to assist students in securing positions in the Cooperative Program as well as permanent job placement upon graduation. The "Cooperative Work Experience" is a program of supervised on-the-job training for selected 12th grade students and some highly recommended 11th grade students through a cooperative arrangement between school and the employer. At the completion of two years in a specified trade area, a candidate for the Cooperative Program must demonstrate a creditable degree of achievement in his/her shop, must maintain C or better average and give evidence of positive cooperation within the school environment as well as an acceptable record of attendance and punctuality. Students will work on job sites under the direct supervision of a skilled tradesperson during hours parallel to a school day program. In the fields of Health Occupations and Culinary Arts, hours may vary by necessity to meet human service needs. An employer must have Worker's Compensation Insurance to cover any cooperative student. The student must provide transportation to the job site. Each student is responsible for returning a weekly evaluation sheet to their Co-op Advisor. If for any reason a student fails to adhere to the regulations, the cooperative agreement will be voided and the student will return to school full-time. Under no circumstances is a cooperative student to terminate his/her job before consulting with his/her Guidance Counselor and his/her Co-op Advisor.

## **DUAL ENROLLMENT**

Dual Enrollment provides an opportunity for students to take courses at Cape Cod Community College. Juniors and seniors who are in excellent standing in both academic and technical courses are eligible to participate on a full or part-time basis.

Students select college courses with the assistance of the guidance department at Upper Cape Tech and receive high school credit for the coursework completed at the College. Additionally, seniors who participate in Dual Enrollment are responsible for completing all requirements of their technical program, including Senior Project.

## **PATHWAYS TO SUCCESS**

A student may not miss more than two (2) academic or two (2) shop days during a quarter. A student who **exceeds** two (2) unexcused absences in academics and/or two (2) unexcused absences in shop will be required to participate in the after-school program, *Pathway to Success*, for 10 hours for academics and/or 10 hours for shop. Report cards will reflect a grade of “Z” for shop and/or all academic courses until *Pathways to Success* has been completed for that term. Students must complete time by the end of the next term for the previous term. “Z” grade converts to a “50” or student’s actual average if lower [grade not to exceed 50].



they helped to define the history of the world. Students will also explore American literature topics centered on the American west where they will challenge their understanding of both traditional and nontraditional definitions of heroes and monsters.

### **Warriors and Cowboys: From Beowulf to Buffalo Bill**

Purpose: Students will study how warriors and cowboys are the heroic embodiment of our most cherished values, and explore what makes warriors and cowboys “tick” through both cinematic and literary texts, as well as accounts written by people who lived through these long-ago historic events. Through a large variety of colorful, larger-than-life characters, students will investigate and challenge the definitions of loyalty, bravery, and courage.

### **English Honors Credit**

Honors courses move at an accelerated pace compared to College Prep and Technical Prep courses. Honors students will cover the same materials as students enrolled in College Prep and Technical Prep classes, but because they are moving more rapidly through the material, they will cover additional pieces of literature, discuss literary criticism, more thoroughly develop their understanding of literary devices, and develop their writing skills above and beyond literary analysis and research. Students are expected to be able to work not only under the direct supervision of their instructors, but they must also be able to successfully work in group settings and independently. Honors students receive supplemental assignments each term. These assignments will include supplemental reading materials, research projects, and presentations. Honors credit is available at every level, including Senior Electives; seniors enrolled in elective courses (i.e. Cowboy Literature, Gothic Fiction, Myths and Legends, etc.) may earn honors credit. These students will receive a separate syllabus outlining the additional assignments they must successfully complete in order to earn the honors credit for the course.

## **Mathematics**

<b>Grade 9</b>	Algebra 1	Honors Algebra 2
<b>Grade 10</b>	Geometry	Honors Geometry
<b>Grade 11</b>	Algebra 2 Part A	Honors Trigonometry
<b>Grade 12</b>	Algebra 2 Part B	Honors Calculus

### **Grade 9 – Honors Algebra II**

Purpose: This is an accelerated course with an emphasis on the art of problem solving as it expands upon the topics developed in Algebra I. The topics of study include functions, linear systems, rational expressions, radical and complex numbers, and conic sections. Applications include problems relating to the students' technical areas and everyday life.

### **Algebra I**

Purpose: This is a course with an emphasis on the art of problem solving. Students use algebraic methods to explore, model, and describe patterns and functions involving numbers, data, and graphs. The topics of study include real numbers, linear equations and inequalities, laws of exponents, polynomials and factors, quadratic functions, data analysis and statistics. Applications include problems relating to the students' technical areas and everyday life.

### **Grade 10 – Honors Geometry**

Purpose: This course is an accelerated course with an emphasis on the art of problem solving. Students analyze the characteristics of two and three-dimensional geometric figures and their properties. The study of topics include polygons, properties of circles, area and volume of plane figures and solids, coordinate and transformational geometry, parallelism, congruent and similar figures, and probability. Applications include problems relating to the students' technical areas and everyday life.

### **Geometry**

Purpose: In this course students analyze the characteristics of two and three-dimensional geometric figures and their properties. The topics of study include polygons, properties of circles, area and volume of plane figures and solids, coordinate and transformational geometry, parallelism, similar figures, and probability. Applications include problems relating to the students' technical areas and everyday life.

### **Grade 11 – Honors Trigonometry**

Purpose: This is an accelerated course designed to prepare students for Calculus and AP Calculus AB. The topics of study include a further examination of functions: linear, polynomial, rational, exponential, logarithmic, and trigonometric functions. The study of functions will include graphs, asymptotes, limits, continuity, symmetry, domain and range, and roots. Use of the graphing calculator is emphasized throughout instruction.

### **Algebra II Part A**

Purpose: This course expands upon the topics developed in Algebra I. The topics of study include functions, linear systems, factoring, rational expressions, radicals and complex numbers, and conic sections. Applications include problems relating to the students' technical areas and everyday life. This is the first half of a two year course.

### **Principles of Algebra 2, Part A**

Purpose: This course expands upon the topics developed in Algebra I. The topics of study include linear equations and functions, linear inequalities, systems of linear equations and inequalities, exponents and exponential functions, quadratic equations and functions, polynomials and factoring, rational expressions and radicals. Applications include problems relating to the students' technical areas and everyday life. This is the first half of a two year course.

### **Grade 12 – Honors Calculus**

Purpose: This is an accelerated course with an emphasis on the AP Calculus AB Exam. Students enrolled in this course prepare to take the Advanced Placement AB Calculus Exam and seek college credit and/or placement from institutions of higher learning. Course study includes properties of functions, graphs, limits, differential calculus, integral calculus, and applications. Regular use of a graphing calculator is required in the course work. Successful completion of summer problems and/or special projects may be required.

### **Algebra II Part B**

Purpose: This course expands upon the topics developed in Algebra I. The topics of study include functions, linear systems, factoring, rational expressions, radicals and complex numbers, and conic sections. Applications include problems relating to the students' technical areas and everyday life. This is the first half of a two year course.

### **Principles of Algebra 2, Part B**

Purpose: This course expands upon the topics developed in Algebra I. The topics of study include linear equations and functions, linear inequalities, systems of linear equations and inequalities, exponents and exponential functions, quadratic equations and functions, polynomials and factoring, rational expressions and radicals. Applications include problems relating to the students' technical areas and everyday life. This is the second half of a two year course.

### **Trigonometry**

Purpose: A Pre-Calculus course designed to be an extension of Algebra 2. All major areas of Algebra 2 are reinforced, with additional applications. Topics include, but are not limited to, quadratic functions with applications, polynomial and rational functions, exponential and logarithmic functions, trigonometry functions, right angle trigonometry, identities, and trigonometric applications. The course is designed to encompass all topics necessary to be successful in Calculus.

### **Calculus**

Purpose: This course is an introduction to calculus and provides students with initial exposure to limits, continuity, the derivative, differentiation of algebraic, trigonometric, logarithmic, exponential functions, and applications of the derivative. Topics will also include a less in-depth study of the integral, applications of the integral, and techniques of integration.



## **Science**

**Grade 9:** Biology w/Lab

**Grade 10:** Conceptual Physics

**Grade 11:** Chemistry w/Lab or Chemistry

**Grade 12:** Advanced Biology    Astronomy  
Chemistry w/Lab II    Marine Biology  
Physics w/Lab    Physics

### **Grade 9:    Biology w/Lab**

Purpose: To provide students with an introductory science course that prepares students in the inquiry process and provides them the skills necessary for success in future science classes. The class is taught in consonance with the Massachusetts State Science and Engineering Frameworks and will prepare the students for the science portion of the MCAS. Content is comparable across the various levels.

### **Grade 10:    Conceptual Physics**

Purpose: To provide students with an introductory background in forces, motion and energy in a hands-on inquiry based environment. Students will develop and apply skills in applying both the scientific process and engineering process. The class is taught in consonance with the Massachusetts State Science and Engineering Frameworks. Content is comparable across the various levels.

### **Grade 11:    Chemistry w/Lab**

Purpose: To provide students with an introductory course in chemistry and develop skills in applying the scientific process. This course targets students planning to attend a four-year college. Students will develop requisite academic skills to do well in college level science courses. This course is available at the College Prep and Honors level.

### **Chemistry**

Purpose: To provide students with content comparable to the Chemistry w/Lab course, and targets students who plan to attend a two-year college or enter into an occupational area.

### **Grade 12:    Electives**

#### **Advanced Biology**

Purpose: To provide students with an introductory college level course on biochemistry that focuses on the physiology of the cell from simple organic chemistry through the Krebs's Cycle and photosynthesis processes. This course targets students planning to attend a four-year college, nursing school, or other medical programs. Students will develop requisite academic skills to do well in college level science courses. This is a lab based course intended for students in health careers, environmental technology, cosmetology, and the culinary occupational areas, but is open to all students as an elective.

#### **Astronomy**

Purpose: To provide students with an introductory course on astronomical instruments, planets, planetary geology, stellar characteristics, cosmology, space engineering, and possibilities for life elsewhere in our

universe; and to develop requisite academic skills that will assist the student in college careers or to enter into an occupational area. This course is open to all students from any occupational area as an elective science.

### **Marine Biology**

Purpose: To provide students with an introductory course on ocean life from the most primitive to the most complex organisms, with a focus on local biota. This is a survey course open to all students as an elective science. This course targets students who plan to attend a two-year college or enter into an occupational area.

### **Chemistry (w/Lab) 2**

Purpose: To provide students with a continuation of Chemistry w/Lab. Topics will include Gas Laws, Organic Chemistry, Stoichiometry, solutions, and equilibrium. This is a lab based course targeting students planning to attend a four year college, but is open to all students.

### **Physics w/Lab**

Purpose: To provide students with an introductory course on physics and to develop skills in applying the scientific process. This course targets students planning to attend a four year college. Students will develop requisite academic skills to do well in college level courses. This course is intended for students in the construction and mechanical technologies, engineering, and informational technology, but is open to all students in any occupational areas as an elective science. This course is available at Honors level.

### **Physics**

Purpose: To provide students with content comparable to the physics with lab course. This course targets students who plan to attend a two-year college or enter directly into an occupational area. This course is intended for students in the construction and mechanical technologies, engineering, and informational technology, but is open to all students in any occupational areas as an elective science.

## **History/Business**

**Grade 9** World History I

**Grade 10:** US History 1

**Grade 11:** Business Management 1 U.S. History 2 World History 2

**Grade 12:** Business Management 2 U.S. History 2 World History 2

### **Grade 10: U.S. History 1**

This course examines the historical and intellectual origins of the United States during the Revolutionary and Constitutional eras. Topics include the Revolution, the writing of the U.S. Constitution, the Civil War, and the basic framework of American democracy and the basic concepts of American government. Students will improve upon various social science skills, including reading maps and charts, using timelines and flow charts, interpreting tables and graphs, and using primary and secondary documents. Content is comparable across levels.

### **Grade 11: Business Management 1**

This is the first in a two-course sequence designed to present students with a balanced view of business with all the strengths, weaknesses, successes, failures, problems and challenges associated with it. Students will develop a solid base for more advanced courses and gain an understanding of the opportunities, rewards and challenges of a business career. Topics include: Conducting Business in the Global Economy, Fundamentals of Business and Economics, Ethical and Social Responsibilities of Business, Competing in the Global Economy, Fundamentals of Information Management, Starting and Expanding a Small Business, Small Business, Entrepreneurships and Franchises, Forms of Business Ownership, Managing a Business, Functions and Skills of Management, Organization and Teamwork, and Production of Quality Goods and Services.

### **U.S. History 2**

In U.S. History II, students will explore the transformative effects of the Civil War and the emerging role of the US as world power. They will examine the expanding concept of democracy, and the tumultuous 20<sup>th</sup> century as American influence expands in industry, world affairs, military conflicts and ideology. The course will conclude with an examination of the current state of the people of the US in the world. The instructional activities will develop the student's critical thinking, writing and reading skills.

### **Grade 12: Business Management 2**

This is the second in a two-course sequence designed to present students with a balanced view of business with all the strengths, weaknesses, successes, failures, problems and challenges associated with it. Students will develop a solid base for more advanced courses and gain an understanding of the opportunities, rewards and challenges of a business career. Topics include: Managing Employees, Employee Motivation, Managing Human resources, Developing market Strategies to Satisfy Customers, Fundamentals of Marketing, Customers, and Strategic Marketing Planning, Product and Pricing Strategies, Distribution Strategies, Promotional Strategies, Securities.



## **Physical Education/Health**

### **Grade 9 Physical Education/Health**

The physical Education program emphasizes that physical activity is an essential part of overall health. The focus of the physical education curriculum includes principles of exercise and fitness, nutrition, cardio-respiratory endurance, muscles strength, flexibility, and body composition and weight management. Methods of learning include class instruction, and supervised fitness activities. The goal is for students to learn and practice lifelong habits and healthful behaviors.

Health has specific areas of study that align with the Mass State Frameworks. Inclusive to all topic areas are lessons and information on decision making, taking responsibility for one's actions, and accessing health resources at school and in the community. A study of depression, HIV/AIDS, violence prevention, positive communication, drug awareness, and appreciation for diversity/ diversity awareness, is integral to the curriculum.

### **Grade 10 Physical Education/Health**

The 10<sup>th</sup> grade Physical Education course builds upon the previous course. Students further develop their understanding of principles of exercise and fitness, nutrition, cardio-respiratory endurance, muscles strength, flexibility, and body composition and weight management. The 10<sup>th</sup> grade Health class is aligned with the Mass State Frameworks, and continues where the 9<sup>th</sup> grade course left off.

Physical Education/Health is required for all ninth and tenth grade students. Students who participate in an academic support class as necessitated by an IEP may be exempt from this requirement.

## **Computer Technology:**

The Computer Technology curriculum provides state-of-the-art instruction in computer skills. The program offers students a solid foundation in computer skills necessary to perform successfully in business organizations, or as undergraduate students in a two or four year college program.

Grade 9

### **Integrated Instructional Technology I**

This course introduces students to the UCT Network and offers students an opportunity to gain knowledge of, and develop basic competencies in personal computer skills through hands-on assignments. Students are introduced to word processing, basic editing, formatting, and the use of tables and graphics. Presentation software is also introduced in the form of digital story telling. Students are given the opportunity to apply these skills through assigned projects and computer lab demonstrations.

Grade 12

### **Integrated Instructional Technology II**

This course is designed to continue the presentation software work started in freshman year and then introduce students to spreadsheets. For business presentations, students learn to use Microsoft PowerPoint in order to communicate effectively with an audience. For spreadsheets, students are introduced to spreadsheet software, including formulas and charts, and data base applications. Students apply their technical skills through assigned projects and computer lab demonstrations.

## **Technical Programs**

### **Automotive Collision Repair**

This program provides students with National Automotive Technicians Education Foundation (NATEF) certified training. Instruction is provided in all aspects of vehicle repair and reconditioning including structural and non-structural analysis and damage repair, mechanical and electrical components, painting and refinishing, plastics and adhesives. An Inter-Industry Conference on Auto Collision Repair (I-CAR) Education Foundation Advanced-Tech Curriculum provides students with the necessary skills for employment in the very lucrative and rewarding career of Collision Repair.

### **Auto Collision Repair Exploratory**

This program is an intensive one-week introduction in basic auto body panel straightening and repair on actual auto body panels and painting procedures. Projects include students refinishing an actual auto body panel. Related theory focuses on the general topics of shop safety and career potential in the collision repair industry.

### **Auto Collision Repair 9th Grade Shop**

Students are introduced to basic vehicle construction, basic hand tools used for repair, paint and surface preparation, vehicle detailing, and the use of trade materials such as plastic fillers, masking supplies, abrasives, and solvents. Safety is an important issue and is stressed throughout the 4-year program.

### **Auto Collision Repair 9th Grade Theory**

This course examines auto detailing (washing and cleaning of vehicles), surface preparation, masking, hand sanding techniques, respirator safety, general hand tools, hand and power tools used in collision repair, introduction to spray guns, undercoats (primers), small dent repair (plastic fillers), basic body construction and measuring. Reading, writing, and math assignments are integrated with auto body theory.

### **Auto Collision Repair 10th Grade Shop**

Auto Body basics are expanded to include use of pneumatic and electric tools, compressed air supply equipment, sheet metal work, paint and primer mixing ratios and applications, trim installation and removal, torquing procedures, small dent repair, panel replacement and adjustment, and lifting and jacking. Safety and quality of workmanship are stressed.

### **Auto Collision Repair 10th Grade Theory**

This course reviews refinishing equipment, refinishing procedures and materials, basic sheet metal repair, polishing and compounding, welding basics (gas), basic MIG welding, cosmetic panel replacement, wheels and tires, fasteners, exterior molding and trim, and lifting and jacking. Reading, writing, and math assignments related to the auto body profession are integrated with academic frameworks during this class.

### **Auto Collision Repair 11th Grade Shop**

Juniors fine-tune previously acquired skills. Instruction includes welding and cutting equipment and procedures, overall paint application including color and clear topcoats, body and frame straightening procedures, and automotive plastics. Juniors learn to diagnose each vehicle's unique collision damage and perform appropriate repair procedures.

### **Auto Collision Repair 11th Grade Theory**

Students study interior repair, glass replacement, fiberglass panel repair, plastic panel repair and refinish procedures, structural panel replacement, wheels and tires, fasteners, and exterior molding and trim. Reading, writing, and math assignments related to the auto body profession are integrated with academic frameworks in this class.

### **Auto Collision Repair 12th Grade Shop**

In addition to using previously acquired skills, seniors specialize in analyzing and repairing frame damage. Damage repair and refinishing skills are mastered. Mentoring of underclassmen, business and managerial concepts, such as damage estimating, part and material ordering, and customer interaction are introduced. Eligible seniors may participate in the co-op program.

### **Auto Collision Repair 12th Grade Theory**

This course examines vehicle structural repair, analyzing and gauging frame damage, and advanced refinishing procedures, suspension systems, and basic electro/mechanical systems. Research as well as reading, writing, and math assignments related to the auto body profession are integrated with academic frameworks during this class.

## **Automotive Technology**

This program, certified by the National Institute for Automotive Service Excellence (ASE) through the National Auto Technicians Educational Foundation Inc. (NATEF), is designed to prepare students for the highly skilled automotive industry. Sound basic mechanical knowledge is forged with current electronic diagnostic techniques; skills are acquired by working on “live domestic and foreign vehicles. Student technicians learn by using sophisticated electronic diagnostic equipment and state-of-the-art systems trainers. Repairs are made on engines, ignitions, fuel systems, transmissions, suspension systems, brakes, powertrains, and accessories.

### **Auto Tech Exploratory**

This one-week program provides the 9th grade student with instruction in basic maintenance of vehicles. Students will perform fluid level checks, oil and filter changing and record information on a vehicle checklist. Students will be taught service information lookup procedures and recording of specifications, jacking procedures, and if time allows, tire mounting and balancing. A visit to local automobile dealerships highlighting the service, parts and sales departments with a chance to talk to service personnel is also included. Students receive instruction in shop operational procedures, personal and shop safety, and tool usage. Instructional delivery includes presentations, demonstrations and hands-on performance.

### **Auto Tech 9th Grade Shop**

This half-year course provides students with the basic knowledge and skill training necessary for continued success in the Automotive Technology program. Students receive instruction in career opportunities, tire service, preventative maintenance, brake system service, and basic engine construction and design. Instructional delivery includes presentations, demonstrations and hands-on performance testing in the areas of shop operation, tire inspection, identification, balance and repair, inspection, identification and repair of disc/drum brake systems. Instruction is augmented by the assigning of three homework assignments most weeks and assessment tests twice per week.

### **Auto Tech 9th Grade Theory**

This half-year course provides students with the technical knowledge necessary for success in the Automotive Technology program. Students receive instruction in engine and chassis lubrication under different service conditions. The automobile fuel, cooling, and electrical systems, the principles of braking, friction, pressure, heat dissipation and hydraulic system operation, tire construction, design, and replacement procedures are also studied. Instructional delivery includes the use of instructor led presentations, reading and writing assignments, classroom demonstrations, and media presentations. Reading, writing, and math assignments related to the automotive industry are an integral part of this class. Instruction is augmented by the assigning of three homework assignments most weeks and assessment tests twice per week.

### **Auto Tech 10th Grade Shop**

This course provides students with the knowledge and skill training necessary for continued success in the Automotive Technology program. Students receive instruction and hands-on training in steering/suspension fundamentals and service, wheel alignment fundamentals and service, basic electrical/electronic theory and

operation, ignition and fuel system theory and operation. Instructional delivery includes presentations, demonstrations, computer based instruction and hands-on performance testing. Instruction is augmented by homework assignments and assessment tests each week.

### **Auto Tech 10th Grade Theory**

This course provides students with the technical knowledge necessary for continued success in the Automotive Technology program. Students receive instruction in steering and suspension geometry, performance of pre-alignment checks and 4-wheel alignment, fundamentals of electrical principles, use of DVOM, Ohm's Law, basic circuit design, testing and repair of batteries, starters, alternators and their related circuits. Testing and diagnosis procedures are taught on cooling fan, blower controls, lighting, power window and seat circuits. Instructional delivery includes presentations, reading and writing assignments, computer based instruction, classroom demonstrations and visual media presentations. Reading, writing, and math assignments related to the automotive profession are integrated with academic frameworks during this class. Instruction is augmented by the assigning of homework and assessment tests each per week.

### **Auto Tech 11th Grade Shop**

This course provides students with the knowledge and skill training necessary for continued success in the Automotive Technology program. Students receive instruction and hands-on training in the diagnosis and repair of heating and air conditioning systems, fuel delivery systems, maintenance and service of the cooling system, maintenance and repair of engines (part 2), exhaust system inspection and service, service and testing of the emission control systems, parts, inventory, and billing procedures, instruction in the use of the ALL-DATA repair information system. Students receive instruction and hands-on training in service and repair of the manual transmission/transaxle. Testing and repair of automatic transmission/transaxle, diagnosis and repair of clutch systems, differentials, and drive line components. Instructional delivery includes presentations, demonstrations, and hands-on performance testing. Instruction is augmented by the assigning of homework and assessment tests each week.

### **Auto Tech 11th Grade Theory**

This course provides students with the technical knowledge and skill training necessary for continued success in the Automotive Technology programs. Students receive instruction and hands-on training in the principles and operation of heating and air conditioning systems, fuel delivery systems, principles and operation of the cooling system, engine system diagnostics, principles and operation of the emission control system, parts, inventory, and billing procedures, and instruction in the use of the ALL-DATA repair information system. Students receive instruction and hands-on training in service and repair of the manual transmission/transaxle. Instructional delivery includes presentations, demonstrations, and the use of visual media. Reading, writing, and math assignments related to the automotive profession are integrated with academic frameworks during this class. Instruction is augmented by the assigning of homework assignments and assessment tests each week.

### **Auto Tech 12th Grade Shop**

This course provides students with the technical knowledge and skill training necessary for continued success in the Automotive Technology program. Students receive instruction and hands-on training in the proper use of scan tools, lab scopes, and state of the art test equipment. Instructional delivery includes presentations, demonstrations, and hands-on performance testing, reading and writing assignments, shop demonstrations, and visual media presentations. Tests and performance evaluations are used to determine the student's level of mastery. Instruction is augmented by the assigning of and assessment tests each week.

### **Auto Tech 12th Grade Theory**

This course provides students with the technical knowledge and skill training necessary for continued success in the Automotive Technology program. Students receive instruction and hands-on training in the principles and operation of scan tools, lab scopes, and test equipment. Instructional delivery includes presentations, reading and writing assignments, classroom demonstrations, and visual media presentations. Reading, writing, and math assignments related to the automotive profession, are integrated with academic frameworks during this class. Instruction is augmented by the assigning of homework and assessment tests each week.

## **Carpentry**

Students in this program receive instruction in mill and house carpentry planning and construction projects. Students learn the modern methods and styles of commercial and residential buildings, including design and construction technology, as well as the safe and effective use of all hand and power tools. Carpentry students develop their expertise at off-campus community building projects within the towns of the school district.

### **Carpentry Exploratory**

This one-week course provides students with the basic knowledge and relevance of safety, estimating, and career paths in the field of carpentry. Students receive instruction in hand tools and their applications and general shop safety. Students will put in to practice what they have learned by building an assigned project. Critical thinking skills are emphasized throughout the course.

### **Carpentry 9th Grade Shop**

This is a half-year course, providing carpentry students with basic knowledge and relevance of shop safety. Students are introduced to blueprint reading and working from measured drawings. Students receive instruction in hand tools, hand applications, and are introduced to power tools. Critical thinking skills are emphasized throughout the course. A sawhorse project is used to review the students' progress in the general knowledge of blueprint reading and the use of hand and stationary power equipment. There is also an introduction to CNC design.

### **Carpentry 9th Grade Theory**

This half-year course, meeting one period per day during the shop cycle, provides students with the basic knowledge of plan estimation and relevance of shop safety as well as state and local building codes. Students receive instruction in both hand and power tool safety and application. Students are introduced to interpreting blueprints and measured drawings. Critical thinking skills are emphasized throughout the course. Reading, writing and math assignments related to carpentry theory are an integral part of this class. Throughout every phase of instruction, deliberate effort is made to acquaint students with working conditions they can expect to find on an actual job. Safety is stressed at all times.

### **Carpentry 10th Grade Shop**

This course builds on the skills students have acquired as freshmen. Students begin to interpret blueprints, learn components of basic woodworking joinery and improve their hands on skills as they embark on construction/woodworking of a scale model of a house. Tool and worksite safety is an integral part of the shop curriculum. Students learn estimating and are introduced to state and local building codes. Students are evaluated by their performance on individual and group projects.

### **Carpentry 10th Grade Theory**

Students receive instruction in blueprint reading and interpreting 'to scale' drawings. Tool and jobsite safety includes the use of portable power tools, and an introduction to state and local building codes. Reading, writing,

and math assignments related to the carpentry profession are integrated with academic frameworks during this class. Students also learn the basics of forming and pouring concrete for residential and commercial construction, using the latest improvements in construction technology.

### **Carpentry 10th Grade Basic CAD**

Purpose: AutoCAD is the most popular and widely used drafting program in the world. Students will be introduced to using the computer as a drafting tool in this beginner's course. This course will apply hands on exercises in order to build comfort and confidence while exploring how to draw, edit, put in dimensions and print various types of two dimensional drawings using the most recent version of the AutoCAD program.

### **Carpentry 11th Grade Shop**

This course provides the carpentry student with advanced knowledge in the areas of shop and worksite safety, estimating, and state and local building codes. Students will have the opportunity to work in two different training settings. Students rotate from working on projects within the shop to working on off-campus sites in which they will be engaged in community service construction projects within the district's 5 sending towns. The emphasis of instruction and projects is on residential house framing and finishing procedures.

### **Carpentry 11th Grade Theory**

This course provides the carpentry student with advanced knowledge in the area of safety, estimating, and state and local building codes. The main concentration for instruction includes residential house framing. There will be a strong emphasis on interpreting blueprints as well as state and local building codes. Reading, writing, and math assignments related to the carpentry professions are integrated with academic frameworks during this class.

### **Carpentry 11th Grade CAD Fundamentals**

Purpose: Students will build upon skills developed in AutoCAD Basic in the areas of basic commands and concepts. Students will develop greater control over AutoCAD tools and environment by creating their own template files, drawing a floor plan complete with specific layers, furniture and dimensions, and using attribute blocks, paper space, viewports, and scaling.

### **Carpentry 12th Grade Shop**

This course provides the carpentry student with advanced knowledge in the areas of safety, estimating, and state and local building codes. The goal of this course is to provide each student with the technical knowledge and experiences essential to secure employment as a carpenter and or transition to a post secondary institution. Students rotate from working on projects within the shop to working on off-campus sites within the district's 5 sending towns, engaged in community service construction projects. Students also have the option to participate in the co-op and work-study programs.

### **Carpentry 12th Grade Theory**

This course provides carpentry students with advanced knowledge of relevance of safety and estimating, blueprint reading, as well as state and local building codes. Instruction in house planning is emphasized. Research, which includes reading, writing and math assignments related to carpentry professions, is integrated with academic frameworks during this class.

### **Carpentry 12th Grade Intermediate CAD**

Purpose: Students will hone skills to a reasonable competency beyond basic functions to include topics such as house design, develop a full set of working residential plans including a floor plan, elevations, sections, details and schedule. Also, dimensioning, plotting and printing, hatching and boundaries, design with parametric constraints, blocks and attributes, external references, and drawing environments. Skill levels will be demonstrated in components of a student's Senior Project.

## **Cosmetology**

The cosmetology program offers students the chance to pursue the art and science of the beauty industry through a 1000 hour program.

Students receive practical and textbook related instruction on a variety of services offered in the industry of hair, skin, and nails. Qualified students perform services within our full service working salon. While students are perfecting technical skills they are also perfecting the art of social skills related to customer service. This includes, but is not limited to, customer relations, consultation, team work, listening skills, and the desire to continue their education in an industry that is constantly progressing and changing.

The students are also exposed to a variety of salons from our sending towns so that they may experience the environment of the industry.

Upon completion of the required amount of hours, and an understanding of the curriculum, the student will be eligible to take the state board licensing exam. By obtaining a license, students could become qualified for the co-operative education program where they would go to work for pay during their regularly scheduled shop weeks. Additional co-op rules apply.

### **Cosmetology Exploratory**

This one week introduction provides the 9th grade student with an introduction to the cosmetology program. The student is introduced to safety, sanitation, professional image and personal hygiene as well as career opportunities within the industry. Practical Instruction includes hair braiding, nail care, basic perm wrapping and nail art. Hands on performance testing and written tests are used to determine the student's potential success in the cosmetology industry.

### **Cosmetology 9th Grade Shop**

When students enter permanent placement, this course provides the student with basic knowledge and skill training necessary for success in the cosmetology industry. Students receive practical instruction on equipment safety, and sanitation. Practical work on mannequins includes draping, shampooing, rinsing, manicuring, wet and thermal hairstyling and proper make-up application. Students are graded daily on a rubric comprised of attendance, professionalism, practical tasks and clean up duties.

### **Cosmetology 9th Grade Theory**

Related instruction for the 9th grade student includes basic technical instruction and studies including the history of cosmetology, history and opportunities, professional image, infection control, anatomy and physiology and nail structure.. Instruction includes demonstrations, hands on practice, writing assignments, weekly vocabulary words, projects, portfolio work, quizzes and tests to determine competency levels.

### **Cosmetology Shop 10th Grade Shop**

This course is designed to further develop the basic skills and knowledge needed for success in the cosmetology field. Instruction includes salon management, computer applications, equipment, and chemical safety practices. Practical work includes facials, make-up application, hair removal, hairstyling, introduction to haircutting and artificial nails. Students are graded daily on a rubric comprised of attendance, dress code, practical tasks and participation. Students are graded daily on a rubric comprised of attendance, professionalism, practical tasks and clean up duties.

### **Cosmetology 10th Grade Scientific Principles of Cosmetology 1 & 2**

This course is designed to further develop the comprehension of basic cosmetology theories and technical instruction. Students receive instruction in properties of the hair and scalp, principles of hair design, hairstyling, skin structure and disorders, hair removal, facials, facial make-up, chemistry and electricity, nail structure disorders, advanced nail techniques, and hair cutting. Instruction includes demonstrations, hands on practice, writing assignments, weekly vocabulary words, quizzes and tests to determine competency levels.

### **Cosmetology Shop 11th Grade Shop**

This course is designed to give the students the opportunity to advance their knowledge and technical skills in the cosmetology program. Students receive advanced instruction in facials, make-up application, manicures, pedicures, advanced nail techniques, wet and thermal styling, haircutting, chemical texturizing, waxing, hair coloring, chemical use and precautions, foil and cap highlighting and sanitation practices. Upper level students meeting state board hourly requirements will have an opportunity to provide human services in “The Salon @ BVT” that is open to the public. Students are graded daily on a rubric comprised of attendance, professionalism, practical tasks and clean up duties.

### **Cosmetology 11th Grade Scientific Principles of Cosmetology 3 & 4**

This course is designed to give the students the opportunity to advance their knowledge and technical skills in the cosmetology program. Students receive instruction in communication, chemical texture services, wigs, hair coloring, gel nails, State board review as well as reviews in freshman sciences and nail theory. Instruction includes demonstrations, hands on practice, writing assignments, weekly vocabulary words, quizzes and tests to determine competency levels.

### **Cosmetology Shop 12th Grade Shop**

This course is designed to provide students with the opportunity to master their technical skills and comprehension level in the cosmetology program. Students meeting State board hourly requirements will provide services in “Tech Styles” that is open to the public. Qualified seniors who are in good standing vocationally and academically, who have successfully passed the State board exam, can participate in our cooperative program. Students will gain industry experience and an opportunity to master their knowledge and skills in a professional workplace. Students are graded daily on a rubric comprised of attendance, professionalism, practical tasks and clean up duties.

### **Cosmetology 12th Grade Entrepreneurship**

This course is designed to prepare the student for state licensure and the professional workplace. Students receive instruction on the salon business, seeking employment, on-the-job training, resume writing, managing money, management and entrepreneurship, State board review, as well as life skills, familiarizing the students with all aspects of the industry. After completing the Massachusetts State board hourly requirement of 1000 hours, and successfully passing the State board written and practical exam, the student will be a licensed Cosmetologist. Other educational opportunities would include advanced post-secondary training in manicuring or aesthetics that would award a specialty license.

## **Culinary Arts**

Students receive training in all aspects of food preparation, baking, dining room service and basic restaurant management through the operation of our popular Canalside Restaurant overlooking the Cape Cod Canal. Culinary students learn menu planning, purchasing, quality control, service, ice carving, artistic display, and management. Students learn about healthy dietary options. Students also receive experience catering a wide variety of community functions.

### *Culinary Arts National Standards*

- American Culinary Federation (ACF Certified)
- Serve Safe Certification - Optional
- Pro Start
- Massachusetts Food Handlers Certificate

### **Culinary Arts Exploratory**

This one-week course provides the 9th grade student with an introduction to the food and beverage industry from four vantage points: kitchen, restaurant, bakeshop, and quantity foods. The student spends time in each area learning hands-on applications. The student is introduced to safety, sanitation, personal hygiene, table settings, order taking, bakery, and basic cooking methods.

Instruction utilizing demonstrations and hands-on performance are used to determine the student's potential success in the food and beverage industry.

### **Culinary Arts 9th Grade Shop**

This course provides the 9th grade student with the basic knowledge and skill training necessary for continued success in the Culinary Arts program. Students receive instruction in career opportunities, shop operational procedures, personal hygiene and safety, equipment identification, basic cooking methods, introduction to table service, weights and measures, cooking temperatures, wash methods, yeast dough, knives and cuts, and chemical use and storage. Instruction utilizes presentations, demonstrations, notebook inspections, and hands-on performance tests in the above areas to determine achievement of competencies. Students are graded daily on a rubric comprised of attendance, effort, uniform, safety and sanitation, clean up, preparation, conduct, dependability, and assignments.

### **Culinary Arts 9th Grade Introduction to Food Service**

This course provides the 9th grade student with the basic technical knowledge and studies in the Culinary Arts program. Students explore career opportunities, the history of culinary arts, the brigade system and its operation, utensil and equipment identification, safety and sanitation, personal hygiene, and HACCP temperatures. Instruction utilizes presentations, demonstrations, notebook inspections, hands-on performance tests, writing assignments, quizzes, and tests in the above areas to determine achievement of competencies. Reading, writing, and math assignments related to Culinary Arts theory are an integral part of this class.

### **Culinary Arts 10th Grade Shop**

This course provides students with further development of the basic skills and knowledge in the Culinary Arts program. Students receive instruction in cooking methods, service techniques and styles, salad and sandwich

preparation, frylator, bread dough, pastry crusts, basic cake mixes, sanitation, food storage, vegetable and fruit preparation, dessert presentation, and institutional cooking. Instruction utilizes presentations, demonstrations, notebook inspections, hands-on performance tests, writing assignments, quizzes, and tests to determine achievement of competencies. Students are graded daily on a rubric comprised of attendance, effort, uniform, safety and sanitation, clean up, preparation, conduct, dependability, and assignments.

### **Culinary Arts 10th Grade Culinary Methods 1**

This course provides students with further development of the basic knowledge and theory in the Culinary Arts program. Students receive instruction in culinary math, knife skills, large equipment using recipes, Mise en Place, cooking principles, salads and dressings, fruit identification, sandwiches, sauces, soups, vegetable identification, table service, entering the workforce, culinary history, nutrition, managing resources, menus, developing taste. Instruction utilizes presentations, demonstrations, notebook inspections, hands-on performance tests, writing assignments, quizzes, and tests to determine achievement of competencies. Reading, writing and math assignments are integrated with academic frameworks.

### **Culinary Arts 11th Grade Shop**

This course provides students the opportunity to advance their knowledge and skills in the Culinary Arts Program. Students receive advanced instruction in broiling, baking and sauté, specialty desserts, cake icings and decorating, meat butchering, seafood portioning, soup and sauces, banquet service, buffet set-up and service, service of large parties, and breakfast cooking. Instruction utilizes presentations, demonstrations, notebook inspections, and hands-on performance tests to determine achievement of competencies. Students are graded daily on a rubric comprised of attendance, effort, uniform, safety and sanitation, clean up, preparation, conduct, dependability, and assignments.

### **Culinary Arts 11th Grade Culinary Methods 2**

This course provides students with the opportunity to advance their knowledge in the Culinary Arts program. Students receive advanced instruction in meat and seafood identification, basic plate presentation, vegetable cookery, starch identification and cookery, dry-heat cooking, moist-heat cooking, fish and shellfish identification and cooking, hot sandwiches and pizza, dairy and egg identification. Instruction utilizes demonstrations, writing assignments, quizzes, and tests to determine achievement of competencies. Reading, writing and math assignments related to the Culinary Arts professions are integrated with academic frameworks during this class.

### **Culinary Arts 12th Grade Shop**

This course provides students with the opportunity to master their knowledge and skills in the Culinary Arts program. Students receive advanced instruction in food and beverage management, operating the kitchen line, maitre d', pastry chef, handling money, problem solving, menu design, Garde manager, bistro cooking and service. Instruction incorporates demonstrations, notebook instructions, and hands-on performance tests to determine achievement of competencies. Students are graded daily on a rubric comprised of attendance, effort, uniform, safety and sanitation, clean up, preparation, conduct, dependability, and assignments.

### **Culinary Arts 12th Grade Culinary Management**

This course provides students with the opportunity to advance their knowledge and skills in the Culinary Arts program as a manager. Students receive instruction in cost controls, menu development and design, presentation, management theories, breakfast cookery, introduction to the bakeshop, quick breads, cookies, yeast products, pies and tarts, cakes, custards, buttercreams, dessert sauces and frozen desserts, and food presentation. Instruction incorporates lectures and demonstrations. Research, which includes reading, writing and math assignments related to the culinary professions, is integrated with academic frameworks during this class. Writing assignments, quizzes, and tests are used to determine achievement of competencies.

## **Electrical**

The Electrical Program prepares students to install state-of-the-art electrical equipment for light, heat, power, data, and telecommunications in commercial, industrial, and residential buildings in accordance with applicable electrical codes. Instruction involves shop simulations, laboratory experiments, new installations and maintenance.

### **Electrical Exploratory**

Students explore the electrical program for a one-week period. They are introduced to basic electrical theory and hand tools. Using basic electrical hand tools, students demonstrate the skills required for: wire splicing, low voltage circuitry, entering and terminating Romex, B.X. and low voltage cables, terminating single-pole and three-way switches, and terminating lights and duplex receptacles. Emphasis is placed on hand tool and electrical safety.

### **Electrical 9th Grade Shop**

This course provides students with the fundamentals in wiring methods. Using basic hand tools, students demonstrate the skills required for basic 120/240 volt circuitry. Students will wire projects using many different wiring methods including Romex, MC cable, Wiremold, Flex, and EMT. Students will learn to install single pole switches, 3-way and 4-way switches, light sockets and duplex receptacles. Students learn how to draw and follow a wiring diagram. Electrical and hand tool safety is an integral part of the course.

### **Electrical 9th Grade Theory**

Students are introduced to basic electrical theory and will study electron flow, voltage, amperes, ohms, power, series and parallel circuits. The Massachusetts Electrical Code is introduced and students are introduced to Art. 100 - definitions, Art. 110 - requirements for electrical installations, Art. 300 - wiring methods, Romex, B.X., E.M.T., Flex, and Wiremold. Safety is emphasized in this course and the students learn to comply with all safety practices. Reading, writing, and math assignments related to electrical theory are an integral part of this class.

### **Electrical 10th Grade Shop**

In the sophomore year, students will expand their knowledge in residential wiring. They will wire projects in open stud walls (new work) and fish in wires (old work). Students will also be trained to wire different types of electrical services (100 amp overhead, 100 amp underground and 200 amp). Emphasis is placed on the proper and safe use of hand tools and electrical testing equipment. This course covers the installation and maintenance of equipment for light, heat and power in residential, commercial, and industrial locations. Students study the Massachusetts Electrical Code, which governs the installation of electrical equipment. Students also read blueprints, create schematic and wiring diagrams, create layouts, and estimate electrical installations.

### **Electrical 10th Grade Theory**

Students study the theory and basic safety procedures for the installation of equipment in residential, commercial and industrial locations. Students will be trained to properly wire all rooms in a house by means of

the Massachusetts Electrical Code and they will be taught how to calculate electrical demand factor loads for a home or business. Students learn how to take out an electrical permit as well as a service request form from the utility companies. Safety and the Massachusetts Electrical Code, which governs electrical installations, are stressed. Reading, writing, and math assignments related to the electrical professions are integrated with academic frameworks during this class.

### **Electrical 10th Grade CAD**

### **Electrical 11th Grade Shop**

This course builds upon the 10th grade training and expands to include oil burner controls, basic motor control projects using 2-wire, 3-wire pilot devices, and over current protection control of various 1-phase and 3-phase motors. Proper use of various multi-meters is taught including all safety practices.

### **Electrical 11th Grade Theory**

This course provides students with the theory of control circuits for motors as well as electrical code theory. Magnetic motor control circuits are taught with different types of manufactory equipment and various wiring schematics. Students learn about various types of commercial lighting systems. Commercial wiring methods with blueprint construction plans are used. Reading, writing, and math assignments related to the electrical professions are integrated with academic frameworks during this class.

### **Electrical 12th Grade Shop**

This course is a continuation of 11th grade training with advanced motor control training. This includes designing control schematics for various motors using electrical code standards. Students are instructed in transformer wiring, single-phase and three-phase power, and Wye and Delta connections. Live work projects are featured requiring safe work practices. The co-op experience is also available to electrical students meeting the requirements of this program.

### **Electrical 12th Grade Theory**

Electrical code, safety rules and practices are taught on the installation of electrical work. Students learn basic fire alarm control, transformer use, connections, diagrams, and theory. Students study advanced motor control; forward and reverse, timing; two-speed, and reduced voltage circuits are taught. Battery and emergency power circuit procedures are also introduced. Research, including reading, writing and math assignments related to the electrical professions, is integrated with academic frameworks during this class.

## **Engineering Technology**

The Engineering Technology Program prepares students for entry-level employment and continuing education in the challenging field of engineering by developing both theoretical and practical skills. Laboratory applications in such areas as mechanical, system design, electronics, and microprocessors are integrated into the classroom experience. These skills are acquired through a planned sequence of courses involving classroom work in conjunction with hands-on experience using modern fabrication, testing, and measuring equipment.

Students receive a solid foundation in mathematics and basic engineering science. Many cross-disciplinary research and project opportunities in civil, mechanical, and electronic engineering areas are offered. Students are exposed to a broad curriculum with topics including surveying, robotics/system automation, electronics, computer aided design, computer numerical controlled machining, and mechanical design.

### **Engineering Technology Exploratory**

Students are introduced to electrical/mechanical engineering through hands-on applications to include building a voice controlled robot, designing and constructing a small battery powered car, and building and modifying a remote control robot to complete a specific task.

### **Engineering Technology Grade 9 Shop**

Freshman year is devoted to learning the basics of electronic theory for series and parallel direct current circuits, with practical applications. Students also begin to work with robotics and are introduced to common mechanical and electrical components used in robotics. Students learn how to setup and use an Engineering Logbook and are required to keep a logbook for all projects. Shop safety and safe use of tools and equipment are stressed. Other skills such as soldering, splicing, connecting, and the use of small hand tools are introduced by project method of instruction, an integral part of the program. Students are also introduced to dimensioning and computer aided drafting (CAD).

### **Engineering Technology Grade 9 Theory**

Students learn scientific notation and engineering notation then apply these notations to basic mathematical operations. Students also learn both English and SI units of measure and proper use of common tools of measure such as rulers, calipers, and micrometers. Students are also introduced to tabular and graphical data representation.

### **Engineering Technology Grade 10 Shop**

Students continue their study of electronics and are introduced to alternating current, semiconductors, and integrated circuits. Labs require students to use test equipment including oscilloscopes, universal counters, and function generators. Students perform lab experiments designed to gain hands-on practical experience in wiring, testing, and analysis of actual circuit performance. Students submit formal reports on all required experiments and are introduced to computer design and simulation for selected circuits and are required to keep a logbook for all projects. Students also continue working with robotics and learn how to program robotic motion using both open loop and closed loop systems with feedback from common sensors such as tactile, optical/infrared, and ultrasonic sensors. Students also learn advanced measurement with micrometers, basic blueprint reading, sketching, geometric dimensioning and tolerancing, and drafting using CAD. Shop safety and safe use of tools and equipment are stressed.

### **Engineering Technology Grade 10 Engineering Math**

Students review algebra and the manipulation of linear equations. Students learn how to solve common word problems using algebra dealing with number puzzles, uniform motion, mixtures, static equilibrium, work, and fluid and energy flow. Students also learn how to graph functions and find the graphical solution of equations. Students review basic properties of geometry as applied to lines, angles, triangles, quadrilaterals, polygons, and circles. Students learn how to calculate volume and surface area of three-dimensional geometric solids and apply it to Engineering design of structures, containers, and storage tanks.

### **Engineering Technology Grade 10 Theory**

Engineering Technology Grade 10 Theory is divided into two classes, manufacturing and Introduction to Electrical Engineering.

In Manufacturing students are introduced to manufacturing processes and automation. Topics include structure of materials, properties of materials, obtaining raw materials, producing industrial materials, casting, forming, separating, conditioning, and assembly, types of manufacturing systems, identification of customer needs, selection of a manufacturing system, industrial robots, and automation.

In Introduction to Electrical Engineering students are introduced to common components and their use in alternating current (A.C.) circuits. Topics include magnetism, resistive A.C. circuits, and inductive A.C. circuits, capacitive A.C. circuits, transformers, semiconductors, integrated circuits, power supplies, amplifiers, and oscillators.

### **Engineering Technology Grade 11 Shop**

Students continue their study of electronics and are introduced to digital electronics. Topics include binary number system, basic logic gates and arrays, interfacing, encoding/decoding, flip-flops, counters, shift registers, and digital to analog converters. Test equipment introduced junior year include: digital, the storage oscilloscope and logic analyzer. Students perform lab experiments designed to gain hands-on practical experience in design, wiring, testing, and analysis of actual circuit performance and are required to keep a logbook for all projects. Students also continue working with robotics and learn to design, construct, and program a robotic arm with end effector. Students also learn advanced programming of a microcontroller. Students continue to learn geometric dimensioning and tolerancing and are introduced to three dimensional parametric modeling using CAD.

### **Engineering Technology Grade 11 Engineering Math**

Students are introduced to trigonometry and its applications in the solution of engineering problems. Topics include degree and radian measure of angles, right triangles, trigonometric functions, linear and angular velocity, graphing trigonometric and periodic functions with resonance and damping, identities, law of Sines, law of Cosines, inverse trigonometric functions, vectors, and polar coordinate system.

### **Engineering Technology Grade 11 Theory**

Engineering Technology Grade 11 Theory is divided into two classes: Physics and Digital Electronics/Advanced Programming.

In Physics students are introduced to the principles of Newtonian physics and their application to engineering. Topics include velocity, acceleration, Newton's Laws of Motion, static and kinetic friction, free fall and terminal speed, circular motion, centripetal force, projectile motion, momentum, energy, power, torque, center of mass states of matter, buoyancy, Bernoulli principle, change of state, heat transfer, heat engines and, refrigerators, coefficient of performance, and efficiency.

In Digital Electronics/Advanced programming students are introduced to digital circuits and the programming of a microcontroller. Topics include the binary number system, basic logic gates and arrays, interfacing, encoding/decoding, flip-flops, counters, shift registers, digital to analog converters, and advanced programming of a microcontroller.

### **Engineering Technology Grade 12 Shop**

Students begin their senior year with a capstone design project. The students design, construct the prototype, test, and formally present their project following the Engineering Design Process. All aspects of the project are properly documented in an Engineering Logbook. In the second half of the year students complete advanced projects in several disciplines including applications of technology, structures, machining, mechanisms, robotics, electronics, and programming.

### **Engineering Technology Grade 12 Engineering Math**

Students are introduced to advanced math commonly used in engineering. Topics include solving systems of linear equations algebraically and using matrices, operations with matrices, complex numbers, sequences, series, Binomial Theorem, statistics, and probability.

### **Engineering Technology Grade 12 Theory**

Students are introduced to advanced engineering topics including surveying, bearings, clutches, simple machines, gears, belt and chain power transmission, fluid power systems, reliability, safety, design quality, quality control, ethics, force systems, static equilibrium, and stress, strain, and deflection of materials.

## **Environmental Science and Technology**

This progressive and nationally recognized program has 9<sup>th</sup> and 10<sup>th</sup> grade students focus on life sciences that enable them to learn how the natural environment is linked to the protection of public health. This program uses science, engineering, conservation, communication, and economics to protect and enhance public health and the environment. 11<sup>th</sup> and 12<sup>th</sup> grade students have the opportunity to transfer up to nine college credits to the Environmental Technology Program at Cape Cod and Bristol Community Colleges.

Off-campus site work is emphasized to provide exposure to the many disciplines within the program including sustainability, energy efficiency, aquaculture, marine science, and health and safety. Students also have the opportunity to take part in externships in Woods Hole.

Students are prepared to take the Massachusetts Water/Wastewater Operator Certification Tests. Students also receive certification in the OSHA Hazardous Waste Operations and Emergency Response 40-hour training.

### **Environmental Science and Technology Exploratory**

Students are introduced to the many aspects of the environmental science during this one-week course. While exploring the areas of natural resources, energy consumption/efficiency, natural sciences and human population, students will learn how these systems are impacted and relate to daily life. They will also visit an off-campus coastal environment and marine aquarium.

### **Environmental Science and Technology 9<sup>th</sup> Grade Shop**

During freshmen year, students study in detail, the natural cycles within the environment. Students also learn about basic data collection and analysis. Freshmen will become proficient with the testing and maintaining water quality and troubleshooting of re-circulating aquarium systems.

### **Environmental Science and Technology 9<sup>th</sup> Grade Water Technology & Aquaculture**

Students are introduced to the theory of natural cycles and how population impacts them. Data collection from shop aquarium systems is closely analyzed to allow for complete student understanding and interpretation. Freshmen also learn about basic shop safety protocols and procedures.

### **Environmental Science and Technology 10<sup>th</sup> Grade Shop**

Sophomores receive their 10-Hour OSHA General Industry Safety Training Certificates. Students learn how earth and natural science systems are impacted by the human population, and how to better balance these systems while meeting natural resource needs. Small groups of students will be assigned weekly, to different aquaculture tank systems for complete maintenance, water quality analysis, breeding and data collection. Energy production, use, efficiency and consumption topics are researched, experimented with and presented on by students to their class. The class will also investigate flora and fauna species diversity and population, at several on and off-campus locations.

### **Environmental Science and Technology 10<sup>th</sup> Grade Environmental Science & Technology I**

The class studies the effects and impacts on natural cycles due to population. Sophomores take a close look at the use, extraction and depletion of natural resources. Students analyze aquarium data to understand reasons for trends and changes in water quality. Sophomores will understand the basic principles and theory of energy production, efficiency, use, and consumption including the impacts on the environment. The importance of native plant and animal species diversity and the understanding of their populations in their natural environments will also be studied in detail.

### **Environmental Science and Technology 11<sup>th</sup> Grade Shop**

The junior year in shop includes two, weekly off-campus trips to work sites where students work alongside professionals from the environmental field. During these work trips, students take part in fieldwork in environmental engineering/consulting, natural resource management and land-use planning. The class also attends a weeklong seminar in Woods Hole investigating many of the different marine science industries and careers. Juniors also have the option of taking part in a two-week externship in Woods Hole. Several hands-on industry methods for sampling groundwater are taught to students in detail using the on-campus groundwater-monitoring well. The class will understand groundwater contamination sources and groundwater flow models. Students also learn about toxicology and the effects of hazardous substances on animals. In addition, the class receives the 40-hour, 3-college credit, OSHA-Hazardous Waste Operations and Response (HAZWOPER) Training at Bristol Community College.

### **Environmental Science and Technology 11<sup>th</sup> Grade Environmental Science & Technology II & III**

During junior year in related, students are exposed to a wide variety of environmentally related topics and their associated career paths. Marine sciences, meteorology and toxicology are three areas where juniors will study. Drinking water analysis and causes of its contamination are also closely examined. The class will study toxicology chemistry and hazardous substance terminology in detail in preparation for their 40-hour OSHA HAZWOPER training. Professional resumes will be edited and updated in preparation for student participation in cooperative employment.

### **Environmental Science and Technology 12<sup>th</sup> Grade Shop**

Seniors participate in two, weekly off-campus trips to various worksites including drinking water and wastewater treatment facilities, power plants, sanitary landfills, and conservation/recreational properties. The class learns the hands-on testing procedures and equipment use for various water, air and soil environmental sampling protocols. Water treatment sciences are a main focus of study including student preparation for the Massachusetts Grade-2M Wastewater Operator's License. Students also complete an OSHA 8-Hour HAZWOPER annual refresher training through Bristol Community College.

### **Environmental Science and Technology 12<sup>th</sup> Grade Wastewater Treatment**

During senior year related, the class studies the theory of drinking water and wastewater treatment. Students will also study terminology and methodology for water treatment in preparation for the Massachusetts Grade-2M Wastewater Operator's License. Seniors compare and contrast state and federal environmental regulations. Students will explore in detail, several of the many environmental career paths of their choice. Seniors will present their Senior Projects to their class and instructors.

## **Health Careers**

The Health Careers Program is designed to expose students to a variety of careers available to them in the exciting and challenging health care field. Students participate in clinical externships three days per week. These externships give students an opportunity to put into practice the skills they learn in the classroom and laboratory. Clinical externship sites include: hospitals, skilled nursing facilities, adult day health centers, rehabilitation centers, elementary schools and children centers.

### **Health Careers Exploratory**

As part of the freshman experience, the Health Careers Exploratory exposes students to many content areas taught throughout the program. During the exploratory weeks, students visit hospitals, adult day health centers, and child care centers.

### **Health Careers 9th Grade Shop**

The freshman year incorporates a basic introduction to the Health Careers curriculum along with policies and standards related to clinical externships. Students observe and work in many departments at Falmouth and Tobey Hospitals. Their shop experience includes activities at local nursing homes and basic supervised hands on practice within the clinical facilities. Grade 9 Certifications include: Feeding Assistant, First Aid and Safety, and CPR.

### **Health Careers 9th Grade Human Body**

Students study Introduction to the Human Body as the freshman year related course. The course presents an overview to the structure and function of the body in simple terms and forms the foundation for later study in Anatomy and Physiology.

### **Health Careers 10th Grade Shop**

Shop theory includes: Human Growth and Development and Nutrition. Growth and Development focuses on physical, emotional, social, and intellectual development from conception through late adulthood. Changes experienced in late adulthood are emphasized.

Nutrition provides an in-depth look at nutrient sources and functions, the dietary guidelines, the food pyramid, and special nutritional needs. Students study nutritional needs specific to disease processes and health conditions throughout the life span. Clinical practicum includes Child Care Centers, Elementary Schools, and Adult Day Health facilities focusing on physical and cognitive growth and development.

### **Health Careers 10th Grade Anatomy & Physiology I**

This course focuses on in-depth study of the structure and function of the human body. The content is presented in traditional order from simple to complex. The scope of the course encompasses the evolution of cells through the study of the body's organ systems and integrates concepts of pathophysiology (how disease affects the body) with diagnostic tests and treatment.

### **Health Careers 11th Grade Shop**

The junior year focuses on preparing the student to assume the role of a nursing assistant. Students work in several local community nursing homes to gain experience as they prepare to become Certified Nursing assistants (CNAs). The program fulfills the requirements of the Department of Public Health and students take the state nursing assistant exam by the end of March. When students pass the state certification exam they are eligible to work in local health care facilities as CNAs. There is continued instruction in Home Health where the students may earn their certificate as a Home Health Aide.

### **Health Careers 11th Grade Anatomy & Physiology II**

This course is a continuation of Anatomy & Physiology I. It covers organ systems not included in the previous year as well as fluid and electrolyte balance, genetics and other concepts. There is an articulation agreement with New England Institute of Technology which grants eight college credits to students who achieve a grade of B or better, and who choose to attend New England Institute of Technology after graduation.

### **Health Careers 11th Grade Medical Terminology I**

This course is designed to ensure mastery of the language of medicine and reviews concepts of Anatomy & Physiology. The content is presented from simple to complex beginning with word parts and progressing through disease and disorder terms. Successful completion of this course enables students to analyze and define medical terms as well as abbreviations that are currently used in the healthcare professions.

### **Health Careers 12th Grade Shop**

In senior year, students participate in cooperative education placements in a variety of healthcare or childcare educational facilities. Students may also participate in EKG training, First Aid and Safety, CPR recertification, and medication administration certification.

### **Health Careers 12th Grade Medical Terminology II**

A continuation of Medical Terminology I, the scope of this course includes diseases and disorders, surgical terms, and procedural terms. Successful completion of this course enables students to analyze and define medical terms and abbreviations currently used in the language of medicine. There is an articulation agreement with several colleges which allows students who achieve a grade of B or better to earn college credits.

### **Health Careers 12th Grade Health Unit Coordinator**

Health Unit Coordinating prepares students for entry-level jobs as Health Unit Coordinators in hospitals, and long-term care facilities. The course provides additional training to those who choose careers in medical offices. The scope of study includes but is not limited to the organizational structure of hospitals, medical treatments, and policy and procedures.

## **Horticulture**

Students learn to organize and execute the construction of landscapes on private, commercial, and public properties. A strong horticultural foundation is used to support the construction and design portions of the curriculum. Through such courses as turf grass management, hardscaping, small engine repair, weed identification, irrigation, entomology, plant pathology, landscape construction, and business management, students are provided with the technical training necessary to meet the challenges in the dynamic turf and landscape industry. A rigorous theory and shop environment is provided to prepare them for this most rapidly growing area of the green industry.

### **Horticulture Exploratory**

The Horticulture Exploratory acquaints students with many content areas taught throughout the program. Students are exposed to floral design, landscape design and construction, and the use of equipment.

### **Horticulture 9th Grade Shop**

The freshman year introduces students to a number of areas. Students will build a foundation in horticulture, turfgrass management, and floriculture. Students will participate in various projects on- and off-site to practice the skills in these areas. A special emphasis will be put on safety, including the proper use of equipment.

### **Horticulture 9th Grade Plant & Soil Sciences**

This course, which is the ninth grade related course, is an introductory course in plant and soil sciences. Topics of study are divided into three modules. Module one: plant growth, development, and reproduction; Module 2: soil, nutrients, and fertilizers; Module 3: leaf morphology and plant identification. Learning will be measured through regular homework assignments, quizzes, and tests.

### **Horticulture 10th Grade Shop**

In the sophomore year, students build upon their foundation. Areas of focus include landscape construction, site grading, irrigation, floriculture, and safe equipment operations. Whenever possible, students will participate in projects to demonstrate their developing skills.

### **Horticulture 10th Grade Horticulture Management, Operations, and Design I**

This course is designed to complement the shop experience. Students will study natural resource management, greenhouse management, floral design, landscape operations, and landscape design. Learning will be measured through regular homework assignments, quizzes, and tests.

### **Horticulture 11th Grade Shop**

The junior year places a heavy emphasis on science. Shop instruction focuses on weed science, plant physiology, plant taxonomy and identification, and floriculture.

### **Horticulture 11th Grade Horticulture Management, Operations, and Design II**

This course is designed to complement the shop experience. Students will study turf management, plant materials and landscape design. Regular assessments will be used to measure learning.

### **Horticulture 12th Grade Shop**

The final year of shop allows students to build upon previous topics. Specific areas that are covered include turfgrass management, irrigation, and landscape construction.

### **Horticulture 12th Grade Horticulture Management, Operations, and Design III**

This course is designed to complement the shop experience. Students will plant health care, horticulture business operations, and landscape design. Regular assessments will be used to measure learning.

## **Information Technology**

This program is designed to prepare students with knowledge and practical skills necessary for success in the high-tech field of information technology. Students will have the opportunity to develop a logical methodology in problem solving skills while learning concepts and current trends in computer technology. Practical application of lecture-based material is employed in lab projects.

### **Information Technology Exploratory**

The focus of this exploratory program is to introduce students to the basic knowledge and skills necessary to pursue study in the Informational Technology program. Basic instruction in shop safety and IT program orientation is provided. Students learn about the necessary skills that open the way to the various career options for the IT professional. They develop an understanding of the scope of the program and the technology systems involved.

### **Information Technology 9th Grade Shop**

When students enter permanent placement in the Information Technology program, students begin their preparation for the CompTIA A+ certification test. The course of study also provides instruction in the areas of health and safety in the information technology field. The focus of the freshman year is the Info Tech Cluster competencies. These include: health and safety, underlying principles of technology, hardware, problem solving and troubleshooting basics, network terminology and design, operating systems, introduction to web design, word processing, spreadsheets, databases, using internet resources and e-mail, digital images and graphics, animation, design and creation of web pages, using HTML, cascading style sheets, Using JavaScript incorporating digital video and audio.

### **Information Technology 9th Grade Theory**

The Information Technology related theory instruction is intended to complement the vocational instruction and laboratory projects. Students have the opportunity to learn the principles and theories related to their hands-on activities and projects conducted in the laboratory during the freshmen year.

### **Information Technology 10th Grade Shop**

The focus for the first portion of the sophomore year is the completion of the Info Tech Cluster Competencies. Topics include: utilization of multimedia and graphic tools, HTML applications, selection and installation of hardware, practice of ethical and legal behaviors, and software applications installation and configuration. The focus of the second portion of the sophomore year is advanced operating systems, hardware, information services and support, and computer programming. Topics include: installation and configuration of motherboards, CPUs, memory installation, storage devices, adapters and interface cards, installation of output devices, installation and configuration of operating systems, troubleshooting, and system maintenance and backup.

During the sophomore year students complete their preparation for the CompTIA A+ certification test. It is highly recommended that students take this test during the review time nearing the end of the year.

### **Information Technology 10th Grade Theory**

The Information Technology related theory instruction is intended to complement the vocational instruction and laboratory projects. Students have the opportunity to learn the principles and theories related to their hands-on activities and projects conducted in the laboratory during the sophomore year.

### **Information Technology 11th Grade Shop**

The focus of the junior year is network systems and infrastructure and software development. Topics include: network installation and configuration, network architecture, using TCP/IP to establish connectivity, performing network maintenance, monitoring network performance, network troubleshooting, infrastructure component installation and configuration, configuring switches and routers, installation and configuration of network applications, securing networks from viruses, hacking and other threats, project management, and preparation and presentation of technical documentation. Upon completion of the junior year, some students may take the CCEVT certification exam.

### **Information Technology 11th Grade Theory**

The Information Technology related theory instruction is intended to complement the vocational instruction and laboratory projects. Students have the opportunity to learn the principles and theories related to their hands-on activities and projects conducted in the laboratory during the junior year.

### **Information Technology 12th Grade Shop**

Qualified seniors participating in the cooperative program will gain industry experience in paid positions off-campus. In order to participate in the cooperative program, students must meet all coop requirements and be in good academic and vocational standing. Seniors also have the opportunity to work with the school's technology staff on the configuration and service of equipment on the school's network and on community related projects. Seniors who do not participate in the cooperative program will receive instruction on advanced programming and logic and design, web development and interactive media technologies. Topics include: design theory, advanced networking, obtaining additional industry certifications, employability, management and entrepreneurship, and project management.

### **Information Technology 12th Grade Theory**

The Information Technology related theory instruction is intended to complement the vocational instruction and laboratory projects. Students have the opportunity to learn the principles and theories related to their hands-on activities and projects conducted in the laboratory during the senior year.



## **Marine Technology**

The Marine Services Program provides training to students in the recreational marine industry, including operation, maintenance, repair, rebuilding and installing onboard systems. Students are taught two and four cycle engine theory, hull maintenance and repair, gas and diesel engine operation and repair, and welding fabrication. The solid fundamental education in Marine Services will provide students with a wide variety of opportunities for both occupational and educational pursuits.

### Marine Services Exploratory

During this one week exploratory students receive instruction on the proper and safe use of hand tools. Shop specific safety procedures are also covered. Basic engine theory is introduced including both gas and diesel drive systems. Students will have the opportunity to work on two and four stroke small engines. Proper identification of fasteners and hull design are also introduced. Through shop demonstrations students will witness basic mig and arc welding procedures.

### Marine Services 9<sup>th</sup> Grade Shop

During this two semester course students will cover shop safety including: safety terms and definitions, safety color codes, fire safety and how to maintain a safe and orderly shop. Proper selection, identification and use of hand tools are demonstrated. Proper use of fasteners, thread gauges, taps and dies are demonstrated and preformed by the students. Small four stroke engines are disassembled; parts identified, and engines are reassembled and run.

### Marine Services 9<sup>th</sup> Grade Theory

This course will cover boating safety and seamanship in preparation for their Massachusetts Boating Safety Certificate and will include: legal equipment, navigation rules, aids to navigation, getting underway and accident prevention.

### Marine Services 10<sup>th</sup> Grade Shop

Students will receive a full year of instruction in the areas of welding, metal fabrication, fiberglass repair and marine electrical systems. Arc, mig and tig welding, metal fabrication and the use of CAD are incorporated into welding projects. Also covered is the introduction of electrical systems: circuits, storage batteries, starting, charging and ignition systems.

### Marine Services 10<sup>th</sup> Grade Theory

This course provides the theory on related shop tasks including proper and safe use of welding and metal fabrication equipment. Measuring, measuring tools, blueprint reading and layout are also covered. Electrical theory, troubleshooting and the American Boat and Yacht Council (ABYC) marine wiring guidelines are introduced.



### Marine Services 11<sup>th</sup> Grade Shop

Students are instructed in greater depth in the areas of inboard and outboard drive systems. Areas covered include engine measurement, fuel and ventilation systems, cooling and lubrication systems, tune-up, winterization and shrink wrapping. In addition to shop engines and trainers students will perform repairs on customer based vessels. Fiberglass repair and maintenance are also covered during their 11 grade year.

### Marine Services 11<sup>th</sup> Grade Theory

Students will continue marine theory in support of their shop tasks. The history and theory of the internal combustion engine, two and four cycle engine design, engine blueprinting and associated engine systems will be taught. Proper fiberglass repair and the safe handling of fiberglass chemicals and materials will be covered.

### Marine Services 12<sup>th</sup> Grade Shop

Fuel injection and diesel engines repair wrap up the senior year for marine students. Students will continue to strengthen their technical knowledge and hands on skills for preparation in the cooperative job placement program.

### Marine Services 12<sup>th</sup> Grade Theory

Diesel engine principles of operation are covered during the senior theory class. Diesel cylinder head assembly, piston and connection rod assemblies, air intake and exhaust systems, fuel delivery and preventive maintenance will complete this area of instruction.

## **Plumbing and Heating**

The Plumbing and Heating Program provides students with training opportunities in rough and finish plumbing installation and maintenance of residential, commercial, and industrial piping. This occupational program includes the study of natural gas and oil fired heating systems, plumbing fixtures, drainage and ventilation systems, and the installation of solar thermal systems.

All instruction is in accordance with the Commonwealth of Massachusetts Fuel, Gas, and Plumbing Code and current Massachusetts Career Vocational Technical Education (CVTE) Frameworks guidelines.

### **Plumbing Exploratory**

This one-week exploratory related program is designed to enhance student awareness of the plumbing field. Synchronized use of video, instructor presentation, and relevant literature is provided to the student as shop tasks are being performed.

### **Plumbing 9th Grade Shop**

Students in this two-semester program are given basic orientation in career opportunities, shop-marking procedures, tool crib procedures, and hand tool safety. Students receive instruction in understanding a rule, assembly of steel, copper, and cast iron piping, and introduction to residential potable water distribution systems.

### **Plumbing 9th Grade Theory**

This course provides related theory instruction closely aligned with the students' shop tasks. This allows for the enhancement of the academic discipline related to a particular task. Examples include understanding of basic mathematical requirements pertaining to linear measurements (reading a rule) determining diameters, pressures, and volumes (characteristics of pipe).

### **Plumbing 10th Grade Shop**

Students receive a full school year of instruction in the areas of power tool safety, water heaters, hot and cold water distribution systems, drainage waste, and venting system, installation of rough and finish plumbing for residential plumbing fixtures, valve repair, power threading, equipment and safety.

### **Plumbing 10th Grade Theory**

Students are instructed in theory on related shop tasks including water heaters, hot and cold water distribution systems, drainage waste and vent systems, and valve characteristics. Reading, writing, and math, assignments related to the plumbing professions are integrated with academic frameworks during this class.

### **Plumbing Shop 11th Grade Shop**

Students are instructed in the areas of sizing and installing gas piping, introduction to drain-cleaning, introduction to the installation of commercial plumbing fixtures, and an introduction to residential gas hydronic

heating systems. In addition to shop tasks, students perform plumbing facility maintenance work under direct instructor supervision.

### **Plumbing 11th Grade Theory**

Students continue plumbing related theory in accordance with their shop tasks. This includes sizing gas piping, cleanouts and cleanout locations, laws pertaining to commercial plumbing fixtures, and residential heating system design. Reading, writing, and math assignments related to the plumbing professions are integrated with academic frameworks during this class.

### **Plumbing 12th Grade Shop**

Students focus on an in-depth review of previous instruction. The goal is to strengthen student knowledge in preparation for involvement in the cooperative vocational educational program. In addition, students may be involved in school facility maintenance work.

### **Plumbing 12th Grade Theory**

The related program is designed to fine-tune the students plumbing studies to date. An in-depth study of heating system design, gas piping design, hydraulic data, and plumbing code license preparation is the focus of instruction. Research, which includes reading, writing, and math assignments related to the plumbing professions, is integrated with academic frameworks during this class.