

BAY PATH

**REGIONAL VOCATIONAL TECHNICAL
HIGH SCHOOL**



**Program of Studies
2020-2021**

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Bay Path Regional Vocational Technical High School District

MISSION STATEMENT

It is the Mission of Bay Path Regional Vocational Technical High School to facilitate current, integrated, and rigorous academic and technical vocational programs that prepare students for the ever-changing world of employment and post-secondary education; to provide a school culture that meets the diverse needs of our student body for safety and mental wellness; and to foster student confidence, professionalism, and life-long learning skills that will enable them to become contributing members of our communities.

EXPECTATIONS FOR STUDENT LEARNING

Bay Path student learning expectations are measured through individual trade competency testing, SkillsPlus, and quarterly academic progress reports.

Academic & Career

Students will:

Develop critical thinking skills to effectively identify, analyze, and solve problems

Acquire the knowledge necessary to meet state-mandated graduation requirements and vocational occupational proficiencies.

Establish communication skills in multiple modes to address needs within and become contributing members of career and technical fields

Demonstrate good work habits such as organization, orderliness, cleanliness, and respect for property and the environment.

Civic

Students will:

Demonstrate collaboration and communication within the Bay Path and sending school communities.

Establish relationships with local industry.

Understand local, state, and national government in order to become productive citizens and contributing members of society

Social

Students will:

Demonstrate skills, positive work behaviors, and attitudes necessary for success in college and career.

Develop self-awareness, respect for authority, and an understanding of each individual's responsibility to themselves, their communities, their nation, and the world.

ADMINISTRATION

Mr. Kyle Brenner	Superintendent/Director
Mr. Clifford Cloutier	Principal
Mr. Donald Montville	Vocational Director
Mr. Chris Faucher	Assistant Vocational & Evening School Director
Ms. Nancy Alpine	Pupil Personnel Services Director
Mrs. Jamie Ribaud	Assistant Pupil Personnel Services Director
Dr. Bethann Cormier	Curriculum Director
Mr. Daniel McGowan	Dean of Students
Mr. Kenneth Desautels	Director of Technology
Ms. Gretheline Bolandrina	Practical Nursing Director
Mr. Dean Iacobucci	Business Manager

GUIDANCE SERVICES

Guidance personnel support students as they make decisions regarding vocational and educational planning, and to aid students in the development of strategies to overcome personal difficulties. The best way to use counseling services is to make an appointment. Guidance Counselors support students in career training, academic requirement fulfillment, and individual growth. Counselors are trained to guide students through their high school experience so they may become independent, contributing adults in our local communities.

Orientation:

- ❖ Introductory Presentation (8th Grade)
- ❖ Pre-exploratory program at Bay Path Regional Vocational Technical High School for 8th graders
- ❖ Orientation Session with Counselor

Information:

- ❖ Library of occupational/educational materials
- ❖ Information on technical career colleges and post-secondary institutions
- ❖ Armed services materials

Counseling:

- ❖ Private counseling by appointment
- ❖ Referrals to various outside counseling agencies
- ❖ Parent conference upon request

Testing:

- ❖ Comprehensive Test of Basic Skills and MCAS
- ❖ Various Nationally Recognized Standardized Tests

Admissions and Placement:

- ❖ Application process
- ❖ Transfer service
- ❖ College admissions process
- ❖ Job placement services in collaboration with the Co-operative Education Program

STUDENT TRANSFER POLICY

1. *Students who wish to transfer from one vocational shop to another:* Students wishing to transfer from one vocational department to another must submit their name to their guidance counselor so that they may be placed on a waiting list. Students are placed on the waiting list in accordance with their level of performance in their present shop or in the case of a grade nine student, according to their exploratory performance. Transfers will be made on the following basis:
 - a. Parental permission
 - b. Availability of space
 - c. Validity of transfer request
 - d. Administrative reasons
 - e. Director of Pupil Personnel Services approval of the request

Since transfers are made on a space-available basis, they may be made throughout the year. Please note that shop hours are not transferable from one shop to another.

2. *Students who wish to transfer from one academic course to another:* Students wishing to transfer from one academic course to another must submit a request to their guidance counselor in writing, stating the reason for the request. Students must secure written permission for the transfer from the present instructor, parent, and counselor before the transfer will be considered by the Pupil Personnel Director.

No transfer will be permitted after November 30 of the school year, unless the transfer is being requested by a member of the administration or is being done as part of a student's education plan under Chapter 766. Transfers will be made on the following basis:

- a. There is space available
 - b. The present instructor agrees with transfer
 - c. It is a valid request
 - d. It is prior to November 30
 - e. It is an administrative request or a request under Chapter 766
 - f. Parental permission has been granted
 - g. The Director of Pupil Personnel Services has approved the request
3. *Students who wish to transfer out of Bay Path:* Students wishing to transfer to another school should make an appointment with their guidance counselor to discuss this option. The student must secure parental permission and must meet all financial obligations to Bay Path before the transfer will be completed.
 4. *Students who wish to transfer into Bay Path:* Transfer students who have been promoted by their local high schools will be placed according to their academic transcript. Shop and related credits will be waived. These students will receive a certificate of attendance in their vocational area rather than the trade certificate. However, transfer students must meet all other graduation requirements.

GRADUATION REQUIREMENTS

Freshmen Year Requirements

<u>Course:</u>	<u>Credits:</u>
Shop	3.5
Related	1.0
Social Studies	1.0
Phys. Ed	.25
Health	.25
English	1.0
Math	1.0
Science	1.0
<hr/>	
Total credits	9.0

Sophomore Year Requirements

<u>Course</u>	<u>Credits:</u>
Shop	3.5
Related	1.0
Social Studies	1.0
Phys.Ed	.25
Health	.25
English	1.0
Math	1.0
Science	1.0
<hr/>	
Total credits	9.0

Junior Year Offerings

<u>Course</u>	<u>Credits:</u>
Shop	4.5
Related	1.0
Social Studies	0.5
Wellness	0.5
Phys. Ed.	0.5
English	1.0
Math	1.0
*Science—2 periods	1.0
**Science—1 period	0.5
<hr/>	
Total credits	9.0

Senior Year Offerings

<u>Course</u>	<u>Credits:</u>
Shop	4.5
Related	1.0
Social Studies	0.5
Wellness	0.5
Phys. Ed.	0.5
English	1.0
Math	1.0
*Science—2 periods	1.0
**Science—1 period	0.5
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Total credits	9.0

Total credits for graduation is 36

** Students taking a two-period science course are required to take social studies.*

***Students taking one-period science course are required to take social science studies and gym.*

PROMOTION

- ❖ Students must pass all subjects in grade 9, 10, 11, and 12.
- ❖ Only students who have completed all graduation requirements will be allowed to participate in graduation ceremonies. This includes resolution of all obligations, payment of class dues, outstanding book or equipment bills, and remaining discipline.
- ❖ If a student is retained in any grade, the student will have to repeat all classes the following year, even if the student received a passing grade in a specific class for the year. For any class(es) that the student passed during that school year, the final grade(s) in the course(s) will be averaged with the final grade(s) from the current school year and must average a passing grade. If a student failed a class in their first attempt at the class, they need a 65% average in the current year to gain credit, not an average of 65% between the two years.

- ❖ The Massachusetts Department of Education has established the passing score on the MCAS as 240 points in English and Math. Students who score between 220 and 238 will have an Educational Proficiency Plan (EPP) charting the courses that the student will need to take during their junior and senior years and how the student's progress will be measured.
- ❖ All students must take and pass an MCAS science test based on the Science and Technology Framework standards. The Massachusetts Department of Education has established a passing score of 220 points for the science test. The test the students will take will be determined by Bay Path.
- ❖ All students must complete a Graduating Senior Portfolio. The portfolio contains at minimum: a competency profile demonstrating the acquisition of knowledge and skills associated with at least two years of full-time study in the program, a career plan, safety credentials, and a resume.

HONOR ROLL

- ❖ Students who have earned a 90.0 in all subjects and have at least an average of 75% in gym will be placed on High Honors for that quarter.
- ❖ Students who have earned an 80.0 or higher in all subjects and have at least an average of 75% in gym will be placed on Honors for the quarter.
- ❖ Students who have a combined average in all courses of 80% with no grade less than 75%, will be placed on the Principal's List for the quarter.
- ❖ Students earning an Incomplete in a course will not be placed on the Honor Roll.

CLASS RANK

- ❖ A student's class rank is calculated based on performance: number of credits, course grades, and quality points. Quality points are assigned to each course so that more weight is given to courses that demand higher scholastic achievement.
- ❖ A student's class rank is determined by dividing the Total Weighted Product by the Maximum Weighted Product producing a Weighted Grade Average.
- ❖ The Maximum Weighted Product is the total amount of credits carried by a student multiplied by 100, the highest grade a student may earn.
- ❖ The Weighted Product is the amount of credits carried by an individual course multiplied by the student's grade and Quality Point assessment carried by the course.
- ❖ The Total Weighted Product is computed by adding the Weighted Products of all courses carried by the student.
- ❖ The Weighted Grade Average is determined by dividing the total Weighted Product by the Maximum Weighted Product: i.e., $T.W.P./M.W.P. = W.G.A.$
- ❖ Students are then ranked in order by the Weighted Grade Average.
- ❖ For the purpose of class rank, an Incomplete will be calculated as a grade of 0.

GRADE FAILURES

Ninth grade students who fail must make up their failures in summer school and satisfy the requirements for promotion. Students who fail grade nine and who have not made up the

requirements for promotion will be placed on a waiting list. Their records and transfer cards will be sent to the local high school, since grade nine slots would have been filled by applying eighth grade students as early as May of the previous year.

Students who fail grades 10, 11, or 12 and who have not satisfied summer school requirements for promotion will be retained on a space-availability basis, with no guarantee of remaining in the same shop, since that shop may already have been filled by promoted students.

SUMMER SCHOOL AND PROMOTION POLICY

Bay Path offers summer school to students in need of credit recovery. Students who fail a course during the school year have a second chance to pass in summer school, provided they have earned a minimum average of 48% in that course. Courses include all academic areas and related theory.

- ❖ Students attend summer school at their own expense.
- ❖ Students may attend a maximum of two courses during summer school.
- ❖ Some transportation is provided (usually to and from two central locations in each of the district towns).

For more information, please see your student's Guidance Counselor.

ELECTIVE OFFICE AND SCHOOL SPORTS PARTICIPATION CRITERIA

To be eligible to participate in any sport, to be elected to any school or class office, or to participate in any extra-curricular activity, a student must pass all major courses: Shop, Related, English/Reading, and Math. To be eligible at the beginning of the school year, the student must have been promoted to the next grade level. To be eligible during the school year, the student must maintain a cumulative passing average *and* a passing average for each individual quarter.

Academic eligibility shall be considered as official and determined only on the date when report cards for that marking period have been issued. An "incomplete" will be treated as a grade of 55, until the instructor submits a grade change.

Students on any type of suspension may not participate in school sports or any other school activity until the suspension has been completed

STUDENT SUPPORT SERVICES

Special Education services in academic and vocational courses are determined annually by the Individual Education Plan (IEP) team and may include the following, as identified in the student's IEP:

1. **Inclusion:** The IEP team determines that the student requires the support of a paraprofessional or licensed special education teacher within the general education setting.

2. Learning Center: The IEP determines that the student's disability requires specialized instruction in a substantially separate classroom removed from the general education setting.
3. Academic Support: The student is removed from the general education setting to receive supplemental instruction, reinforcement, or assessment accommodations from a licensed special education teacher or paraprofessional.
4. Consultative and Supplemental Services (OT, PT, School Psychologist, and Speech-Language): the IEP team based on the student's evaluations and progress designates these services.

Note: Title I is not part of Special Education.

OCCUPATIONAL EDUCATION PROGRAM

Bay Path Regional Vocational Technical High School offers an excellent range of vocational programs, including:

1. Auto Collision Repair and Refinishing
2. Automotive Technology
3. Building and Property Maintenance
4. Business Technology
5. Cabinetmaking
6. Carpentry
7. Cosmetology
8. Culinary Arts
9. Dental Assisting
10. Drafting
11. Electrical
12. Electronics
13. Graphic Communications
14. Health Technology
15. Heating, Ventilation, Air Conditioning & Refrigeration
16. Information Support Services & Networking
17. Machine Tool Technology
18. Marketing
19. Masonry & Tile Setting
20. Metal Fabrication & Joining Technology
21. Plumbing
22. Power Equipment Technology
23. Programming & Web Development

A trade certificate will be issued for a specific vocational program to a student who has accumulated shop and related hours according to the following schedule:

Classes must earn 2,240 shop and related hours.

Cosmetology students will be awarded trade certificates if they acquire 1,280 hours.

These shop hours can only be accumulated through good attendance and satisfactory performance on shop assignments. An instructor may deduct hours for unsatisfactory work performance. Students receiving an F for a daily grade in shop cannot be considered as having performed satisfactory work, and shop hours may or may not be awarded at the discretion of the shop instructor.

Those students who have not completed the necessary hours as listed above will receive a card stating the exact number of hours they have completed toward the hours.

EXPLORATORY PROGRAM

Grade 9 students are accepted into a half-year exploratory program. Students in exploratory will visit nine different vocational areas during the first half of their freshmen year. When completing their applications, students rated all the vocational programs offered at Bay Path from the first choice to the last choice. The Guidance Department then attempts to schedule the student to explore his/her highest selected programs. We try to guarantee that all students will have the opportunity to explore their first and second choices. Their remaining schedule will be completed with courses that they have selected among their top ten choices. Generally, each student will explore at least one random vocational area.

Students will explore each vocation on the exploratory schedule for a minimum of four days in the shop. Students will be given a shop grade, a related grade, and an effort and conduct grade in each area. They will also have an opportunity to receive a *scheduling point* and *recommendation* in each exploratory program.

- ❖ *Scheduling* points are awarded to students based on cooperativeness and the desire to fulfill student obligations in the vocational area. Students who demonstrate a lack of maturity and/or who present discipline problems are not awarded the scheduling point for that shop. Safety in a vocational setting is paramount and those who demonstrate a disregard for their safety, their peers' safety, and others' safety will lose this important scheduling factor.
- ❖ *Recommendations* are awarded based on whether the student demonstrates the ability to perform basic shop tasks required in a vocational area. If a student is disruptive and/or shows limited potential in a vocational area, he/she will not be given a recommendation.

Please note: the following preferences are considered during the final scheduling process to assign students to permanent shops:

- ❖ Students who have earned *nine out of nine* scheduling points are scheduled first
- ❖ Students who have earned *six out of nine* scheduling points are scheduled second
- ❖ For their final placement, students may only choose shops for which they have been recommended

- ❖ At the conclusion of the ninth exploratory, students are given the opportunity to re-select according to preference. Students are then grouped with preference regarding scheduling points, with the most successful group being scheduled first

After the grouping process, the determining factors in the scheduling process are:

- ❖ First, the highest shop grade
- ❖ Second, the highest related grade
- ❖ Third, highest combined shop and related averages throughout the exploratory program
- ❖ Fourth, best overall effort average grade
- ❖ Fifth, the best overall conduct average grade.

The final scheduling process generally takes approximately ten school days to complete after the conclusion of the ninth exploratory.

Generally, 75-80% of all students should receive their first choice. It is imperative that all students perform to their utmost ability in all areas. Each shop has a limited amount of space available to students, and all students in grade nine are on a competitive basis for those spaces. Students who are absent must complete an assignment for that instructor whose shop program or related class they miss. All students are awarded a grade for each day of the program.

Students who do not receive their first choice may place their names on a waiting list. Transfers are possible on a space-available basis, and only if students have been moved from a waiting list. Students may be placed on a waiting list for another shop by making an appointment with their guidance counselor. Students are scheduled from the waiting list according to the original scheduling formula.

STATEWIDE ARTICULATION AGREEMENTS

Massachusetts has recently established Statewide Articulation Agreements among the 15 Massachusetts Community Colleges and Chapter 74 approved Secondary Career/Vocational Technical High Schools across the Commonwealth in 14 vocational areas. Bay Path students who choose to attend one of the 15 community colleges in Massachusetts are eligible to receive college credits for their work in eligible shop areas. For more information, please contact students' Guidance Counselors and/or visit: <http://www.masscc.org/articulation>

APPRENTICESHIPS

Apprenticeships are formalized, structured training programs combining on-the-job training and related technical instruction in which paid employees receive practical and technical training in their trade area. Apprenticeships are industry-driven career training. Apprenticeships usually begin after high school. The following agreements allow students who are juniors or seniors to apply, provided they have met the same requirements for Co-op, they have made application to the union, and they have a driver's license.

- Bay Path presently has apprenticeship agreements with the following unions: The Sheet Metal Workers Joint Apprenticeship Committee Local Union #63 and the Plumbers and Pipefitters Joint Apprenticeship Committee Local Union #4.
- These agreements cover the career areas of Heating, Ventilation, Air Conditioning & Refrigeration; Plumbing; and Metal Fabrication & Joining Technologies. Students wishing to apply to the unions must meet school criteria as well as each union's requirements. (See Apprenticeship Manuals in the Vocational Director's Office.)

CO-OPERATIVE WORK PROGRAM

The following procedures will be the governing factors in the operation of our co-op program. These regulations are necessary to establish the responsibilities of all parties concerned in order to successfully implement a strong co-op program. Many of these procedures have been established by the Vocational Division of the State Board of Education.

1. To qualify for the Co-operative program, the student must meet the following standards:
 - a) At the end of the second quarter, a junior who has an 80 average in shop and related would become eligible for the co-operative program, provided that all other criteria listed have been satisfied.
 - b) At the end of the third quarter of the student's Junior Year, the criteria for the shop and related grade will be a 70 average in shop and related classes.
 - c) Senior students will be required to have a 70 at the end of their junior year. Seniors who failed to qualify at that time would become eligible at the end of the first marking term of their Senior year, provided that they have a 70 average in shop and related at that time.
 - d) All averages considered must satisfy the requirement cumulatively, as well as each individual quarter.
 - e) Students must have completed a minimum of 2 years in the trade.
 - f) Students must be recommended by their shop and related instructors who must consider whether the student has accomplished, successfully, an adequate amount of curriculum at that point in time in order to be successful on co-op.
 - g) Students must be recommended by the Co-op Coordinator
 - h) Students must not have a failure in any subject. At the discretion of the Co-op Coordinator, a student who has failed not more than one (1) subject may be placed on probation for one (1) quarter. At the end of the probation period, a student still failing a course (required for graduation) will be excluded from co-op.
 - i) Students must have a combined average in academic courses of 70% or better.
 - j) Students must have a good attendance record with no more than three (3) absences per quarter.
2. The work performed at the cooperating company shall meet the standards of industry. Students will be paid a reasonable hourly wage. Students should be paid at least minimum wage. While on co-op, they will work the same number of hours and under the same conditions as other employees.

3. Students who are not 18 years of age are under the following restrictions:
 - a) Students cannot operate hazardous equipment unless approved by the Massachusetts Department of Labor.
 - b) Students cannot work more than nine hours per day, not more than 48 hours per week.
 - c) Students cannot start work earlier than 6:00 a.m., nor work later than 10:00 p.m.
 - d) Companies and students must sign both Form H and the cooperative agreements.

5. Failure to follow school rules, co-op regulations and falsifying illness will result in disciplinary action. This may include removal from the program of any student whose conduct or effort indicates a lack of responsibility.

TITLE IX/CH. 622 POLICY/SECTION 504 NOTIFICATION

It is the policy of Bay Path Regional Vocational Technical High School not to discriminate on the basis of sex, race, color, religion, a handicap, or sexual orientation in its educational programs, activities, or employment policies as required by Title IX of the 1972 Educational Amendments and Rehabilitation Act of 1973.

Inquiries regarding compliance with Title IX /Title VI and Chapter 622, or Section 504 may be directed the Director of Pupil Personnel at Bay Path Regional Vocational Technical High School, 57 Old Muggett Hill Road, Charlton, MA 01507.

Concerning Title IX/Title VI and Section 504, inquiries may, also be directed to the U.S. Department of Education, Director of the Office for Civil Rights Region, ED 8th Floor, 5 Post Office Square, Boston, MA 02109-3921.
Contact: Phone: 617-289-0111; e-mail address ocr.boston@ed.gov

**ACADEMIC
COURSE DESCRIPTION GUIDE**

ENGLISH

The English Department strives to provide students with a strong academic background in English Language Arts. Students experience various genres, activities, and topics that are implemented in daily lesson plans and curriculum units to broaden the range of skills necessary for them to become well-rounded, life-long learners, as well as to succeed in school and on state-mandated achievement assessments. Students learn skills in writing, reading, and vocabulary that will instill in them an appreciation of literature throughout high school and beyond. The department continually updates and realigns curriculum and assessments to meet the changing and developing needs of students and to align with state mandates and curriculum standards. The curriculum is aligned with the *2017 English Language Arts and Literacy Massachusetts Curriculum Framework* and is designed to help students succeed in any future endeavors they may pursue.

GRADE 9 COURSE OFFERINGS

ENGLISH I PRE-AP

Grade 9, Course #2231 Q.P. 1.10 1.00 Credit

This Pre-AP preparatory class is for skilled readers who have shown that they are both motivated and capable. Students will study traditional grammar, paragraph structure, and composition. Through examination of appropriate models from literature, students will develop a sense of style. Students will learn to analyze the elements of fiction and nonfiction through short stories, novels, dramas, essays, and poetry. Students will learn to write at a more advanced level with an emphasis on focus, organization, and detail. There will be homework, including both reading and writing, which is expected to be consistently completed.

ENGLISH I

Grade 9, Course #2011 Q.P. 1.00 1.00 Credit

Students will review and practice basic writing skills, focusing on writing well thought out sentences, paragraphs, and essays. Students will learn and demonstrate speaking and listening skills that emphasize organization and clarity. Students will examine and study many different forms of literature including the short story, the novel, drama, and poetry. They will work to develop new vocabulary and comprehension skills while also preparing for any state-mandated testing. Students should expect outside reading and assignments throughout the year and must remain current with homework submissions. Shop week homework is also assigned regularly.

ENGLISH I- INCLUSION

Grade 9, Course #2611 Q. P. 1.00 1.00 Credit

This course is part of an inclusion program where the English and Special Education Departments team-teach. Assignment of students in need of special education is by approval of the Department of Special Education only. Non-special needs participants are selected by random. The curriculum content is parallel to the course description of *English I*.

ENGLISH I-FUNDAMENTALS

Grade 9 Q.P. 1.00 1.00 Credit

This course is designed for students experiencing difficulties with reading and writing skills. Emphasis is placed on comprehension skills and strategies involved in working with various literary genres. The literature in this course mirrors that of the English I curriculum. Students will learn how to develop basic sentence structure, use words correctly, create topic sentences, and write strong paragraphs in order to master open response questions and achieve competence in essay writing. Students are selected based on diagnostic test scores, referrals, and/or Individual Education Plans. Shop week homework will be assigned.

ENGLISH I-LEARNING CENTER

Grade 9, Course #2501 Q.P. 1.00 1.00 Credit

These courses are taught by the Special Education Department. Assignment of students in need of support services is by approval of the Pupil Personnel Services Department.

GRADE 10 COURSE OFFERINGS

ENGLISH II PRE-AP

Grade 10, Course # 2322 Q.P. 1.10 1.00 Credit

This course is a continuation of the *Freshman Pre-AP English I* class designed for capable and motivated students. The majority of the students in this course are considering two-year technical schools or colleges after high school. Students will expand vocabulary and comprehension skills as they study the four genres in literature. Written assignments will include both composition and research projects. Grammar study and state assessment test preparation are also included. Timely completion of both regular homework assignments and outside readings are required. The writing done in this course will be more extensive and is meant to prepare students for the AP English courses offered junior and senior years.

Students who did not take English I-Pre -AP must have a recommendation from their English teacher and approval from the Department Head.

ENGLISH II

Grade 10, Course #2012 Q.P. 1.00 1.00 Credit

Students will continue to develop their skills in different types of composition writing (argumentative, informative/explanatory, and narrative). Students will identify and examine the elements of literature by working with the short story, nonfiction, the novel, drama, and poetry. Students will also work to increase their vocabulary skills, as well as their speaking and listening skills. Preparation for state assessments is intensive. Regular homework assignments as well as outside readings are the norm. Shop week homework is assigned on a regular basis.

ENGLISH II-INCLUSION

Grade 10, Course #2612 Q.P. 1.00 1.00 Credit

This course is an inclusion program, which is team-taught by the English Department and the Special Education Department. Assignment of students in need of special education is by approval of the Department of Special Education. A selection of non-special needs participants

is randomly assigned. The curriculum content is parallel to the course description of English II.

ENGLISH II-FUNDAMENTALS

Grade 10, Course #3042 Q.P. 1.00 1.00 Credit

This course is designed for students experiencing difficulties with reading and writing skills. Emphasis will be placed on comprehension skills and strategies for working with various literary genres. The literature in this course mirrors that of the English Department. Students will learn how to write with emphasis on basic sentence structure, word usage, creating topic sentences, and forming good paragraphs in order to master open response questions and achieve competence in essay writing. Students are selected based on diagnostic test scores, referrals, and/or Individual Education Plans. Shop week homework will be assigned.

ENGLISH II- LEARNING CENTER

Grade 10, Course # 2502 Q.P. 1.00 1.00 Credit

These courses are taught by the Special Education Department. Assignment of students in need of support services is by approval of the Pupil Personnel Services Department.

GRADE 11 COURSE OFFERINGS

AP ENGLISH LANGUAGE AND COMPOSITION

Grade 11, Course #2063 Q.P. 1.20 1.00 Credit

Juniors who like to challenge themselves, have taken honors classes, and have plans for higher education are eligible for this advanced placement English course. It is comparable to a freshmen English I composition course in college. Students enrolled are required to take a national exam at their own expense in May. Those who earn a qualifying score (3 or higher) on the exam are eligible to earn up to one year of college English (three credits).

This course is intended to help students become skilled readers of prose written in a variety of rhetorical contexts and genres and to become proficient writers who compose for a variety of purposes. Emphasis is placed on critical thinking, analysis, synthesis, argument, and reflection, employing close reading strategies. Process-oriented writing is an integral part of the course. Students will employ a variety of research methods, including an MLA research paper. Students are expected to demonstrate proper grammatical usage and sophisticated language suitable for academic writing. Assignments must be completed within a designated framework.

ENGLISH III HONORS

Grade 11, Course #2343 Q.P. 1.10 1.00 Credit

This course is designed for those students who have opted out of taking AP Language and Composition, and are considering technical school or college after graduation. While College Prep English is designed to prepare students to attend college courses, Honors is designed more like an actual college course. Much of the class focuses on American Literature from pre-Colonial up through the present day. Students will read, view, analyze, and discuss a variety of informational and literary texts. The writing is more intensive and the reading is more extensive than in a regular English class. Major papers and assignments are part of this course.

ENGLISH III

Grade 11, Course #2333 Q.P. 1.00 1.00 Credit

Students will review and sharpen grammar, writing, and research skills leading to the development of stronger compositions. The study of literature, with a strong focus on American writings, is used to develop critical thinking and writing skills. Nonfiction materials are used for research papers and projects. Students will also identify and analyze literary elements and examine journalistic styles. Again, regular homework and shop week homework play a large part in this class.

ENGLISH III-FUNDAMENTALS

Grade 11, Course #3063 Q.P. 1.00 1.00 Credit

This course is designed for students experiencing difficulties with reading and writing skills. Emphasis will be placed on comprehension skills and strategies in various literary genres. The literature in this course mirrors that of English III. Students are selected based on diagnostic test scores, referrals, and/or Individual Education Plans. Shop week homework will be assigned.

ENGLISH III- LEARNING CENTER

Grade 11, #2503 Q.P. 1.00 1.00 Credit

These courses are taught by the Special Education Department. Assignment of students in need of support services is by approval of the Pupil Personnel Services Department.

GRADE 12 COURSE OFFERINGS

AP ENGLISH LITERATURE AND COMPOSITION

Grade 12, Course #2164 Q.P. 1.20 1.00 Credit

Seniors with college aspirations are best suited for this advanced literature course. Students will engage in careful reading and analysis of a challenging set of literary works from a range of genres including the novel, short story, poetry, and drama. The focus of the course will be on intensive reading and discussion of the literature, as well as on introducing secondary critical essays for discussion and evaluation. Emphasis will be placed on thoughtful and cogent analysis of the readings using a variety of theoretical frameworks and devices.

Students are expected to be active readers as they analyze and interpret textual detail, establish connections among their observations, and draw logical inferences leading toward an interpretive conclusion. Students will read, write and discuss poetry, fiction, and drama at an advanced college level while using online resources to develop skills including sophisticated use of literary elements and terminology, close readings of various texts, creating, drafting, and editing college-level analytical essays, preparing and writing timed essays, and advanced use and mastery of standard English. This course also prepares students for the Advanced Placement Literature and Composition Exam administered each May. Those who earn a qualifying score (3 or higher) on the exam are eligible to earn up to one year of college English credit.

ENGLISH IV HONORS

Grade 12, Course #2344 Q.P. 1.10 1.00 Credit

This is the final year of the Honors program. Again, this course moves at the pace of an actual college course. The course load is similar to Honors English III as it introduces students to British Literary themes, writings, and readings. Students focus on both fictional and informational, literary texts including Shakespeare, Chaucer, and others. There is an emphasis on writing papers, deep readings for contextual meanings, and a focus on author's style, diction, and syntax. Great poets, playwrights, and storytellers give students a chance to study, interpret, and look for deeper meanings in literature. Be prepared to work; be prepared to learn.

ENGLISH IV

Grade 12, Course #2334 Q.P. 1.00 1.00 Credit

Students will benefit from a practical approach to both writing and literature. Current literature in the four genres and nonfiction are used to enhance the student's comprehension skills and to develop methods and strategies to interpret what they read. Writing practice focuses on clarity and effective use of language. Projects may include personal essays, reviews, creative writing, and researched reports. Homework, both daily and over shop week, is an important part of the student's grade.

ENGLISH IV-FUNDAMENTALS

Grade 12, Course #3064 Q.P. 1.00 1.00 Credit

This course is designed for students experiencing difficulties with reading and writing skills. Emphasis will be placed on comprehension skills and strategies in various literary genres. The literature in this course mirrors that of English IV. Students are selected based on diagnostic test scores, referrals, and/or Individual Education Plans. Shop week homework will be assigned.

ENGLISH IV- LEARNING CENTER

Grade 12, Course #2504 Q.P. 1.00 1.00 Credit

These courses are taught by the Special Education Department. Assignment of students in need of support services is by approval of the Pupil Personnel Services Department.

MATH

GRADE 9 COURSE OFFERINGS

ALGEBRA II HONORS

Grade 9 Course #4181 Q.P. 1.10 1.00 Credit

This course is designed for the highly motivated and exceptional mathematics student who has maintained an 85 average in Algebra I. It is an accelerated course that covers traditional Algebra II topics and incorporates the TI 84 graphing calculator to solve problems.

ALGEBRA I HONORS

Grade 9, Course #4371 Q.P. 1.10 1.00 Credit

This course is designed for both the capable and motivated student who wishes to be challenged. The traditional Algebra I topics are covered in addition to use of the graphing calculator. This course is recommended for those students who have successfully completed a Pre-Algebra class in the eighth grade.

ALGEBRA I

Grade 9 Course #4271 Q.P. 1.00 1.00 Credit

This course is intended as an introduction to Algebra concepts. It covers the traditional Algebra topics of solving linear equations involving real numbers, the coordinate system, solving systems of equations, and factoring.

ALGEBRA I-INCLUSION

Grade 9, Course #4671 Q.P. 1.00 1.00 Credit

This course is team taught by the Mathematics Department and the Special Education Department. The assignment of students in need of special education is strictly by the approval of the department of Special Education. Selection of non-special needs students is by random selection. The curriculum content of the course is parallel to that of Algebra I.

ALGEBRA I-FUNDAMENTALS

Grade 9, Course #4581 Q.P. 1.00 1.00 Credit

The topics covered in this course are the same as those covered in Algebra I, but at a slower pace. Students are selected for this course based on diagnostic test scores, referrals, and/or Individual Education Plans. Shop week homework will be assigned.

ALGEBRA I- LEARNING CENTER

Grade 9, Course #4511 Q.P. 1.00 1.00 Credit

These courses are taught by the Special Education Department. Assignment of students in need of support services is by approval of the Pupil Personnel Services Department.

GRADE 10 COURSE OFFERINGS

GEOMETRY HONORS

Grade 10, Course #4192 Q.P. 1.10 1.00 Credit

This course is an accelerated course in Geometry that focuses on key topics in Geometry and Algebra that provide a strong foundation in the essentials of Geometry and offers many opportunities for students to apply the concepts to real world problems. This course requires a strong foundation in Algebra concepts. In addition, students have the opportunity to work on projects using the TI-84 graphing calculator.

GEOMETRY

Grade 10, Course #4092 Q.P. 1.00 1.00 Credit

The Geometry course is designed to provide the basic knowledge of geometric concepts.

GEOMETRY-INCLUSION

Grade 10, Course #4692 Q.P. 1.00 1.00 Credit

This course is team taught by the Mathematics Department and the Special Education Department. The assignment of students in need of special education is by the approval of the Department of Special Education. The selection of non-special needs participants is by random selection. The curriculum content is parallel to the Geometry course.

GEOMETRY-FUNDAMENTALS

Grade 10, Course #4582 Q.P. 1.00 1.00 Credit

The topics covered in this course are the same as those covered in Geometry, but at a slower pace. Students are selected for this course based on diagnostic test scores, referrals, and/or Individual Education Plans. Shop week homework will be assigned.

GEOMETRY- LEARNING CENTER

Grade 10, Course #4522 Q.P. 1.00 1.00 Credit

These courses are taught by the Special Education Department. Assignment of students in need of support services is by approval of the Pupil Personnel Services Department.

GRADE 11 COURSE OFFERINGS

PRE-CALCULUS HONORS

Grade 11, Course #4203 Q.P. 1.10 1.00 Credit

This rigorous college-level course features an in-depth systematic study of each class of functions—algebra, exponential, logarithmic, and trigonometric—along with vigorous problems involving applications and proofs. It is designed for the over-achiever in mathematics. A solid mathematics background is required to register for this course as well as teachers' recommendation and successful completion of a qualifying test.

PRE-CALCULUS

Grade 11, Course #4213 Q.P. 1.00 1.00 Credit

This is a comprehensive course of study involving conceptual understanding of the characteristics and relationships of right and oblique triangles and the modeling of periodic phenomena. A prime objective is to promote an understanding of the logical, detailed, and

sequential development of the structure that underlies the study of the triangle. This course will also extend into the topics of high level Algebra, as well as exponential and logarithmic functions. This course is recommended for the mature student who is considering post-secondary education. Prerequisite: 75% or higher average in Algebra II.

ALGEBRA II HONORS

Grade 11 Course # 4383 Q.P. 1.10 1.00 Credit

This course is designed for the highly motivated and exceptional mathematics student. It is an accelerated course that covers traditional Algebra II topics and incorporates the TI 84 graphing calculator to solve problems.

ALGEBRA II

Grade 11, Course # 4083 Q.P. 1.00 1.00 Credit

This course covers the traditional Algebra II topics and is designed for the student who has successfully completed Algebra I and Geometry.

ALGEBRA II –FUNDAMENTALS

Grade 11 – Course #4573 Q.P. 1.00 1.00 Credit

The topics covered in this course are the same as those covered in Algebra II, but at a slower pace. Students are selected for this course based on diagnostic test scores, referrals, and/or Individual Education Plans. Shop week homework will be assigned.

ALGEBRA II-LEARNING CENTER

Grade 11, Course #4543 Q.P. 1.00 1.00 Credit

These courses are taught by the Special Education Department. Assignment of students in need of support services is by approval of the Pupil Personnel Services Department.

GRADE 12 COURSE OFFERINGS

AP CALCULUS

Grade 12, Course #4264 Q.P. 1.20 1.00 Credit

The focus of this course is a solid background in material needed to indicate good preparation for the Advanced Placement Calculus Test (AB). The course follows the Advanced Placement syllabus and students may take the AP test in May. Course study will include properties of functions, limits, differential calculus, and integral calculus. Use of symbolic differentiation and integration utilities is also included. Teacher recommendation and successful completion of a qualifying test are required. This course is recommended for the highly motivated and self-disciplined student.

AP STATISTICS

Grade 12, Course #4424 Q.P. 1.20 1.00 Credit

This course is designed for students who have an overall average of 85 in mathematics, have successfully completed Algebra I, and have passed state-mandated testing requirements in mathematics. The focus is on four main areas in statistics: Exploratory analysis, planning a

study, probability, and statistical inference. In contrast to many math courses, this course will require reading of the text. Students will be required to attend three Saturday sessions and take the AP exam for Statistics. A graphing calculator is required for this course.

STATISTICS

Grade 12, Course #4414 Q.P. 1.00 1.00 Credit

This course is designed for students who have passed Algebra I and successfully passed state-mandated testing requirements. The focus is the study of the principles of statistical reasoning. Students will learn to analyze data and sharpen their critical thinking skills to make appropriate conclusions based on data. These goals will be achieved by examining the statistical process through the world of sports. A graphing calculator is required for this course.

STATISTICS-FUNDAMENTALS

Grade 12, Course #4514 Q.P. 1.00 1.00 Credit

The focus of the course is to introduce the principles of statistical reasoning. Students will learn to analyze data and to use their critical thinking skills to make appropriate conclusions based on data. These goals will be achieved by examining the statistical process through the world of sports. A graphing calculator is required for this course.

STATISTICS- LEARNING CENTER

Grade 12, Course # 4454 Q.P. 1.00 1.00 Credit

These courses are taught by the Special Education Department. Assignment of students in need of support services is by approval of the Pupil Personnel Services Department.

PRE-CALCULUS HONORS

Grade 12, Course #4204 Q.P. 1.10 1.00 Credit

This rigorous college-level course features an in-depth systematic study of each class of functions—algebra, exponential, logarithmic, and trigonometric—along with vigorous problems involving applications and proofs. It is designed for the over-achiever in mathematics. A solid mathematics background is required to register for this course as well as teachers' recommendation and successful completion of a qualifying test.

TRIGONOMETRY

Grade 12 Course #4104 Q.P. 1.00 1.00 Credit

This is a comprehensive course of study involving conceptual understanding of the characteristics and relationships of right and oblique triangles. A prime objective is to promote an understanding of the logic, detailed and sequential development of the structure that underlies the study of the triangle. The fundamental principles will enable the student to be better prepared to solve practical problems that demand a creative trigonometric approach. This course is recommended for the mature student who is considering post-secondary education. Pre-requisite: 75 or better in Algebra II.

HEALTH/PHYSICAL EDUCATION

GRADE 9 COURSE OFFERINGS

PHYSICAL EDUCATION I/HEALTH I

Grade 9, Course #7211/7221 Q.P. 1.00 .50 Credit

This class requires students to be physically active and to socially interact with their classmates and teacher. Students participate in a variety of activities including large group, small group, individual sports, and fitness testing. Activities include team and life time sports. Activities include: football, speedball, floor hockey, backyard games, disc golf, badminton, Frisbee, volleyball, basketball, strength, endurance and flexibility training. Health Education is designed to give students the knowledge and skills they need to lead a productive lives. Health topics will include but are not limited: mental and social health, alcohol and tobacco, wellness, reproduction, healthy relationships, Hands-only CPR, and cardiovascular health.

GRADE 10 COURSE OFFERINGS

PHYSICAL EDUCATION II/HEALTH II

Grade 10, Course #7212/7222 Q.P. 1.00 .50 Credit

This class requires students to be physically active and to socially interact with their classmates and teacher. Students participate in a variety of activities including large group, small group, individual sports, and fitness testing. Activities include team and life time sports: football, speedball, floor hockey, backyard games, team building activities disc golf, badminton, Frisbee, volleyball, basketball, strength, endurance and flexibility training. Health Education is designed to give students the knowledge and skills they need to lead a productive lives. Health Topics include but are not limited to: stress management, sexual health and STI prevention, violence and conflict resolution, risks of drug, suicide prevention and mental health, and nutrition.

GRADE 11 COURSE OFFERINGS

PHYSICAL EDUCATION III

Grade 11, Course #7113 Q.P. 1.00 .50 Credit

This class requires students to be physically active and to socially interact with their classmates and teacher. Students participate in a variety of activities including large group, small group, individual sports, and fitness testing. Activities include team and life time sports: football, speedball, floor hockey, backyard games, team building activities disc golf, badminton, Frisbee, volleyball, basketball, strength, endurance and flexibility training.

WELLNESS IN THE 21ST CENTURY I

Grade 11, Course #7123 Q.P. 1.00 .50 Credit

In the ever changing world of health and wellness, it is imperative to have accurate and relevant information in order to make decisions that will have a positive impact on your overall health and well-being. This course will focus on mental/emotional health, social health, and physical health. There may also be a fitness component incorporated into class. Students work in groups and individually on ways to improve overall mental health. Topics include: teen depression, suicide, ADD, ADHD, bi polar, self-awareness, self-esteem, and substance abuse. The class will be project based with opportunities for students to showcase their best work.

HEALTH /TRANISTIONS

Grade 11, Course #7513 Q.P. 1.00 .50 Credit

This course is taught by the Health Department in conjunction with the Special Education Department. Assignment of students in need of support services is by approval of the Pupil Personnel Services Department. Health/Transitions is designed to give students the knowledge and skills they need to lead productive lives. Transitions topics will include but are not limited to the following: Everyday household tasks and household safety, healthy living, using community resources, using public or private transportation, and travel.

GRADE 12 COURSE OFFERINGS

PHYSICAL EDUCATION IV

Grade 12, Course #7114 Q.P. 1.00 .50 Credit

This class requires students to be physically active and to socially interact with their classmates and teacher. Students participate in a variety of activities including large group, small group, individual sports, and fitness testing. Activities will include team and life time sports. Some of the activities that will be covered: football, speedball, floor hockey, backyard games, team building activities disc golf, badminton, Frisbee, volleyball, basketball, strength, endurance and flexibility training.

WELLNESS IN THE 21ST CENTURY II

Grade 12, Course #7124 Q.P. 1.00 .50 Credit

Senior Wellness is designed to encourage students to take an active role in their physical well-being. Students will participate in an instructor guided fitness program that emphasizes strength, flexibility, and endurance through functional fitness training. With the assistance of the instructor, students will develop an individual fitness program that meets dietary needs and includes a manageable fitness plan. Students will also acquire CPR certification. Class time will be divided between the weight room and classroom. This course is an extension of Wellness I and will also focus on mental/emotional health, social health and physical health. The course content will include addiction, homelessness, Maslow's Hierarchy of needs, teen pregnancy, resiliency, proper health/dental care, the welfare system, and abuse.

HEALTH /TRANISTIONS

Grade 12, Course #7514 Q.P. 1.00 .50 Credit

This course is taught by the Health Department in conjunction with the Special Education Department. Assignment of students in need of support services is by approval of the Pupil Personnel Services Department. Health/Transitions is designed to give students the knowledge and skills they need to lead a productive lives. Transitions topics will include but are not limited to the following: Budgeting and money management, applying for a job, interviewing skills, basic job skills, and finding a residence for post graduation.

SCIENCE

GRADE 9 COURSE OFFERINGS

BIOLOGY HONORS

Grade 9, Course #6261 Q.P. 1.10 1.00 CREDIT

This course is designed for the academically advanced students who are motivated to achieve an in-depth and comprehensive understanding of biological principles and processes. A variety of inquiry-based and laboratory-based methods will be emphasized in order to assist students to develop innovative critical-thinking and problem-solving skills. Students are expected to apply their knowledge and skill on biological and technical levels in the areas of cellular biology, genetics, evolution, ecology, microorganisms, invertebrates, vertebrates, and human biology. Significant MCAS preparation is also emphasized.

BIOLOGY

Grade 9, Course #6111 Q.P. 1.00 1.00 Credit

Biology is the study of living things, and living things are part of everyday experiences. An understanding of Biology, therefore, results in a better understanding and appreciation of life. All concepts are presented with the most up-to-date information available. In addition, practical concepts are presented to help make Biology more real for students.

The course focuses on major life processes. Each process is discussed using a variety of examples from all types of living things but with particular attention given to humans. In this way, students gain insight that all organisms, including themselves, carry out the same live functions. The course is aligned with the NGSS for Biology, which include: General Principles of Biology, Chemistry of Life, Genetics & Heredity, Cell Biology, Anatomy and Physiology, and Evolution and Ecology.

BIOLOGY-INCLUSION

Grade 9, Course #6641 Q.P. 1.00 1.00 Credit

*This course is an inclusion program team taught by the Science Department and Special Needs Department. Assignment of students in need of special education is by approval of the Special Education Department. Selection of non-special needs participants is by recommendation and random selection. Curriculum content is parallel to course description #6111.

BIOLOGY-LEARNING CENTER

Grade 9, Course #6521 Q.P. 1.00 1.00 Credit

These courses are taught by the Special Education Department. Assignment of students in need of support services is by approval of the Pupil Personnel Services Department.

GRADE 10 COURSE OFFERINGS

CHEMISTRY HONORS

Grade 10, Course # 6153 Q.P. 1.10 Credit 1.0

This course is designed to foster student understanding of the language of chemistry and

symbolic relationships that will allow them to perform labs to investigate the theoretical topics presented in class. Mathematics is the foundation of chemistry and basic understanding of math and algebra is desired. Main topics presented in this course are the properties of matter, the periodic table, “factor-label” method, problem solving, the atom and sub-atomic particles, scientific notation, physical and chemical properties/ changes, chemical formulas and reactions, the “mole” concept, stoichiometry, reaction rates, and acid base reactions.

Prerequisite: Algebra 1 grade 85%

PHYSICS HONORS

Grade 10, Course # 6173 Q.P. 1.10 Credit 1.0

This course is an exploration of the fundamental principles governing the universe. Students will gain an understanding of force, motion, momentum, energy, light, waves and oscillations, electricity and magnetism, and radioactivity. Laboratory experiments will be performed routinely to demonstrate and provide evidence for these concepts.

Prerequisite: Algebra 1 grade 85%

ENGINEERING THE FUTURE HONORS

Grade 10, Course # 6332 Q.P. 1.10 Credit 1.0

Engineering the Future: Science, Technology, and the Design Process™ is a full-year course where students take a hands-on approach to understanding the principles of technology and engineering design. Students learn how science, technology, engineering, and math have real-world applications and how engineering will shape the future.

Prerequisite: Algebra 1 grade 85

ENGINEERING THE FUTURE

Grade 10, Course #6322 Q.P. 1.0 Credit 1.0

Engineering the Future: Science, Technology, and the Design Process™ is a full-year course where students take a hands-on approach to understanding the principles of technology and engineering design. Students learn how science, technology, engineering, and math have real-world applications and how engineering will shape the future.

Prerequisite: Successful completion of Algebra 1

ENGINEERING THE FUTURE - INCLUSION

Grade 10, Course # 6622 Q.P. 1.0 Credit 1.0

*This course is an inclusion program team taught by the Science Department and Special Needs Department. Assignment of students in need of special education is by approval of the Special Education Department. Selection of non-special needs participants is by recommendation and random selection. Curriculum content is parallel to course description _____

ENGINEERING THE FUTURE – LEARNING CENTER

Grade 10, Course #6522 Q.P. 1.00 1.00 Credit

These courses are taught by the Special Education Department. Assignment of students in need of support services is by approval of the Pupil Personnel Services Department.

GRADE 11 COURSE OFFERINGS

AP PHYSICS

Grade 11, Course #6373 Q.P. 1.20 Credit 1.0

This course is an accelerated course in the study of physics that goes above and beyond the standard topics of study. The course follows the AP curriculum provided by the College Board with the goal of preparing students to take the AP Physics I standardized exam at the end of the year. Students will study force, motion, momentum, energy, power, rotational dynamics, torque, waves and oscillations, electrostatics, and DC circuits in great depth and with a focus on conceptual problem solving. Laboratory experiments will be performed routinely to demonstrate and provide evidence for these concepts. Students will be expected to attend extra Saturday study sessions, participate in a mock AP exam, and take the national AP Physics I exam at the completion of the course.

Prerequisites: Algebra II grade 85%

PHYSICS

Grade 11, Course #6173 Q.P. 1.10 Credit 1.0

This course is an exploration of the fundamental principles governing the universe. Students will gain an understanding of force, motion, momentum, energy, light, waves and oscillations, electricity and magnetism, and radioactivity. Laboratory experiments will be performed routinely to demonstrate and provide evidence for these concepts.

Prerequisite: Algebra 1 grade 85%

CHEMISTRY HONORS

Grade 11, Course #6163 Q.P. 1.10 Credit 1.0

This course is designed to foster student understanding of the language of chemistry and symbolic relationships that will allow them to perform labs to investigate the theoretical topics presented in class. Mathematics is the foundation of chemistry and basic understanding of math and algebra is desired. Main topics presented in this course are the properties of matter, the periodic table, “factor-label” method, problem solving, the atom and sub-atomic particles, scientific notation, physical and chemical properties/ changes, chemical formulas and reactions, the “mole” concept, stoichiometry, reaction rates, and acid base reactions.

Prerequisite: Algebra 1 grade 85%

CHEMISTRY

Grade 11, Course #6153 Q.P. 1.00 Credit 1.0

This course is designed to foster student understanding of the language of chemistry and symbolic relationships that will allow them to perform labs to investigate the theoretical topics presented in class. Mathematics is the foundation of chemistry and basic understanding of math and algebra is desired. Main topics presented in this course are the properties of matter, the periodic table, “factor-label” method, problem solving, the atom and sub-atomic particles, scientific notation, physical and chemical properties/ changes, chemical formulas and reactions, the “mole” concept, stoichiometry, reaction rates, and acid base reactions. **Prerequisite:**

Successful completion of Algebra 1

ANATOMY AND PHYSIOLOGY HONORS

Grade 11, Course #6823 Q.P. 1.10 Credit 1.0

This is an intensive course that investigates the major organ systems of the human body. Anatomy will identify the individual parts of each system and physiology will relate the function of these parts to the system. Students will gain an understanding of these organ systems in maintaining the body's overall health.

Prerequisite: Biology grade 85%

ANATOMY AND PHYSIOLOGY

Grade 11, Course #6813 Q.P. 1.00 Credit 1.0

This course investigates the major organ systems of the human body. Anatomy will identify the individual parts of each system and physiology will relate the function of these parts to the system. Students will gain an understanding of these organ systems in maintaining the body's overall health.

ENVIRONMENTAL SCIENCE I

Grade 11, Course #6013 Q.P. 1.00 Credit 0.50

This is a one period lab based course that deals with the study of the impact of humans and the environment. Topics of study will include ecology, ecosystems, structure of the Earth and its atmosphere, biomes, populations and biodiversity.

ENVIRONMENTAL SCIENCE-LEARNING CENTER

Grade 11, Course # 6513 Q.P. 1.00 Credit 0.50

Assignment of students in need of support services is by approval of the Pupil Personnel Services Department.

GRADE 12 COURSE OFFERINGS

AP ENVIRONMENTAL SCIENCE

Grade 12, Course #6344 Q.P. 1.20 Credit 1.0

The goal of the AP Environmental Science course is to provide students with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world, to identify and analyze environmental problems both natural and human-made, to evaluate the relative risks associated with these problems, and to examine alternative solutions for resolving or preventing them. Environmental science is interdisciplinary, embracing a wide variety of topics from different areas of study. Yet there are several major unifying constructs that cut across the many topics included in the study of environmental science: science is a method of learning more about the world, energy conversions underlie all ecological processes, the earth itself is one interconnected system, humans alter natural systems, and human survival depends on developing practices that will achieve sustainable systems. Students are expected to take the AP exam at the conclusion of the course.

ENVIRONMENTAL SCIENCE II

Grade 12, Course # 6014 Q.P. 1.00 Credit 1.0

This is a one period lab based course that deals with the study of the impact of humans and the environment. Topics of study will include water, land and air pollution, food and agriculture,

renewable and nonrenewable resources and energy, and how the environment affects health, economics, policies, and the future.

ENVIRONMENTAL SCIENCE II - LEARNING CENTER

Grade 12, Course #6514 Q.P. 1.00 Credit 1.0

These courses are taught by the Special Education Department. Assignment of students in need of support services is by approval of the Pupil Personnel Services Department.

CHEMISTRY-HONORS

Grade 12, Course #6254 Q.P. 1.10 Credit 1.0

This course is designed to foster student understanding of the language of chemistry and symbolic relationships that will allow them to perform labs to investigate the theoretical topics presented in class. Mathematics is the foundation of chemistry and basic understanding of math and algebra is desired. Main topics presented in this course are the properties of matter, the periodic table, “factor-label” method, problem solving, the atom and sub-atomic particles, scientific notation, physical and chemical properties/ changes, chemical formulas and reactions, the “mole” concept, stoichiometry, reaction rates, and acid base reactions.

Prerequisite: Algebra 1 grade 85%

CHEMISTRY

Grade 12, Course #6144 Q.P. 1.00 Credit 1.0

This course is designed to foster student understanding of the language of chemistry and symbolic relationships that will allow them to perform labs to investigate the theoretical topics presented in class. Mathematics is the foundation of chemistry and basic understanding of math and algebra is desired. Main topics presented in this course are the properties of matter, the periodic table, “factor-label” method, problem solving, the atom and sub-atomic particles, scientific notation, physical and chemical properties/ changes, chemical formulas and reactions, the “mole” concept, stoichiometry, reaction rates, and acid base reactions.

Prerequisite: Successful completion of Algebra 1

AP PHYSICS

Grade 12, Course # 6374 Q.P. 1.20 Credit 1.0

This course is an accelerated course in the study of physics that goes above and beyond the standard topics of study. The course follows the AP curriculum provided by the College Board with the goal of preparing students to take the AP Physics I standardized exam at the end of the year. Students will study force, motion, momentum, energy, power, rotational dynamics, torque, waves and oscillations, electrostatics, and DC circuits in great depth and with a focus on conceptual problem solving. Laboratory experiments will be performed routinely to demonstrate and provide evidence for these concepts. Students will be expected to attend extra Saturday study sessions, participate in a mock AP exam, and take the national AP Physics I exam at the completion of the course. **Prerequisites: Algebra II grade 85%, knowledge of trigonometry is beneficial**

PHYSICS

Grade 12, Course #6174 Q.P. 1.00 Credit 1.0

This course is an exploration of the fundamental principles governing the universe. Students will gain an understanding of force, motion, momentum, energy, light, waves and oscillations, electricity and magnetism, and radioactivity. Laboratory experiments will be performed routinely to demonstrate and provide evidence for these concepts.

Prerequisite: Successful completion of Algebra 1

ANATOMY AND PHYSIOLOGY HONORS

Grade 12, Course #6834 Q.P. 1.10 Credit 1.0

This is an intensive course that investigates the major organ systems of the human body. Anatomy will identify the individual parts of each system and physiology will relate the function of these parts to the system. Students will gain an understanding of these organ systems in maintaining the body's overall health.

Prerequisite: Biology grade 85%

ANATOMY AND PHYSIOLOGY

Grade 12, Course #6814 Q.P. 1.10 Credit 1.0

This course investigates the major organ systems of the human body. Anatomy will identify the individual parts of each system and physiology will relate the function of these parts to the system. Students will gain an understanding of these organ systems in maintaining the body's overall health.

SOCIAL STUDIES

GRADE 9 COURSE OFFERINGS

U.S. HISTORY I HONORS

Grade 9, Course #5251 Q.P. 1.10 1.00 Credit

This course will be offered to motivated students who have an interest in outside readings, project work, and working at an accelerated classroom pace. Students will study individuals and events that shaped American affairs from c. 1700 to c. 1850s. Students will be able to explain the basic issues that led to the creation of the US and its government as well as the issues leading to the ratification of the Constitution. Students will also explore issues and events in the early Republic, the industrial revolution and westward expansion. Students will be able to summarize the major events in American history that led to the development of modern America.

U.S. HISTORY I

Grade 9, Course #5151 Q.P. 1.00 1.00 Credit

Students will study individuals who and events that shaped American affairs from c 1700 – c 1870. Students will be able to explain the creation of the US and its government, the issues leading to the ratification of the Constitution, and the major events in American history that led to the development of modern America.

U.S. HISTORY I-INCLUSION

Grade 9, Course #5651 Q.P. 1.00 1.00 Credit

This is an inclusion course team taught by the Social Studies Department and Special Education Department. Assignment of students in need of special education is by approval of the Department of Special Education. Selection of non-special needs participants is by recommendation and random selection.

U.S. HISTORY I- LEARNING CENTER

Grade 9, Course #5501 Q.P. 1.00 1.00 Credit

These courses are taught by the Special Education Department. Assignment of students in need of support services is by approval of the Pupil Personnel Services Department.

GRADE 10 COURSE OFFERINGS

AP U.S. HISTORY (Part I, Pre-AP)

Grade 10, Course #5262 Q.P. 1.20 1.00 Credits

AP United States History focuses on developing students' abilities to think conceptually about U.S. history from approximately 1491 to the present and apply historical thinking skills as they learn about the past. Students study seven themes of equal importance: identity; peopling, politics, and power; work, exchange, and technology; America in the world; environment and geography; and ideas, beliefs, and culture. These themes provide areas of historical inquiry for investigation throughout the course. They require students to reason historically, build valuable analytical skills about continuity and change over time, make comparisons among various historical developments in different times and places, and to interpret history like a historian. This course is designed to provide college-level coursework to high school students who are

interested in history and are willing to work at an accelerated pace. Extensive primary and secondary source readings, writing assignments, and classroom discussions are requirements in this course. Students must be willing and prepared to devote the necessary time to complete all assignments. Students enrolled in this course must also take AP US History II in their junior year and take the AP US History exam in the spring of their junior year.

U.S. HISTORY II HONORS

Grade 10, Course #5162 Q.P. 1.10 1.00 Credits

With teacher recommendations, students who have an interest in United States History and want to enhance their knowledge through reports, class projects, and outside readings as well as an accelerated classroom approach should consider taking this course. Key topics include factors contributing to the onset of the American Civil War, the issues surrounding the Reconstruction Era, American expansionism and territorial gains, and the impact/effects of the Second Industrial Revolution. Students will also examine tissues relating to American involvement in major wars and conflicts as well as presidential policies of the 20th century. Individuals who had a major impact upon American policies and American development will be studied.

U.S. HISTORY II

Grade 10, Course #5152 Q.P. 1.00 1.00 Credit

Key topics that will be examined and discussed will be the factors contributing to the onset of the American Civil War, the issues surrounding the Reconstruction Era, American expansionism and territorial gains, and the impact/effects of the Second Industrial Revolution. Students will also examine the issues relating to American involvement in major wars and conflicts as well as presidential policies of the 20th century. Individuals who had a major impact upon American policies and American development will be studied.

U.S. HISTORY II-INCLUSION

Grade 10, Course #5652 Q.P. 1.00 1.00 Credit

This course is an inclusion program team taught by the Social Studies Department and Special Needs Department. Assignment of students in need of special education is by approval of the Department of Special Education. Selection of non-special needs participants is by recommendation and random selection. Curriculum content is parallel to Course #5152.

U.S. HISTORY II- LEARNING CENTER

Grade 10, Course #5502 Q.P. 1.00 1.00 Credit

These courses are taught by the Special Education Department. Assignment of students in need of support services is by approval of the Pupil Personnel Services Department.

GRADE 11 COURSE OFFERINGS

AP U.S. HISTORY (Part II)

Grade 11, Course #5263 Q.P. 1.20 1.00 Credits

AP United States History focuses on developing students' abilities to think conceptually about U.S. History from approximately 1491 to the present and apply historical thinking skills as they learn about the past. Students study seven themes of equal importance: identity; peopling, politics, and power; work, exchange, and technology; America in the world; environment and

geography; and ideas, beliefs, and culture. These themes provide areas of historical inquiry for investigation throughout the course. They require students to reason historically, build valuable analytical skills about continuity and change over time, make comparisons among various historical developments in different times and places, and to interpret history like a historian.

This course is an extension of AP US History I and provides college-level coursework to high school students who are interested in history and are willing to work at an accelerated pace. Extensive primary and secondary source readings, writing assignments, and classroom discussions are requirements in this course. Students must be willing and prepared to devote the necessary time to complete all assignments. Students enrolled in this course must take the AP US History exam in the spring. *A.P. U.S. History Part I is a pre-requisite for this course.*

MODERN WORLD HISTORY HONORS

Grade 11, Course #5143 Q.P. 1.10 .50 Credit

With teacher recommendations, the student that has an interest in Modern World History and wants to enhance his/her knowledge through reports, class projects and outside readings, along with an accelerated classroom approach, should consider taking this course. This course examines the major philosophical, social, political and economic trends in the modern world. Key topics covered include an understanding of the major individuals and events that shaped world affairs from the 1900s to the present. Global issues and developments as well as the rise of the United States as a world power will also be incorporated into this course.

MODERN WORLD HISTORY

Grade 11, Course #5133 Q.P. 1.00 .50 Credit

This course examines the major philosophical, social, political and economic trends in the modern world. Key topics covered include an understanding of the major individuals and events that shaped world affairs from the 1900s to the present. Global issues and developments as well as the rise of the United States as a world power will also be incorporated into this course.

MODERN WORLD HISTORY-LEARNING CENTER

Grade 11, Course #5523 Q. P. 1.00 .50 Credit

These courses are taught by the Special Education Department. Assignment of students in need of support services is by approval of the Pupil Personnel Services Department.

GRADE 12 COURSE OFFERINGS

MODERN WORLD CULTURES HONORS

Grade 12, Course #5154 Q. P. 1.10 .50 Credit

This course is intended for students in their senior year who have completed the A.P. United States History curriculum. Students completing this course will develop an understanding of the key figures and major events that shaped world history from c. 1815 to the present. The major areas of study include Asian, African, Middle Eastern and European history. The course will trace the rise and growth of these societies and the formation of their current nation states. Students will analyze the role of Asian, African, Middle Eastern, and European societies in the creation of a modern global community.

CONTEMPORARY SOCIAL PROBLEMS HONORS

Grade 12, Course #5084 Q.P. 1.10 .50 Credit

Students who wish to work at an accelerated pace should take this course. Students are exposed to a variety of contemporary subjects. Knowledge into these subjects will greatly help students understand society, become responsible citizens, and deal with current social problems all having major social implications. There is a 15-hour community service requirement for this course.

CONTEMPORARY SOCIAL PROBLEMS

Grade 12, Course #5074 Q.P. 1.00 .50 Credit

Students will be exposed to a variety of contemporary subjects. Knowledge into these subjects will greatly help students understand society, become responsible citizens and deal with current social problems all having major social implications.

CONTEMPORARY SOCIAL PROBLEMS –LEARNING CENTER

Grade 12, Course #5574 Q. P. 1.00 .50 Credit

These courses are taught by the Special Education Department. Assignment of students in need of support services is by approval of the Pupil Personnel Services Department.

ADVANCED COURSEWORK AND ENRICHMENT OPPORTUNITIES

FOREIGN LANGUAGE

SPANISH I

Grades 9-12, Course #8290

Spanish I is a full-year course where students in grades 9 through 12 may begin their study of the Spanish language and cultures. Students concentrate on speaking in the target language, studying vocabulary and grammatical structures, and learning about the cultures and traditions of the many Spanish-speaking countries in the world. Each unit covers basic vocabulary, conjugation of verbs both regular and irregular, and interaction using visual and verbal content.

SPANISH II

Grades 9-12, Course #8291

Spanish II is a full-year course where students in grades 9 through 12 may continue their study of the Spanish language and cultures. Students concentrate on speaking in the target language, studying vocabulary and grammatical structures, and learning about the cultures and traditions of the many Spanish-speaking countries in the world. Each unit covers vocabulary, conjugation of verbs both regular and irregular, and interaction using visual and verbal content. In Spanish II, there is an emphasis on accurate oral and appropriate written use of the language.

EARLY COLLEGE

Each year, Bay Path offers early college opportunities through Quinsigamond Community College and Nichols College. Course offerings vary from year to year, as do locations, semester calendars, and enrollment criteria. Check the Bay Path website or contact the Curriculum Coordinator for more information.

VOCATIONAL SHOP DESCRIPTION GUIDE

ADVANCED MANUFACTURING

ADVANCED MANUFACTURING I

Grade 9 Course #0841 Q.P. 1.00 3.50 Credits

The freshmen will learn the basics of lathe, milling machine, grinder, waterjet, laser, and drill press operation. They will apply the basic math, measurement and blueprint skills learned in the related program to the production of machined parts in shop. The student will learn the application of machine, hand, and power tools that are studied in related. The student will also apply basic information concerning heat treatment and metal identification. Most importantly, the student will learn the safety practices needed in a machine shop environment.

ADVANCED MANUFACTURING RELATED THEORY I

Grade 9 Course #1841 Q.P. 1.00 1.00 Credit

The freshmen will learn hand tool, measuring tool, and machine tool identification and use. The student will also learn shop math as applied to the job and focus primarily on basic blueprint reading and sketching. The student will learn the theories of properly and safely removing stock through the use of varied machine tools. The student will also learn the metal manufacturing process and basic metallurgy.

ADVANCED MANUFACTURING SHOP II

Grade 10 Course #0842 Q.P. 1.00 3.50 Credits

The sophomores will learn advanced lathe, milling machine, grinder, waterjet, laser, and drill press operation. In addition, they will learn basic operation of E.D.M. and C.N.C. milling and turning centers. They will apply the more advanced math and blueprint skills learned in the related program to the production of machined parts in the shop. The student will begin the process of unit production in the form of tools that can be used by the student when entering the trade such as hammers, vises, and fixtures. The concept of multi-level production will be introduced and short production runs will be done by the students and organized by the upperclassmen.

ADVANCED MANUFACTURING RELATED THEORY II

Grade 10 Course #1842 Q.P. 1.00 1.00 Credit

Sophomores will learn advanced tooling used on basic machine tools. Production planning will be taught to efficiently produce machined parts on machine tools. An introduction to the use of CAD/CAM and 3D parametric modeling software will comprise a major portion of the course. Basic concepts of CNC programming will also be taught with emphasis on use of proper tooling for the given job. Additionally, students will create a resume and reference sheet and explore employability and entrepreneurship skills as they apply to the manufacturing industry.

ADVANCED MANUFACTURING SHOP III

Grade 11 Course #0843 Q.P. 1.00 4.50 Credits

The juniors will learn in greater depth how to program, set up, and operate CNC machines. The student will create CNC programs in word address G-Code format by using CAD/CAM software. The junior students will organize and run more complex production jobs in the shop

using underclassmen as machine operators. The students will be introduced to basic tool making, die making, and mold making practices as well as advanced inspection techniques.

ADVANCED MANUFACTURING RELATED THEORY III

Grade 11 Course #1843 Q.P. 1.00 1.00 Credit

Juniors will learn CNC programming in great depth; they will learn to interpret standard word address characters and programs, and they will learn to create CNC programs using the industry accepted format. Students will also complete projects that build their CAD/CAM and 3D modeling skills. The students will learn advanced blueprint reading and apply it to CNC programming and production projects.

ADVANCED MANUFACTURING SHOP IV

Grade 12 Course #0844 Q.P. 1.00 4.50 Credits

The seniors will learn advanced machine tool operation and planning. The student will focus on an area of the trade into which he/she wishes to enter or remain in general machining sharpening their skills on the basic and advanced machine tool processes. The student will be shop floor foreman for a period to learn the skills of working with the public and planning work schedules.

ADVANCED MANUFACTURING RELATED THEORY IV

Grade 12 Course #1844 Q.P. 1.00 1.00 Credit

Seniors will learn trigonometry and geometry concepts as they apply to CNC programming and blueprint interpretation and creation. Students will also learn more about the material selection process and mechanics and properties of common materials found in the manufacturing industry. Students will learn advanced CNC programming and CAD techniques. Other relevant topics may be incorporated into the course to meet the career and/or college plans of the students.

AUTO COLLISION & REPAIR TECHNOLOGY

AUTOMOTIVE COLLISION REPAIR & REFINISHING SHOP I

Grade 9, Course #0621 Q.P. 1.00 3.50 Credits

The freshmen will learn various hand skills and knowledge to the degree that will enable the student to work at the level of a painter's helper, in a safe and competent manner. All of the above will be hands on training. Freshmen course of study will include shop safety for the use of hand tools and power tools. Proper jacking and how to use abrasives and sandpaper along with sanding techniques, masking techniques, surface preparation, painting materials, compounding, priming, and the use of synthetic fillers.

AUTOMOTIVE COLLISION REPAIR & REFINISHING RELATED SCIENCE I

Grade 9, Course #1621 Q.P. 1.00 1.00 Credit

The freshmen will learn how to use the various hand skills and knowledge to the degree that will enable the student to work at the level of a painter's helper in a safe manner, learning how to protect the student from the dangers in the trade areas. Students will be able to read about various hand tools and materials from various books in the related room. Audio visual aids and trade magazines will also be used, as well as lectures from the instructor. Freshmen will be able to learn about various hand tools and materials to be able to complete the above objectives such as safety precautions for the following usage of hammers, dollies, wrenches, ratchets, and sockets, as well as screwdrivers, pliers, cutting shears, and vise grips.

AUTOMOTIVE COLLISION REPAIR & REFINISHING SHOP II

Grade 10, Course #0622 Q.P. 1.00 3.50 Credits

The sophomores will learn, with hands on training, how to acquire knowledge of the various skills which enable them to become a body person's helper or further his skills as a painter's helper and to follow proper safety procedures. They will also learn to recognize and repair minor collision damage and participate in spot repair and overall refinishing. All the above will be hands on training. The sophomore course of study shall include shop safety with the use of hand tools, and automotive metals. We will also be analyzing damaged areas, and roughing procedures. They will be learning several different trade terms of the shop area and the importance of good shop habits and workmanship.

AUTOMOTIVE COLLISION REPAIR & REFINISHING RELATED SCIENCE II

Grade 10, Course #1622 Q.P. 1.00 1.00 Credit

The sophomores will acquire knowledge of the various skills that enable them to become a body person's helper or further his or her skills as a painter's helper. Students will learn to recognize and repair minor collision damage and the art of painting and refinishing in a safe manner. The student will learn the dangers of paint and the use of protection techniques.

Students will be able to read about various hand tools and materials from various books in the related room. Audio visual aids and trade magazines will be used, as well as, lectures from the instructor. Sophomores will be able to learn about various paint and thinners, and the dangers of each of the following: lacquers, enamels, enamel reducers, lacquer thinners, putty, sealers, and additives.

AUTOMOTIVE COLLISION REPAIR & REFINISHING SHOP III

Grade 11, Course #0623 Q.P. 1.00 4.50 Credits

The junior students will learn panel replacement necessary for a large collision repair. They also will acquire the necessary knowledge and skills needed for applying the various materials used by the automotive manufacturers in a safe manner. All the above will be hands on training. The junior course of study will include the following: The analysis of damage and complete panel replacement. Also, geometry and fillers, torch soldering, and shrinking procedures will be learned, along with the ability to color-match the application of finishes, and general facts about custom refinishing.

AUTOMOTIVE COLLISION REPAIR & REFINISHING RELATED SCIENCE III

Grade 11, Course #1623 Q.P. 1.00 1.00 Credit

The juniors should have acquired the knowledge to analyze the various methods of collision repair, to enable them to become an auto body repairperson with a minimum of supervision. Students should be given the opportunity to learn panel replacement necessary for a large collision repair. They also will acquire the necessary knowledge and skills needed for applying the various materials used by the automotive manufacturers. Students will be able to read about various collision repairs form various books in the related room. Audio visual aids and trade magazines will also be used, as well as, lectures form the instructor. The juniors' course of study will consist of analyzing damage, panel replacement, jacks, multiple jacks, and major glass replacement.

AUTOMOTIVE COLLISION REPAIR & REFINISHING SHOP IV

Grade 12, Course #0624 Q.P. 1.00 4.50 Credits

The seniors will learn how to perform the various operations required in Repairing and Refinishing necessary to meet commercial standards in a safe manner. All training will be hands-on. The senior course of study will include the following: Collision Estimating, Unibody, and Full Frame Repair using the "Chief EZ liner Classic 25" frame machine along with the Chief Universal Measuring System.

AUTOMOTIVE COLLISION REPAIR & REFINISHING RELATED SCIENCE IV

Grade 12, Course #0624 Q.P. 1.00 1.00 Credit

The seniors should be competent enough to perform the various operations required in repairing and refinishing necessary to meet commercial standards. Students should be acclimated with the procedures necessary for estimate writing, ordering parts and materials, scheduling of work and customer report. Students will be able to read about various repairing and refinishing from various books in the related room. Audio visual aids and trade magazines will also be used, as well as, lectures from the instructor. The senior course of study is as follows: collision estimating, Chief EZ Liner Classic 25 use, and frame straightening.

AUTOMOTIVE TECHNOLOGY

AUTOMOTIVE TECHNOLOGY SHOP I

Grade 9, Course #0641 Q.P. 1.00 3.50 Credits

The freshmen will be instructed on the safety of the shop, and whereabouts of the fire extinguishers, the use of fire extinguishers, the fire blankets, and the emergency shut off switches. The students will also be instructed on the proper use and care of all tools and equipment, the use of power tools, the use of jacks, jacking a vehicle and the placement of a vehicle on a lift. He/she will also learn the basic parts of an automobile, and identify major automotive manufacturers on both domestic and imported vehicles. The first year student will also receive general knowledge of servicing a vehicle (checking fluids, changing oil & filter, and lubrication of all parts needed) and visual inspection of all under hood parts. They will also learn to work on the basic automotive systems such as exhaust, shocks, wheel bearings, brakes, and other minor repairs.

AUTOMOTIVE TECHNOLOGY RELATED SCIENCE I

Grade 9, Course #1641 Q.P. 1.00 1.00 Credit

The freshmen will learn the procedures of shop and personal safety. The students will learn how to use basic hand tools. The students will learn how to change tires, balance tires, and general lubrication procedures such as servicing vehicles. The students will learn how to care for batteries, service exhaust systems, and repair front-end suspension systems, such as the repairing of wheel bearings and shock absorbers. The students will learn how to service different types of brake systems.

AUTOMOTIVE TECHNOLOGY SHOP II

Grade 10 Course #0642 Q.P. 1.00 3.50 Credits

The sophomores will review all safety factors of the shop. Depending on the learning ability of the student, he/she will be performing more difficult tasks such as complete brake jobs, including the use of the brake-lathe, the overhaul of the brake components, the hands on use of test equipment, and the repair of drive-line components. Sophomores will also learn the basics of front-end alignment.

AUTOMOTIVE TECHNOLOGY RELATED SCIENCE II

Grade 10, Course #1642 Q.P. 1.00 1.00 Credit

This takes the students beyond basics starting with the more complicated functions. The students will learn how to diagnose and repair starters, charge systems, use testing equipment, such as battery testers, and repair standard transmissions, clutches, drivelines, cooling systems, and engine lubrication systems. The student will learn how to align front ends using a front-end alignment machine.

AUTOMOTIVE TECHNOLOGY SHOP III

Grade 11, Course #0643 Q.P. 1.00 4.50 Credits

The third year automotive students will be instructed and through live hands on work, learn to diagnose and repair major components of the domestic and the imported cars. The student will first be instructed in the proper procedure of diagnosing a problem. Then, the exact procedure of

removal of the component, the disassembly of the unit, the inspection of the unit, the complete repair, and the re-installation of the component. All of these above-mentioned procedures will be performed on engines, transmissions, differentials, and the driveline components.

AUTOMOTIVE TECHNOLOGY RELATED SCIENCE III

Grade 11, Course #1643 Q.P. 1.00 1.00 Credit

This course is more advanced in the automotive area. The students will learn how to service air conditioners, drive lines, fuels systems, carburetors, fuel injections, exhaust emissions controls, engine diagnostics, and engine rebuilding. Students will learn how to use test equipment to check engine blocks, crankshafts, and valve trains.

AUTOMOTIVE TECHNOLOGY SHOP IV

Grade 12, Course #0644 Q.P. 1.00 4.50 Credits

The seniors will be reviewing all automotive shop procedures, and they will have significant involvement in the computer controls of the modern automobile. They will be instructed in the use of special test equipment, reading codes stored in each computer, and the proper way to repair them.

AUTOMOTIVE TECHNOLOGY RELATED SCIENCE IV

Grade 12, Course #1644 Q.P. 1.00 1.00 Credit

The senior year will be devoted to teaching the students about electrical systems, engine tune-ups, alternators, voltage regulators starting circuits, wiring circuits and computer control systems. The student will learn how to diagnose and trouble shoot engine problems and how to repair them. The student will learn how the sensors operate and what role they play. The senior automotive student will review work ethics, customer relations, attendance, and how to succeed in the automotive technical industry.

BUILDING AND PROPERTY MAINTENANCE

BUILDING AND PROPERTY MAINTENANCE SHOP I

Grade 9 Course #0901 Q.P. 1.00 3.50 Credits

Freshmen will learn how to use basic measuring instruments and hand tools as well as safe operation of shop power equipment including tag-out lock-out. Students will review basic math used in the Buildings & Property Maintenance field. Students will learn how to work from simple shop drawings to accomplish tasks. Students will build different projects using wood and metal. Freshmen will learn about the variety of materials used in the construction industry.

BUILDING AND PROPERTY MAINTENANCE RELATED THEORY I

Grade 9 Course #1901 Q.P. 1.00 1.00 Credit

Freshmen will learn the theory of safety, hand tools, power tools, and measurements. An emphasis will be placed on basic math review. Students in Related Theory use laptop computers, tablets, and simulators.

BUILDING AND PROPERTY MAINTENANCE SHOP II

Grade 10 Course #0902 Q.P. 1.00 3.50 Credits

The sophomores will learn about basic electrical circuits in a safe, efficient, and workable manner. The students will learn how to perform building alteration and repair and how to safely operate Oxy-Acetylene welding equipment.

BUILDING AND PROPERTY MAINTENANCE RELATED THEORY II

Grade 10 Course #1902 Q.P. 1.00 1.00 Credit

The sophomores will learn the theory of Plant and Building maintenance. The course covers all the trades, which pertain to the program. Students will learn about OSHA regulations pertaining to the construction trades. Students will learn about blueprint reading and construction materials, including fasteners, paints and finishes, and power tool safety.

BUILDING AND PROPERTY MAINTENANCE SHOP III

Grade 11 Course #0903 Q.P. 1.00 4.50 Credits

Juniors will learn how to safely operate arc and mig welding machines. They will learn how to prepare, prime, and paint different types of materials. Students will build more complex projects using their practical experience and knowledge. Students will have opportunities for co-op and to go out into the communities to do projects related to Buildings & Property Maintenance.

BUILDING AND PROPERTY MAINTENANCE RELATED THEORY III

Grade 11 Course #1903 Q.P. 1.00 1.00 Credit

Juniors will learn about the licensed trades, including Plumbing and Electrical, and the associated materials and equipment will be covered. Mechanical and architectural drawings will be put into practice. Juniors will receive their 10-hour OSHA certification.

BUILDING AND PROPERTY MAINTENANCE SHOP IV

Grade 12 Course #0904 Q.P. 1.00 4.50 Credits

The seniors will learn how to accomplish basic landscaping and grounds up-keep. Seniors will

learn about maintaining a physical plant and other types of properties. The student will learn how to put to use those aspects that they have learned in shop and related by actively participating in the repair, maintenance, and general upkeep of the school buildings and grounds.

BUILDING AND PROPERTY MAINTENANCE RELATED THEORY IV

Grade 12 Course #1904 Q.P. 1.00 1.00 Credit

The senior students will learn the theory of developing troubleshooting skills along with landscaping. Mechanical and architectural drawing will be done in depth. Students will learn about energy efficiency and green building technologies. Customer service and recordkeeping will be covered.

BUSINESS TECHNOLOGY

BUSINESS TECHNOLOGY SHOP I

Grade 9, Course #0651 Q.P. 1.004.50 Credits

Students will begin with industry health and safety training. Students will learn keyboarding techniques. They will understand Windows operating system basics and learn entry-level functionality of the Microsoft Suite, which they will use to solve common workplace issues. Students will begin with introductory presentation skills, document creation, desktop publishing and spreadsheet management. Students will learn the basics of gathering information and utilizing the Internet as a research tool. Students will be exposed to discussion and employer expectations. At the end of the year, students will have the opportunity to obtain Microsoft PowerPoint certification. Students will gain an understanding of entrepreneurial characteristics.

BUSINESS TECHNOLOGY RELATED SCIENCE I

Grade 9, Course #1651 Q.P. 1.001.00 Credit

Students will be taught how to read a ruler properly. Once mastered, students will be exposed to basic business mathematics, such as adding and subtracting fractions, multiplying and dividing fractions, and a general review of all fraction operations. Students will participate in career path exploration, where they will gain an understanding of career opportunities, salary expectations and training requirements. Students will learn basic filing concepts and electronic file maintenance. Students will gain an understanding of how to use the Microsoft Suite.

BUSINESS TECHNOLOGY SHOP II

Grade 10, Course #0652 Q.P. 1.004.50 Credits

Students will begin with industry health and safety training. Students will become acquainted with the skills, abilities, and attitudes needed for successful job performance in the business industry. Students will get an introduction to the kinds of mathematical problems they can expect to encounter in their everyday lives, such as maintaining checkbooks, savings, purchasing food, clothing, and other items; paying for their mortgage, and home repairs and improvements; keeping up with medical, car, house, and life insurance; income tax preparation. They will also learn how to solve many of these day-to-day financial problems. Sophomores will expand their knowledge of spreadsheets, database and presentation software, while building their speed on the keyboard. Leadership and employability skills will continue to be enhanced, as well as the ability think critically. Students will complete the General Industry 10-hour OSHA certification. At the end of the year, the students would have the opportunity to obtain Microsoft Word certification.

BUSINESS TECHNOLOGY RELATED SCIENCE II

Grade 10, Course #1652 Q.P. 1.001.00 Credit

Students will participate in career path exploration, where they will gain an understanding of career opportunities, salary expectations and training requirements. Students will review the fundamentals of business mathematics, such as adding, subtracting, multiplying, and dividing decimals and fractions and understanding the relationships between fractions and decimals through percentages. Students will be taught the basics of the accounting process, such as

accounting terminology and the accounting equation. Students will also learn how to create a chart of accounts, record general journal and general ledger entries, develop “T” accounts, and bring it all together in an accounting worksheet for a sole proprietorship of a service business. Students will learn details of filing rules according to industry filing standards (ARMA).

BUSINESS TECHNOLOGY SHOP III

Grade 11, Course #0653 Q.P. 1.004.50 Credits

Students will begin with industry health and safety training. Students will continue to develop employability skills including workplace attitudes, effective communication, reliability and time management. Students will further develop e-mail skills using Microsoft Outlook.

Students expand customer service skills and an understanding of the importance of good customer service to a business. Tax preparation and tax law changes will continue as well as an understanding of the global economy. Students will improve their leadership and management skills. At the end of the year, the students would have the opportunity to obtain Microsoft Excel certification.

BUSINESS TECHNOLOGY RELATED SCIENCE III

Grade 11, Course #1653 Q.P. 1.001.00 Credit

Students will participate in career path exploration, where they will continue developing their understanding of career opportunities, salary expectations and training requirements. Students will also continue their accounting work relating to a sole proprietorship of a service by learning how to develop an income statement, balance sheet and statement of cash flow. Students will also learn to analyze those financial statement and understand how to read them accurately. Once completed, students will then move to accounting for a merchandising business of a corporation.

BUSINESS TECHNOLOGY SHOP IV

Grade 12, Course #0654 Q.P. 1.004.50 Credits

Students will demonstrate proficiency in the use of the Microsoft Office suite. Financial literacy competencies will be strengthened. They will be equipped with the skills to discover how to become proficient and independent as they transition into becoming young adults and living on their own. Ethics, values, and morals will be engrained into the curriculum. Student will understand the importance of professionalism, including reliability, honesty, responsibility, and accountability. Students will fill out job applications, practice role-playing for job interviewing and complete personal portfolios. At the end of the year, the students would have the opportunity to obtain Microsoft Access certification.

BUSINESS TECHNOLOGY RELATED SCIENCE IV

Grade 12, Course #1654 Q.P. 1.001.00 Credit

Students will participate in career path exploration, where they will become proficient in understanding career opportunities, salary expectations and training requirements. Students will spend this year learning about entrepreneurship, various economic systems, market needs vs. wants, marketing a business (the 4 Ps), planning and financing a business, managing and owning a business, and teamwork. As a project, students will create their own business plan. As part of this process, they will hone their skills in goal setting, problem solving, and project management.

CABINETMAKING

CABINETMAKING SHOP I

Grade 9, Course #0661 Q.P. 1.00 3.50 Credits

The freshmen will learn the safe and proper use of both hand and power tools. While working on various projects, the student will learn the fundamentals of good design, and how to identify various materials. The student will also be given instruction in proper methods of measuring, how to sketch, how to make layout rods, how to fabricate templates and jigs, and how to select and install hardware.

CABINETMAKING RELATED SCIENCE I

Grade 9, Course #1661 Q.P. 1.00 1.00 Credits

The freshmen will receive classroom instruction concerning the proper and safe methods in the operation and use of all hand tools and small power tools including the circular saw, electric drill, saber saw, reciprocating saw, belt sander, and other related power tools. Students will be given classroom instruction in shop safety procedures, hardware, maintenance, and housekeeping. Students will learn related math including estimating, board foot measurement, and the proper understanding and use of the ruler. Students will also be introduced to the basic operation of certain heavier machines including the band saw, table saw, radial arm saw, drill press, thickness planer, and the jointer.

CABINETMAKING SHOP II

Grade 10, Course #0662 Q.P. 1.00 3.50 Credits

The sophomores will learn proper usage, safety, and maintenance of woodworking machines in greater detail. They will learn how to select and sharpen bits, blades, and cutters. Students' projects will be more complex as students progress. Special attention is given so that students complete assignments in a timely manner. Students will learn to design and build projects such as wall shelves, bookcases, storage cabinets, tables, benches, and other household furnishings.

CABINETMAKING RELATED SCIENCE II

Grade 10, Course #1662 Q.P. 1.00 1.00 Credit

This course exposes the student to more complicated machine techniques and operations needed to develop skills in setting up specific jobs such as cabinet doors, drawers, furniture legs, planning and gluing tasks. Students will start the second year where they left off as freshmen, learning to operate with more skill the band saw, jointer, thickness planer/sander, and the drill press from the technical view, using the facilities of the classroom and available video subject matter. The student will be given proper instruction in cutter and tool sharpening, machine repair and adjustment.

CABINETMAKING SHOP III

Grade 11, Course #0663 Q.P. 1.00 4.50 Credits

The juniors will learn more advanced methods of joinery used in Cabinetmaking. The student will learn the proper layout and building of kitchen cabinets. The student will learn drawer construction using various wood joints and hardware. They will learn how to read blueprints and construct cabinets from them. The students will be encouraged to seek out of school experience

through the school's Co-op program.

CABINETMAKING RELATED SCIENCE III

Grade 11, Course #1663 Q.P. 1.00 1.00 Credit

This course is more advanced, teaching the finer skills necessary to be competent and competitive. Students will develop efficiency using time, materials wisely, develop shortcuts, and methods of profitable production, develop drawing skills, learn use and preparation of blue prints, and understand how to read customers' sketches and shop drawings. Qualified students are encouraged to seek out-of-school experience through the school's Co-op program.

CABINETMAKING SHOP IV

Grade 12, Course #0664 Q.P. 1.00 4.50 Credits

The seniors will learn how to apply plastic laminator, both on counter tops and cabinets. Students will learn how to make architectural molding. They will learn how to install cabinets on the job in the field. The students will be exposed to remodeling by doing jobs away from the school environment, which will also expose them to the use of various types of staging including pump jack, roof brackets, etc. The student will also learn the safety in their use, including ladders, etc.

CABINETMAKING RELATED SCIENCE IV

Grade 12, Course #1664 Q.P. 1.00 1.00 Credit

During the last year, the student will achieve an understanding of the finer qualities needed to be successful in this field. The student will have the skills necessary to obtain an entry-level position in the cabinet industry. Students will be exposed to other building trade subjects including staging, house framing, dry wall insulation, stair building, interior trim, siding, suspended ceilings, paneling, roofing, and installation of doors and windows. In addition, the students will receive instruction in the proper methods of seeking employment, including job application, proper attitude, and attire.

CARPENTRY

CARPENTRY SHOP I

Grade 9, Course #0671 Q.P. 1.00 3.50 Credits

The freshmen will be taught good, competent, and safe work habits. They will be shown basic wood joints. This will enable them to layout, assemble, cut, and frame walls properly. The students will erect a roof in the shop. Students will know how to apply various pieces of trim, fascia, soffit frieze board, etc. Students will learn safety and to work with fellow students.

CARPENTRY RELATED SCIENCE I

Grade 9, Course #1671 Q.P. 1.00 1.00 Credit

The freshmen will learn safe shop and tool practices. The student will become familiar with the required construction practices that are necessary for success on the job. The student will learn the various concepts of wood joining. An emphasis will be placed on the characteristics of wood. The student will learn how to use hand tools safely and properly. The student will be able to use portable and stationary power tools safely and properly.

CARPENTRY SHOP II

Grade 10, Course #0672 Q.P. 1.00 3.50 Credits

The sophomores will be familiarized with the parts of a table saw, jointer, band saw, and safety on rip fence gauges. Students will learn adjustments, skill saw ripping, crosscutting, and various ways to lay out walls, roofs, valleys, and gable sheds, etc. Students will be given instruction to apply board and batten shiplap siding, clapboards, and wood shingles. The objectives are all realized with the construction of storage sheds, picnic tables, and gym sets. The students will learn how to work in harmony with fellow students.

CARPENTRY RELATED SCIENCE II

Grade 10, Course #1672 Q.P. 1.00 1.00 Credit

The sophomores will be involved in a more advanced study of stationary and portable power tools. Shop and tool safety will be greatly emphasized. An example of the portable power tools are, skill saw, sabre saw, hand drill, belt sander, and router. The stationary power tools that the student will become proficient with are, table saw, jointer, radial saw, band saw, and drill press. Construction technology will be taught in the related room. Related drawing will also be taught, with an emphasis placed on the drawing of a storage shed.

CARPENTRY SHOP III

Grade 11, Course #0673 Q.P. 1.00 4.50 Credits

The juniors will learn basic framing methods used in modern house construction. The students will have the opportunity to lay out floor and ceiling joists, walls, and rafters. They will do most of the finish work involved in a house, such as hanging doors, installing baseboard, and building stairs. The students will learn safe work procedures. This course brings the students into direct contact with the public. The students will develop proficiency in the skills learned in the first two years of shop.

CARPENTRY RELATED SCIENCE III

Grade 11, Course #1673 Q.P. 1.00 1.00 Credit

The juniors will learn how to draw, estimate, layout, and build a modern day house. The student will learn how to frame a building using the platform method of construction. Concepts taught are, sill and floor framing, wall framing and roof framing. The related program will coordinate as much as possible with the house-building program. Construction practices and job safety will be greatly emphasized.

CARPENTRY SHOP IV

Grade 12, Course #0674 Q.P. 1.00 4.50 Credits

The seniors will expand on the knowledge gained from the previous year. They will refine job skills already learned, and have the opportunity to learn different methods of accomplishing the same task. As each house is different, they will learn to solve problems not encountered before. They will learn cooperation with different trades, which is a necessity if one wishes to succeed in this trade. This course is designed to provide the student with the entry-level skills needed to procure employment in the carpentry trade. It is the objective to promote personal pride while striving for excellence in every task undertaken.

CARPENTRY RELATED SCIENCE IV

Grade 12, Course #1674 Q.P. 1.00 1.00 Credit

The seniors will learn how to do interior and exterior trim. The exterior trim will include water table, corner boards, windows and doors, casing, rake, and siding. Interior trim will include kitchen cabinets, door and window trim, hardwood floors, baseboard and closet trim. This related instruction will coordinate with the house-building program. The seniors will review all modern day concepts involved in platform construction. House design and floor plan layout will also be taught.

COSMETOLOGY

COSMETOLOGY SHOP I

Grade 9, Course #0831 Q.P. 1.00 3.50 Credits

Students will learn the shop safety precaution, and decontamination procedures. The freshmen will learn the basics of draping, shampooing, and conditioning the hair; wet styling procedures and thermal hair styling. The basics of manicures and pedicures will also be introduced.

COSMETOLOGY RELATED I

Grade 9, Course #1831 Q.P. 1.00 1.00 Credits

The identification of school rules and regulations, resources, state regulations, and licensing requirements theory on decontamination, structure of the hair, and professional image will be covered.

COSMETOLOGY SHOP II

Grade 10, Course #0832 Q.P. 1.00 3.50 Credits

Students will learn manicuring, pedicuring, thermal styling, wet styling, finger waving, facials, facial make-up and hair removal. In addition, the basics of haircutting will be taught. Demonstrations and hands-on procedures will accomplish these tasks.

COSMETOLOGY RELATED II

Grade 10, Course #1832 Q.P. 1.00 1.00 Credits

Students will learn during their related science bacteriology. Nail disorders, hair and scalp disorders, and the theory structure of the hair, skin, and nails.

COSMETOLOGY SHOP III

Grade 11, Course #0833 Q.P. 1.00 4.50 Credits

The juniors will learn how to perform hands on skills, such as roller sets, hair coloring, chemical services, artificial nails, hair extensions, waxing, manicures, facials, haircutting, and hair styling. The students will learn and develop basic practices required by the State Board of Cosmetology while working towards their requirement of 1,000 hours. This course is especially recommended for students working towards a trade and licensing in Cosmetology in the State of Massachusetts.

COSMETOLOGY RELATED SCIENCE III

Grade 11, Course #1833 Q.P. 1.00 1.00 Credit

The juniors will learn to develop a positive and cultivating approach in health, poise, and professional ethics. They are provided with knowledge of cosmetology theory that is needed to be successful in the trade and helps the students create their own sense of style. The use of films and demonstrations are used in accomplishing these goals. Theory in chemical services and theory in artificial nails will be covered.

COSMETOLOGY SHOP IV

Grade 12, Course #0834 Q.P. 1.00 4.50 Credits

The seniors will continue with the chemical application of products, various hair-coloring products, the types of coloring services performed, and methods used. The students will also learn chemical relaxing methods and techniques, thermal and chemical hair straightening, and

the safety precautions that must be used with each beauty salon service used. Students will learn basic salon management, how to maintain accurate business records, and the fundamental rules of first aid. Students will enhance their ability in all phases of the cosmetology course such as, facials, manicures, artificial nail application, scalp treatments, hair cutting, hair coloring, perming, and make-up application. This will prepare the student for gainful employment resulting in the students being prepared for the State Board Exam after the accumulation of the 1,000-hour program.

COSMETOLOGY RELATED SCIENCE IV

Grade 12, Course #1834 Q.P. 1.00 1.00 Credit

The seniors will cover Sciences concerning disorders and chemistry of products used and will develop a basic knowledge and understanding that will set the foundation for the student to advance into industry. Business aspects of the trade technology will be covered. The State of Massachusetts uses demonstrations, class projects, and tasks to prepare the student in related science for their State Board Exam, issued upon completion of 1,000 hours.

CULINARY ARTS

CULINARY ARTS SHOP I

Grade 9, Course #0681 Q.P. 1.00 3.50 Credit

The freshmen will learn the basics of the kitchen. This includes running a dish machine, pot washing, sanitation, dining room procedures, basic sandwiches, and salads. Also covered is the use of basic equipment; slicer, portion scales, bakers scales, mixers, and mangler. The student will spend time in the dining room learning to serve customers and set up the dining room for service. Basic baking items include cookies, dinner rolls, and other less advanced items. Freshmen are usually paired with upper classmen who will help them. Particular emphasis is placed on safety.

CULINARY ARTS RELATED SCIENCE I

Grade 9, Course #1681 Q.P. 1.00 1.00 Credit

The freshmen will learn how to develop the basics of the kitchen. This includes safety, sanitation, and hygiene. In addition, dining room procedures such as computer checks, table setting, and serving customers will be taught. Students will be introduced to food service hygiene, correct temperature regulation, and kitchen sanitation. Also, correct safety habits will be taught in the related classroom. Students will be tested on all basic skills pertaining to the food industry. This course will include lectures, video, guest speakers, and demonstration. Activity guides from the food management, production and service curriculum will be used.

CULINARY ARTS SHOP II

Grade 10, Course #0682 Q.P. 1.00 3.50 Credits

The students will continue with their kitchen basics as in the first year. Students will learn more complicated recipes and formulas and will often be expected to work on some projects alone. They will also be introduced to grill, fryolator, and line work. Particular emphasis is placed on safety.

CULINARY ARTS RELATED SCIENCE II

Grade 10, Course #1682 Q.P. 1.00 1.00 Credit

Sophomores will continue with their kitchen basics as in the first year. Students will learn more complicated recipes and formulas. Emphasis will be placed on weights and measure. Students will work on different projects alone. Particular emphasis is placed on safety and sanitation. Students will take and pass OSHA.

CULINARY ARTS SHOP III

Grade 11, Course #0683 Q.P. 1.00 4.50 Credits

The juniors will work in meats, sauces, soup, more advanced bakery work, buffet work, and handle the more difficult items on the menu. Particular attention is paid to line work. Emphasis is placed on safety.

CULINARY ARTS RELATED SCIENCE III

Grade 11, Course #1683 Q.P. 1.00 1.00 Credit

The juniors will be introduced to more advanced entrees, soups, sauces, gravy, and vegetable preparation. Particular attention is paid to line work, as well as, buffet work and more advanced bakery work. Particular attention is placed on safety and hygiene. Students will become certified in Serv-Safe.

CULINARY ARTS SHOP IV

Grade 12, Course #0684 Q.P. 1.00 4.50 Credits

Seniors will continue their work on main entrees, soups, and sauces. Students will help underclassmen with their work. The students will do dining room supervision and hosting, and more advanced pastry work, such as different types of breads and rolls. Line and grill work, butchering, inventory, storeroom, and set up and control are also emphasized. Particular emphasis is placed on safety.

CULINARY ARTS RELATED SCIENCE IV

Grade 12, Course #1684 Q.P. 1.00 1.00 Credit

The seniors continue their work on main entrees, soups, sauces, Oriental, Chinese, and French Cuisine. Each student in the senior class is required to do a project such as design a menu. Students will be introduced to marzipan, gum paste, and ice cream.

DENTAL ASSISTING

DENTAL ASSISTING SHOP I

Grade 9, Course # 0731 Q.P 1.00 Credits 3.5

Initiation into the dental profession starts with, dental anatomy, identifying structures of the oral cavity, head and neck anatomy, medical/dental terminology, and taking vital signs. Initial exposure occurs in the areas of infection control/OSHA health and safety regulations, dental materials, laboratory assignments and dental office management. Students will also learn how to emit professionalism through personal hygiene habits, interpersonal communication, and appearance.

DENTAL ASSISTING RELATED THEORY I

Grade 9, Course # 1731 Q.P 1.00 Credits 1.0

This year starts with exploring the history, background, and what constitutes the dental healthcare team including the individual role of the dental assistant. Students become familiar with the overall anatomy and physiology of the body with special emphasis on the head and neck. Introduction to infection control and cross contamination based on OSHA regulations provides a basis for certification in the second year. Students begin to learn the language of medical/dental terminology building to proficiency as they move forward in the program.

DENTAL ASSISTING SHOP II

Grade 10, Course # 0762 Q.P 1.00 Credits 3.5

Students will gain the skills and knowledge of proper infection control and the microbiology that initiates it. Introduction to patient care including, dental charting, basic chairside assisting, instrument identification and transfer along with anesthesia and sedation. Also included is proper sterilization techniques, processing contaminated instruments, and identification/handling of hazardous materials. Also accomplished at this grade level is the certification of OSHA 10-hour card/general industry and CPR/BLS for the healthcare provider.

DENTAL ASSISTING RELATED THEORY II

Grade 10, Course # 1732 Q.P 1.00 Credits 1.0

This year focuses on disease transmission and infection prevention. Students will learn the differences between disinfection and sterilization and the agencies that regulate these procedures. Also covered is applied pharmacology as it pertains to the dental assistant; identifying the role of dental drugs, anesthesia and sedation in dentistry. In depth coverage of the chemical nature of materials used for impressions, dental models, and restorations to supplement procedures carried out in shop.

DENTAL ASSISTING SHOP III

Grade 11, Course #0733 Q.P 1.00 Credits 4.5

Building on the foundational classes studied in prior years the student will elaborate with dental materials and laboratory projects. Focus will be on radiation health and safety, proper placement and exposure of dental radiographs using DXTTR® mannequins, processing and mounting film-based x-rays as well as exposing digital records. Students will also attain proficiency in the use

of the panorex digital x-ray system, gaining competency in identification of structural landmarks. During this year, concentration is also placed on dental specialties (endodontics, oral surgery, orthodontics, periodontics, prosthodontics) and their affiliations. The dental assisting student will gain hands-on chair side experience, through externships as well as interpersonal communication with in the office. Professionalism, written and oral communication, as well as peer and affiliate relationship building are emphasized.

DENTAL ASSISTING RELATED THEORY III

Grade 11, Course #1733 Q.P 1.00 Credits 1.0

Primary attention is paid to chair side dental assisting and the dental materials used. Examples are, gypsum, alginate, composite, cements, liners, bases, etchant and bonding systems. Balancing with the principles of radiation health and safety, becoming familiar with the x-ray units and the role of kilovolt-peak (kVp) and milliamp-seconds (mAs) for the best and safest exposure procedures. An understanding of the chemistry of developing and fixing solutions for manual film processing, how to troubleshoot errors and maintain proper infection control.

DENTAL ASSISTING SHOP IV

Grade 12, Course #1733 Q.P 1.00 Credits 4.5

During the final year of dental assisting students will continue to gain experience through externships and co-op. Completion of radiology competencies will be a focus for graduation and employability along with technical and literary aspects of dental office and business management. Becoming a quality clinician in the dental profession requires the understanding and implementation of ethics and jurisprudence. Students will emerge as confident caring clinicians providing a role model for others.

DENTAL ASSISTING RELATED THEORY IV

Grade 12, Course #1734 Q.P 1.00 Credits 1.0

Soon-to-be graduates concentrate on the ethical standards and jurisprudence of the dental assistant, instilling the values and morals of a quality healthcare provider. Exposure to business management and entrepreneurial skills sets the way for many future options post-graduation.

DRAFTING

DRAFTING SHOP I

Grade 9, Course #0741 Q.P. 1.00 .50 credits

This course provides the student with the basics of drafting. Students receive instruction in career opportunities, drafting office operational procedures, personal and shop safety, computer aided drafting (CAD), geometric construction, orthographic views, dimensioning, and isometric views. Instruction incorporates presentation, demonstration, and hands-on performance testing in the areas of drafting room procedures, shop safety procedures, CAD software, plotting and plotters, and the basics of drawing presentation.

DRAFTING RELATED SCIENCE I

Grade 9, Course #1741 Q.P. 1.00 1.00 credits

This course provides students with the theory behind the basics of drafting. Students receive instruction in career opportunities, drafting office operational procedures, personal and shop safety, computer aided drafting (CAD), geometric construction, orthographic views, dimensioning, and isometrics. Instruction incorporates presentation and testing in the areas of drafting room procedures, shop safety procedures, use of manual drafting tools and equipment, Microsoft Windows, CAD software, disk procedures, plotting and plotters, and the basics of drawing presentation. Reading, writing and math assignments related to drafting theory are an integral part of this class.

DRAFTING SHOP II

Grade 10, Course #0742 Q.P. 1.00 3.50 credits

This course provides students with an introduction to the components of mechanical design. This full-year course expands on the basic CAD drawing techniques of the freshmen year while providing a foundation for mechanical design projects that follow in the junior year. Students gain knowledge of threads and fasteners including sectional views, auxiliary views, bolt, screw and nut drawings, and welding drawings. Various shop processes are examined including casting, forging, welding, and sheet metal parts. Instruction incorporates presentation drawings, including shading, perspective, and exploded assembly, and structural steel drawings. Students are introduced to the product design process. Instruction incorporates demonstrations and applied performance testing in the areas of drafting office procedures, advanced CAD software, mechanical detailing, and design.

DRAFTING RELATED SCIENCE II

Grade 10, Course #1742 Q.P. 1.00 1.00 credits

Students are introduced to manufacturing processes including casting, forging, welding, and metal fabrication. Studying this course provides students with an introduction to the theory relating to components of mechanical design. Students learn the basics of writing specifications, requesting product literature, and using reference materials. Instruction incorporates demonstration and testing based on competency-based vocational education (CBVE) for mechanical drafting. Reading, writing and math assignments related to the drafting professions will be integrated with academic frameworks during this class.

DRAFTING SHOP III

Grade 11, Course #0743 Q.P. 1.00 4.50 credits

This course provides students with an introduction to residential architectural drawing and design. This course incorporates basic site design, structural and mechanical systems design and detailing required in the building permit process. Students are introduced to property survey and plot plan drawings. Students are introduced to floor plan, elevation, foundation plan, foundation section, framing plan, cross section, longitudinal section and typical wall section drawings, exterior perspective, rendering, and architectural modeling. Students are also introduced to plumbing plans, HVAC drawings, and electrical drawings

DRAFTING RELATED SCIENCE III

Grade 11, Course #1743 Q.P. 1.00 1.00 credits

This course provides students with an introduction to theory relating to residential architectural drawing and design. Students are introduced to map and survey drafting including azimuth and bearing compass layout, contour grading, foundation footing and soils design. Students become familiar with light frame construction including floor joist, roof rafter and ceiling joist sizing and layout. Students also learn the basics for structural steel layout and building design as well as girder, header and ridge beam design in traditional lumber, laminated lumber, and steel. Additional topics include plumbing supply and drainage systems, electrical power distribution systems, HVAC systems, heat loss calculation, and the Massachusetts energy compliance code. Research including reading, writing, and math assignments related to the drafting profession, are integrated with academic frameworks during this class. Instruction incorporates demonstrations and testing using competency-based vocational education (CBVE) for Architectural Drafting.

DRAFTING SHOP IV

Grade 12, Course #0744 Q.P. 1.00 4.50 credits

Students explore materials, advanced dimensioning techniques, tolerancing, checking, three-dimensional and solids drawings (3D), 3D solid models, 3D solid rendering, electro-mechanical packing, sheet metal design and detailing, robotics competition design and detailing, schematic drawings, wiring diagrams. Instruction incorporates presentations, demonstration, and hands on performance testing in the areas of drafting room procedures, advanced CAD software, 3D solids, mechanical design, and electrical/electronic design. Students participate in mechanical design projects. An introduction to computer aided manufacturing is presented as well.

DRAFTING RELATED SCIENCE IV

Grade 12, Course #1744 Q.P. 1.00 1.00 Credit

This course is designed to provide students with theory relating to mechanical and electrical/electronic design and to inform them of career opportunities in mechanical design. Students explore materials, material finishes, strength of materials, precision measurement, tolerancing, fits and limits, clearance hole diameters, tolerance studies, geometric dimensioning, tolerancing, and use of reference materials. Instruction incorporates presentation and testing in the areas of drafting room procedures, advanced CAD software, 3D design, measuring tools, basic electronic theory, electronic component identification, electronic diagrams, and sheet metal. Reading, writing and math assignments related to the drafting professions are integrated with academic frameworks during this class.

ELECTRICAL

ELECTRICAL SHOP I

Grade 9, Course #0761 Q.P. 1.00 3.50 Credits

freshmen will learn shop safety, the proper use of hand tools, responsibilities, shop procedures, and Right to Know Laws regarding use and storage of chemicals. They will start with low voltage projects and work their way through simple line voltage projects. Students will study the proper use and installation of materials and hardware, with an introduction to power tools.

ELECTRICAL RELATED THEORY I

Grade 9, Course #1761 Q.P. 1.00 1.00 Credit

Freshmen will learn Electron Theory, parallel and series circuits, sources of power, and signal systems. They will also work with math as it relates to the electrical trade including OHM's Law, wire size, line drop, and circuits. Safety rules and accident prevention along with an introduction of the National Electrical Code, wiring methods, blue print reading, and drawings will be covered.

ELECTRICAL SHOP II

Grade 10, Course #0762 Q.P. 1.00 3.50 Credits

The sophomores will learn Residential Wiring, Data Networking, conduit and tubing bending and residential services. An introduction to appliances, heating, motor controls, motors, and transformers, both the installation and repair of.

ELECTRICAL RELATED THEORY II

Grade 10, Course #1762 Q.P. 1.00 1.00 Credit

The sophomores will learn job-estimating, services, transformers, and test equipment. They will also learn the higher math of the electrical trade along with batteries, electric heating, and load calculations. A more in-depth study of blue prints and the National Electrical Code and safety on and off the job will be covered.

ELECTRICAL SHOP III

Grade 11, Course #0763 Q.P. 1.00 4.50 Credits

The juniors will learn how to use and maintain all safety equipment on both inside and outside projects. They will train in all aspects of the electrical field. Students will be introduced to outside projects in the community and continue to work on jobs in the school itself. They will also train on lab volt trainers to sharpen their motor control and trouble shooting skills. At the beginning of third quarter, students would be allowed to participate in the Co-op Program.

ELECTRICAL RELATED THEORY III

Grade 11, Course #1763 Q.P. 1.00 1.00 Credit

The juniors will learn about generators and motors, both AC and DC. They will also learn math involving generators and motors. Commercial blue print reading and N.E.C. code regarding commercial buildings will be covered. Safety is covered in-depth as to the operation, guards, connection, and checking of equipment and circuits. In addition, they will learn about O.S.H.A. and other safety organizations.

ELECTRICAL SHOP IV

Grade 12, Course #0764 Q.P. 1.00 4.50 Credits

The seniors will learn how to properly use all the equipment in the shop. They will work more substantially on the outside projects. They will be given chances to individually advance in many areas of the trade. Students will also learn the knowledge of all factors including cost of tools and materials, time and labor. This will then prepare them for an entry-level job in the trade and eventually a license.

ELECTRICAL RELATED THEORY IV

Grade 12, Course #1764 Q.P. 1.00 1.00 Credit

The seniors will learn about industrial transformers, emergency power, metering, and programmable logic controllers. The math covered this year is inductance, transformer, power factors, and motor calculations. The N.E.C. codes on industrial work are covered. Also covered: Labor laws, wages and the current electrical industry, apprenticeship programs and employment. A complete review of all safety is covered in-depth.

ELECTRONICS

ELECTRONICS SHOP I

Grade 9, Course #0781 Q.P. 1.00 3.50 Credits

Freshmen will learn procedures, practices, and policy relating to safety. Students will also learn basic prototyping of electronic circuits through activities such as creating printed circuit board layouts, and soldering. Students will become familiar with the use of hand and power tools. They will also become familiar with basic electronic measurement of voltage, current and resistance using instrumentation such as the multimeter, oscilloscope, and function generator. Students will also perform experiments related to DC and AC circuit schematic capture, layout, simulation, and analysis using software tools such as MultiSIM.

ELECTRONICS RELATED THEORY I

Grade 9, Course #1781 Q.P. 1.00 1.00 Credit

The freshmen will learn about different types of electronic technology such as, microelectronics, analog and digital through discussion. They will learn about career specializations for technicians, technologist, and engineers. Students will learn about the physical and electrical characteristics of passive components such as resistors, capacitors, and inductors. They will also learn about the theoretical aspects of DC and AC circuits and methods of steady state and transient analysis. Students will learn basic circuit behavior using Ohm's Law, Kirchhoff's Law, and the Norton and Thevenin equivalents.

ELECTRONICS SHOP I3

Grade 10, Course #0782 Q.P. 1.00 4.50 Credits

The sophomores will become familiar with the physical and electrical properties of passive and semi-conductor components, and how to test and evaluate them. They will use various breadboard techniques to construct, troubleshoot, and analyze Analog Circuits such as power supplies, amplifiers, RC and LC oscillators, filters, and optical light sources and detectors. Students will learn how to use test equipment associated with these circuits, including curve tracer, AF/RF signal generators, and frequency counter.

ELECTRONICS RELATED THEORY II

Grade 10, Course #1782 Q.P. 1.00 1.00 Credit

The sophomores will learn scientific notation, use of metric prefixes, and complex numbers, and basic trigonometric relationships used in analyzing vector quantities in AC circuits. They will become familiar with the physical and electrical properties of passive and semi-conductor components, and how to test and evaluate them. They will use various breadboard techniques to construct, troubleshoot, and analyze analog circuits such as power supplies, amplifiers, RC and LC oscillators, filters, and optical light sources and detectors. Students will learn how to use test equipment associated with these circuits such as curve tracer, AF/RF generators, distortion analyzer, and frequency counter.

ELECTRONICS SHOP III

Grade 11, Course #0783 Q.P. 1.00 4.50 Credits

The juniors will learn how to recognize, test, and evaluate Digital Circuits. Students will learn

about physical packaging of various types of integrated circuits, and about the electrical characteristics for various logic families such as TTL, low power TTL, Schottky TLL, CMOS, and ECL. Students will perform experiments implementing combinational logic circuits from schematic diagrams, truth tables, and Boolean algebra. Students will also build and evaluate sequential logic circuits using flip-flops. They will build, troubleshoot, and test computer circuits such as: counters, shift-registers, encoders, decoders, multiplexers, DE multiplexers, and arithmetic logic units.

ELECTRONICS RELATED THEORY III

Grade 11, Course #1783 Q.P. 1.00 1.00 Credit

The juniors will learn about the theoretical aspects of digital electronic circuits. As a prelude to digital theory, students will learn about the binary, octal, and hexadecimal number systems. Students will also learn how to describe and manipulate computer logic using Boolean algebra. They will learn about logic gates, combinational logic, flip-flops and sequential logic. Students will apply their knowledge of logic to learn about digital computer circuits such as counters, shift-registers, encoders, decoders, multiplexers, DE multiplexers, and arithmetic circuits. Additionally, students will learn about different types of integrated circuit technology and logic families such as TTL, CMOS, and ECL.

ELECTRONICS SHOP IV

Grade 12, Course #0784 Q.P. 1.00 4.50 Credits

Seniors will have the opportunity to build semiconductor-based projects. The year will start with an exploration into diodes and diode testing. From there, students will have the opportunity to design and build their very own DC power supply. Next, students will explore transistor characteristics then use the gained knowledge to build a multi-stage amplifier. From there they will end the year with an exploration of operational amplifier analysis.

ELECTRONICS RELATED THEORY IV

Grade 12, Course #1784 Q.P. 1.00 1.00 Credit

Seniors will be studying semiconductor electronics. Starting off with semiconductor theory students will quickly move into diode theory, then power supply design and testing. From there students will move onto transistor theory and spend a good deal of time exploring small signal amplifiers covering topics such as amplifier configuration, amplifier coupling, and negative feedback. Next, students will explore large signal amplifiers including class A, B, AB and C. Finally the students will round out the year with an in-depth study of operational amplifiers covering topics such as setting gain and frequency effects.

GRAPHIC COMMUNICATIONS

GRAPHIC COMMUNICATIONS SHOP I

Grade 9 Course #0801 Q.P. 1.00 3.50 Credits

Students will be introduced to the basics of layout and design, web based animation and basic press operations. Students will learn the fundamentals of Silk Screen printing and how to create single color T-shirts and posters. Students will be trained in the operation of offset duplicators and wet ink duplicating processes. Students will learn the bindery functions of folding, drilling, stitching, collating, booklet making, and padding operations. Students will be introduced to the entire graphic communication field, which includes press operations, pre-press computer based layout, digital design, imaging and animation. Concentration will be placed on safety standards and procedures related to the graphic communications field of study.

GRAPHIC COMMUNICATIONS RELATED THEORY I

Grade 9 Course #1801 Q.P. 1.00 1.00 Credit

The student will be informed of the many facets of the trade from pre-press computer design to press and bindery work. The student will understand the importance of safety within the shop environment. Students will be taught the fundamentals of all aspects of the trade with direct correlation to shop instruction. The areas covered are basic computer operation, layout, design, computer to plate, film imposition, and platemaking. The first year student will learn about press setup, operation, clean up, folding operations, padding, bindery operations, packaging, paper cutting, and estimation.

GRAPHIC COMMUNICATIONS SHOP II

Grade 10 Course #0802 Q.P. 1.00 3.50 credits

This course will build on the information gained in the freshman year. The students will learn about hardware and software functions of the computer and page layout software using the Adobe InDesign application. A basic understanding of Adobe Photoshop and Illustrator will be introduced. Weekly projects and daily lessons reinforce the material learned in the Related Theory class. The concentration of layout and digital imaging software will act as a primer to the junior year when advanced digital layout and multimedia design is introduced. The latter half of the sophomore year will be spent learning basic press techniques, which include the use of duplicators and offset printing equipment to achieve simple forms printing, close and hairline register, and four-color process. Students are taught the five and/or six systems of the press for complete set-up and operation of the equipment. Students will learn about the Silk Screen process working with one and two-color projects including T-shirts and posters. Training will continue of bindery operations to reinforce the knowledge gained in freshmen year. The operation and calculation of all paper cutting techniques will be taught. Students will learn about paper types and weights as it applied to the successful operation of the equipment.

GRAPHIC COMMUNICATIONS RELATED THEORY II

Grade 10 Course #1802 Q.P. 1.00 1.00 Credits

This course will build on the information gained in freshman year. Quarterly projects are introduced to promote knowledge gained in the program. Desktop design applications will be

discussed using the latest software in the industry. Proofreading, Proofing, using register marks, and color bars to produce CMYK work for the presses, and color separations will be taught. The RIP station will be covered with preflight operations. Computer to plate technology will also be covered. Students will understand the process of job estimating, paper types, the previous processes used in the darkroom and stripping areas, and plate burning. The students will know the fundamental operations of the offset presses within the shop with a continuing emphasis on safety. Two-color operation with close and hairline register will be discussed. Introduction to four-color process printing will be covered. Bindery operations including folding, padding, stitching, collating, and cutting is an integral part of sophomore year.

GRAPHIC COMMUNICATIONS SHOP III

Grade 11 Course #0803 Q.P. 1.00 4.50 Credits

Students will concentrate on digital design and printing techniques. Four color registration, color matching, and calibration, mixing ink and bindery techniques will be reinforced during the first half of the junior year while in the press area of the shop. Continuing to learn about four-color press runs and registration techniques prepares the junior student to enter the press field. Densitometry, the use of color bars and registration is stressed. Students will work on single color, two-color and four-color process work on a daily basis. Maintenance of equipment is taught on a daily basis. Students will continue to use bindery equipment for producing booklets, brochures, forms and other typical printing work. Students are trained in scoring, perforating, and folding operations. Students will continue to learn about the Silk Screen process working with multi-color projects including T-shirts and posters.

Strong emphasis will be placed on four-color design, animation, and press techniques while broadening the scope of the curriculum by including web design and digital authoring. The inclusion of digital authoring, animation, digital imaging, and web design will be concentrated on in the latter half of the junior year. While emphasis will still be placed on digital layout and design, expansion of the lessons to include animation and digital media allow the student to gain experience that enhances their understanding of the entire graphic communication field. Photoshop, Illustrator, InDesign, Dreamweaver, Fireworks, Flash, 3D Studio Max, and Bryce software is taught during this time.

GRAPHIC COMMUNICATIONS RELATED THEORY III

Grade 11 Course #1803 Q.P. 1.00 1.00 Credit

Students will learn about the importance of digital printing as it applies to the graphic communications field. Students will use the Adobe Creative Suite of software products for design. This includes Adobe Illustrator, Photoshop, InDesign, and Quark Xpress applications fussed in the industry. Quarterly projects reinforce the student's knowledge in pre-press and press operations. Multiple page layout, color separations, and densitometry are a part of the junior year. Students learn about printing color separations, quality control standards, job cost estimation and paper estimation for a multi-page form. Students will discuss film imposition for a color-separated job, pin registration, and how to create a multi-flat exposure. Proofing techniques, ink mixing, and the use of color bars as they relate to CMYK press operations are discussed. Students will have a better understanding of press operations for proper registration and for larger color printing work. Multiple folding operations are used and the understanding of paper manufacturing and bookbinding are discussed.

GRAPHIC COMMUNICATIONS SHOP IV

Grade 12 Course #0804 Q.P. 1.00 4.50 Credits

Students will continue to practice the Graphic Communications career involving the prepress, digital and press techniques. Students will concentrate on more typical graphic communications work like four-color process design and printing plus web page design, preflighting operations, RIP station operation, and the use of the four-color press. Students will continue to learn about the Silk Screen process working with multi-color projects including printing on different substrates. They will study all areas of the discipline to gain a thorough understanding of techniques to better themselves in the work force. Creation of work for the school involving the school brochure, shop pamphlets, and projects given the senior student will enable them to produce a working portfolio of their work to present to the future employer using real world examples. The senior student may elect to produce this working portfolio online via a web-based presentation or with multimedia production techniques, create a self-running kiosk based presentation to send to employers.

GRAPHIC COMMUNICATIONS RELATED THEORY IV

Grade 12 Course #1804 Q.P. 1.00 1.00 Credit

The senior student will create a resume to utilize for their continuing education or in the work world. The students will understand job interview techniques and prepare themselves to become young professionals within the graphic communications industry. Students will learn about business functions and how to create their own business. The students will work on the Internet for their research and work within the classroom to create a mock business. Students will be able to demonstrate a greater understanding of the design, preparation and printing of multi-color and process printing operations using the latest software and printing equipment within the shop and industry. Safety standards are taught continually to impress upon the graduating student that safety procedures are a part of everyday life. Printing of CMYK work is the emphasis in senior year. Students will understand the process and are able to design, preflight, RIP to plate and print a four-color process job plus complete the necessary bindery operations associated with the work. Estimating functions and job costing functions will be discussed in further detail.

HEALTH TECHNOLOGY (ASSISTING)

HEALTH TECHNOLOGY SHOP I

Grade 9 Course #0691 Q.P. 1.00 3.50 Credits

Students will learn the shop safety precautions, infection control measures, and correct body mechanics. Varied health care environments will be discussed. Students will work towards becoming proficient in bed making, vital signs, and general comfort measures. The students will be introduced to medical terminology. They will also have their first clinical rotation, which will allow them to apply what they have learned in a real world experience.

HEALTH TECHNOLOGY RELATED THEORY I

Grade 9 Course #1691 Q.P. 1.00 1.00 Credit

The focus of this year is to introduce the major body systems and the common disorders that accompany them. This will create a great resource with which they can use in the coming years.

HEALTH TECHNOLOGY SHOP II

Grade 10 Course #0692 Q.P. 1.00 3.50 Credits

The sophomores are introduced to direct patient care skills, caring for the physical and emotional needs of patients/clients. They will also begin studies on some major illnesses, Alzheimer's, Diabetes Mellitus, and gastrointestinal diseases. Growth and development across the life span is a major focus this year. The students will also attend clinical observing children, the elderly, and with adults who have intellectual disabilities.

HEALTH TECHNOLOGY RELATED THEORY II

Grade 10 Course #1692 Q.P. 1.00 1.00 Credit

This year will be focused on first aid. The students will work with the curriculum for being an Emergency Medical Responder. The students will also complete the 10 hour OSHA course for Healthcare and become CPR certified.

HEALTH TECHNOLOGY SHOP III

Grade 11 Course #0693 Q.P. 1.00 4.50 Credits

Students will be training to take the state certification exam in nursing assisting at the end of this year. Students will be traveling with their instructor to nursing homes to perform patient care that they have perfected in the shop environment. Once they are CNA's they will spend some time working in an acute care hospital. They will also receive their certification as a Home Care Aide.

HEALTH TECHNOLOGY RELATED THEORY III

Grade 11 Course #1693 Q.P. 1.00 1.00 Credit

The focus of this year is nutrition and how it relates to the function of the human body. The students will also review therapeutic diets and prepare for the CNA exam.

HEALTH TECHNOLOGY SHOP IV

Grade 12 Course #0694 Q.P. 1.00 4.50 Credits

The seniors will continue their study of healthcare by participation in numerous clinical rotations

and they will be exposed to alternative health care settings. The students will study to be an EKG technician through the National Health Career Association. Upon successful completion of the course will be able to take the national certification exam. They will have various clinical rotations throughout the year.

HEALTH TECHNOLOGY RELATED THEORY IV

Grade 12 Course #1694 Q.P. 1.00 1.00 Credit

This year students will focus on human behavior in health and illness. This course is designed to help the student become a more thoughtful provider. The students will continue to prepare for a career within the health care industry.

HEATING, VENTILATION, AIR CONDITIONING, AND REFRIGERATION

HEATING – VENTILATION – AIR CONDITIONING – REFRIGERATION SHOP I

Grade 9, Course #0971 Q.P. 1.00 3.50 Credits

Freshmen will practice safe work procedures. They will use a variety of hand tools. They will solder, braze, and learn to install ACR pipe. The students will practice safe wiring and learn to wire several circuits.

HEATING-VENTILATION-AIR CONDITIONING- REFRIGERATION RELATED THEORY I

Grade 9, Course #1971 Q.P. 1.00 1.00 Credit

The freshmen will become familiar with good safety practices. They will identify and learn the use of hand tools. They will know the use of specialized tools and electrical test meters. The students will be able to identify types and sizes of refrigeration tubing and fittings. They will learn the basic refrigeration cycle and components. The students will learn electrical theory, concepts of matter and heat transfer.

HEATING-VENTILATION-AIR CONDITIONING-REFRIGERATION SHOP II

Grade 10, Course #0972 Q.P. 1.00 3.50 Credits

The sophomores will test refrigerator parts, build, and wire a working refrigerator, and practice sealed system repair procedures. They will also diagnose and repair room air conditioners and car air conditioners. Refrigerant recovery and electrical troubleshooting are emphasized.

HEATING-VENTILATION-AIR CONDITIONING-REFRIGERATION RELATED THEORY II

Grade 10, Course #1972 Q.P. 1.00 1.00 Credit

The sophomores will learn basic refrigeration. They will understand the controls, construction, and operating principles for domestic refrigerators, freezers, and room air conditioners. The students will learn the operation and individual components of split phase, permanent split capacitor, multiple speed, and shaded-pole motors. The students will be made familiar with various refrigerants, and procedures for evacuation and recharging refrigeration systems.

HEATING-VENTILATION-AIR CONDITIONING-REFRIGERATION SHOP III

Grade 11, Course #0973 Q.P. 1.00 4.50 Credits

The juniors will practice safe procedures in commercial refrigeration service and central air conditioning service. They will install commercial condensing units and evaporators, and install and adjust pressure sensing and expansion devices. They will perform troubleshooting procedures on central air conditioning systems and heat pumps.

HEATING-VENTILATION-AIR CONDITIONING-REFRIGERATION RELATED THEORY III

Grade 11, Course #1973 Q.P. 1.00 1.00 Credit

Juniors will study commercial refrigeration and the related controls. They will learn central air conditioning and heat pump installation, service procedures and sizing. They will prepare for

and take the EPA 608 federal certification exams. They will study low voltage controls and read schematic wiring diagrams.

HEATING-VENTILATION-AIR CONDITIONING-REFRIGERATION SHOP IV

Grade 12, Course #0974 Q.P. 1.00 4.50 Credits

Seniors will practice safe procedures in diagnosing, installing, and repairing oil and gas heating systems. They will pipe an oil tank and install a forced hot water system. They will install oil burners and calculate their efficiency. They will practice wiring controls and troubleshooting.

HEATING-VENTILATION-AIR CONDITIONING-REFRIGERATION RELATED THEORY IV

Grade 12, Course #1974 Q.P. 1.00 1.00 Credit

Seniors will study for the Massachusetts Oil Burner Service License. They will practice determining heat loads. They will practice sizing and estimating the cost of heating systems. They will learn how to wire an oil burner system.

INFORMATION SUPPORT SERVICES AND NETWORKING

INFORMATION SUPPORT SERVICES AND NETWORKING SHOP I

Grade 9, Course 0791 Q.P. 1.00 3.50 Credits

The ISSN (Information Support Services and Networking) career area is designed to introduce students to Computer System Support and Networking. Students will be trained in the latest industry help desk concepts, end user Operating System Software support, Server Configuration and Administration, Computer Network Administration and Support, Web Technologies, Cyber Security and Wireless and Mobile Device Support. Students will have the opportunity to obtain certifications in A+, Network+, Linux+, Microsoft Technical Associate, Cisco Certified Entry Level Networking Technician (CCENT) and Security+. Overall health and shop safety topics will be covered upon entry in the shop and reviewed in subsequent years.

INFORMATION SUPPORT SERVICES AND NETWORKING RELATED THEORY I

Grade 9, Course 1791 Q.P. 1.00 1.00 Credits

This course is designed to instruct students on how a computer system functions. Topics covered will be a precursor to the CompTIA A+ certification offered in the junior and senior years. Trends in the workforce and work ethics will be introduced as part of help desk procedures, which include troubleshooting systems and proper phone support etiquette.

INFORMATION SUPPORT SERVICES AND NETWORKING SHOP II

Grade 10, Course 0792 Q.P. 1.00 3.50 Credits

The sophomore level curriculum concentrates on computer hardware specifications related to the CompTIA A+ certification. Certification testing in CompTIA A+ will be offered at the end of the junior year. Hands-on training will include building and repairing computers along with OS installs and network maintenance. Windows and Linux OS Installation and Support, Mobile Devices Support, and Windows Networking Support will be covered. Installation, maintenance, and configuration of servers, switches, and firewalls are introduced in the sophomore year allowing the students to gain an understanding of network and workstation operations. Overall health and safety topics related to the field of study will be reviewed as a segue to the OSHA test conducted in Related Theory.

INFORMATION SUPPORT SERVICES AND NETWORKING RELATED THEORY II

Grade 10, Course 1792 Q.P. 1.00 1.00 Credits

This course teaches the sophomore student customer service skills related to end user and computer network support. The course also further explores topics in preparation for the CompTIA A+ and Network+ certifications. Concepts taught in this course allow the students to put these related theories into practice in the shop environment as well as prepare for certifications in this field of study. OSHA testing during this year of study will allow students to test their understanding of health and safety concepts related to their chosen field.

INFORMATION SUPPORT SERVICES AND NETWORKING SHOP III

Grade 11, Course 0793 Q.P. 1.00 4.50 Credits

The junior year will teach network administration including server maintenance, switch configuration, and wireless access management with a review of trade safety procedures. The junior student will also be introduced to cyber security principles which will be expanded upon

in the final year of the program. This course goes beyond the basics of help desk concepts and prepares the student for network-level certifications. At this point, the junior student will be given the option to take the CompTIA A+ and Network + certifications. Basic programming principles, web administration, introduction to Cisco Networks and Net Academy, Network+, Microsoft MTA Certification Studies, Cyber Security, and Security+ will be covered to better prepare students for the broad range of concepts associated with the ISSN field of study.

INFORMATION SUPPORT SERVICES AND NETWORKING RELATED THEORY III
Grade 11, Course 1793 Q.P. 1.00 1.00 Credits

The junior year related theory program reviews network management and configuration concepts. Topics include server installation and management, wireless communication configuration, and management as well as cyber security threats and prevention techniques. Students will learn topics that can be applied to network and system management. Extensive exam preparation and review will prepare students for the CompTIA tests offered in the shop environment.

INFORMATION SUPPORT SERVICES AND NETWORKING SHOP IV
Grade 12, Course 0794 Q.P. 1.00 4.50 Credits

The senior year will focus on CISCO, HP, and NETGEAR switch configuration; network management which includes firewall configuration; and a review of safety procedures. The students will be trained to install and maintain a network environment running a host of physical and virtual servers. They will experience Cisco CCENT Certification Studies, Cisco Routing and Switching, HP Switch Configuration, Firewall Configurations, and the Internet of Things (Remote Monitoring). Cyber security will be one of the concentrations during the senior year and will allow the students to learn preventative security techniques.

INFORMATION SUPPORT SERVICES AND NETWORKING RELATED THEORY IV
Grade 12, Course 1794 Q.P. 1.00 1.00 Credits

This capstone related theory course prepares students for taking various certification-related hardware and network practices covered in past courses. Students will review CISCO Network and Microsoft Technical Associate certifications. As conducted in the junior year, certification testing focused on CISCO and Microsoft will be offered to all students as well as past CompTIA A+ and Network+ tests if students missed those opportunities. Cyber Security will also be covered which prepares the student to further their studies at the higher education level or enter the work force in an entry level position.

MARKETING

MARKETING SHOP I

GRADE 9, Course #0721 Q.P. 1.00 3.50 Credits

The student will identify opportunities in marketing, finance, and entrepreneurship. They will learn a basic understanding of the operating procedures of the Minuteman Shoppe and will learn the fundamentals of operating the machines and equipment in the shop. They will develop product/service knowledge and be able to assess customer needs. Students will be able to explain the fundamental principles of monetary and economic exchanges with customers. Freshmen students will also begin to develop an understanding of the role of promotion in business and marketing. Students will begin to learn effective communication skills and apply them in all domains.

MARKETING RELATED THEORY I

GRADE 9, Course #1721 Q.P. 1.00 1.00 Credits

The freshmen will learn about the art of selling from the pre-approach, to developing sales skills, to the various steps of approach, to the completion of the successful sale. They will examine the special skills needed for good working relationships and interactions between co-workers. Students will analyze the future of sales in our economic society and begin to learn about the U.S. Free enterprise system.

MARKETING SHOP II

GRADE 10, Course #0722 Q.P. 1.00 3.50 Credits

This course takes the students deeper into the explanation of educating the customer. Sophomore students will learn the important components of a Marketing Plan. They will also demonstrate the foundational knowledge of selling. Students will learn the difference between paid and unpaid forms of advertising and how to use those in product-mix strategies to meet profit goals. Project/Service Management will be discussed and students will learn the fundamental knowledge and how to improve workflow and minimize costs. Sophomore students will also learn the basic knowledge in pricing products/services.

MARKETING RELATED THEORY II

GRADE 10, Course #1722 Q.P. 1.00 1.00 Credits

The sophomores will study the principles of marketing. They will learn to follow the functions in the changing consumer market. Students will collect information in order to create and analyze a Marketing Plan. They will learn the fundamentals of advertising and promotions and be able to develop an Advertising Campaign. They will also learn the channels of distribution and the fundamentals of supply chain management.

MARKETING SHOP III

GRADE 11, Course #0723 Q.P. 1.00 3.50 Credits

Junior Marketing students learn how to identify business in society. Students learn how to explain the concepts, systems and tools needed to gather, access, synthesize, evaluate and disseminate information in making business decisions. Students learn how to identify and analyze markets and how to use the available internal and external data to optimize sales. This

allows students to implement purchasing procedures to obtain business supplies, equipment, and services. Students gain their OSHA Certification and learn the fundamentals of health and safety in the workplace. Students also develop policies and procedures to protect workplace security. Junior students learn how to identify and utilize various electronic media for promotional marketing, information and training, and general communications.

MARKETING RELATED THEORY III

GRADE 11, Course #1723 Q.P. 1.00 1.00 Credits

The juniors will study the role of business in society. Students will learn about the fundamentals of international business and how marketing, promotions and business are effected by different cultures and regulations. Students will complete their OSHA Certification. Students will dive deeper into Digital Marketing and how to use different channels of electronic media for marketing, training and communicating.

MARKETING SHOP IV

GRADE 12, Course #0724 Q.P. 1.00 3.50 Credits

Senior Marketing students learn how to manage personal finances to achieve financial goals. They learn how to manage financial resources to ensure solvency. Students learn how to explain the accounting equation and changes that effect it. Students learn how to journalize transactions, post to a general ledger and prepare financial statements. Senior students analyze market research results and demonstrate foundational knowledge of Marketing Information Management. Students manage channel activities to minimize costs and to determine distribution strategies.

MARKETING RELATED THEORY IV

GRADE 12, Course #1724 Q.P. 1.00 1.00 Credits

The seniors will study Personal Finance. They will learn how to prepare financial statements for both personal and business applications. Students will learn the accounting equation and how different transactions effect the equations. Students will complete a business plan that will incorporate many different areas of business (marketing, finance, accounting, human resources, entrepreneurship etc.)

MASONRY & TILE SETTING

MASON & TILE SETTING SHOP I

Grade 9 Course #0841 Q.P. 1.00 3.50 Credits

The freshmen will learn how to prepare and set-up a work area, learn safe work practices, and demonstrate employable skills. Students will also learn how to handle the different tools of the trade, and how to mix and use mortar. They will also learn how to lay brick and block to line.

MASON & TILE SETTING RELATED THEORY I

Grade 9 Course #1841 Q.P. 1.00 1.00 Credit

The students will learn safe work practices, focusing on shop safety. They will also learn the various career opportunities in the masonry field coupled with a history of the trade, a brief exposure to the basic tools, measuring devices, and materials, while developing an awareness of the skills necessary to succeed in a masonry career.

MASON & TILE SETTING SHOP II

Grade 10 Course #0842 Q.P. 1.00 3.50 Credits

Students will learn to level, plumb, and range brick and block walls, construct stonewalls, block piers, and basic concrete finishing. Students will learn to cut masonry materials using a hammer, brick set, or a wet saw. Students will learn to build brick and block corners using a variety of materials. Students will be exposed to building layout and advanced brick patterns, and basic principles of tile setting.

MASON & TILE SETTING RELATED THEORY II

Grade 10 Course #1842 Q.P. 1.00 1.00 Credit

The students will learn the history of cement, brick, and block. The students will also learn how to estimate brick, block, concrete, and other related masonry materials for small projects. The students will also learn the types and properties of mortar.

MASON & TILE SETTING SHOP III

Grade 11 Course #0843 Q.P. 1.00 4.50 Credits

Students will be exposed to chimney and fireplace layout and construction. Students will understand chimney specifications and codes. Students will be exposed to all types of masonry hardscapes, stone, and step construction.

MASON & TILE SETTING RELATED THEORY III

Grade 11 Course #1843 Q.P. 1.00 1.00 credit

The juniors will learn how to read simple blueprints and how to estimate small buildings. The student will also learn the secrets of building a successful fireplace and how to build footings and foundation walls. The students will also learn the history of fireplaces and Masonry stoves.

MASON & TILE SETTING SHOP IV

Grade 12 Course #0844 Q.P. 1.00 4.50 credits

The seniors will do various types of remodeling work usually found around the home, such as; garden walls, brick paving, and tile. The student will also build walls made of stone.

MASON & TILE SETTING RELATED THEORY IV

Grade 12 Course #1844 Q.P. 1.00 1.00 credit

The seniors will learn how to measure and draw templates for arches, and cornice work. The students will learn different formulas for estimating larger jobs. The students will learn different bonds associated with stonework.

METAL FABRICATION & JOINING TECHNOLOGY

METAL FABRICATION & JOINING TECHNOLOGIES SHOP I

Grade 9 Course #0861 Q.P. 1.00 3.50 credits

The freshmen will name and know the use of all the tools commonly found in a sheet metal shop. They will learn to safely operate selected pieces of equipment found in the school metal fabrication program. They will learn to fabricate objects using simple shop drawings, and will observe and carry out all safety principles regarding machine use, proper clothing, and good housekeeping. Students will learn how to properly solder sheet metal fittings. Additionally, the freshmen will learn safety, setting up and connecting welding equipment and proper methods of manipulating the torch. Perform common welding joints and welding positions, and how to do this type of welding with and without a welding rod will be covered. The basics of braze welding and cutting of steel along with basic arc welding and how to hold and maintain an arc will be studied.

METAL FABRICATION & JOINING TECHNOLOGIES RELATED THEORY I

Grade 9 Course #1861 Q.P. 1.00 1.00 credits

The freshmen will learn the basic operations and safety of hand tools, plus some of the basic machines. They will be able to identify some of the basic metals, their thickness, and uses. They will learn basic shop drawing and layout work by the proper use of the mechanical drawing equipment. Additionally, the students will learn the safe use of Oxy-fuel welding and brazing equipment and supplies. They will learn the use of basic arc welding equipment and supplies, and will start the basic theory for shielded metal arc welding.

METAL FABRICATION & JOINING TECHNOLOGIES SHOP II

Grade 10 Course #0862 Q.P. 1.00 3.50 Credits

The sophomores will learn to safely operate; all pieces of equipment found in the metal fabrication shop, make and read simple shop drawings, and be able to fabricate objects from them. The students will learn how to properly layout and fabricate wrought Iron Railings. Additionally, the sophomores will learn safety and care of the welder and welding equipment. Students will learn steel preparation and rod selection, as well as arc welding in all positions for mild steel. The students will also learn the basics of micro-wire welding.

METAL FABRICATION & JOINING TECHNOLOGIES RELATED THEORY II

Grade 10 Course #1862 Q.P. 1.00 1.00 Credit

Sophomores will learn blueprint reading, drawing, layout and shop math. They will learn how to apply them to shop projects. Students will also learn to safely set up and operate all pieces of power machinery in our metal fabrication shop. Additionally, students will learn shielded metal arc welding, AC-DC operation, along with electrode care, operating ranges and power supplies. They will also learn basic mig welding operation using state-of-the-art equipment.

METAL FABRICATION & JOINING TECHNOLOGIES SHOP III

Grade 11 Course #0863 Q.P. 1.00 4.50 Credits

Juniors will learn to safely operate all pieces of equipment found in the metal fabrication shop, make shop drawings and fabricate projects and fittings from them. They will assemble and

install fittings for ductwork in air conditioning, heating, and exhaust systems. Additionally, the juniors will learn how to set up the micro-wire welding machine for the different welding operations, and how to weld light metals as well as heavy metals, in all positions using different types of welding joints. The students will also learn the proper use of plasma arc cutting as well as the basics of gas tungsten arc welding.

METAL FABRICATION & JOINING TECHNOLOGIES RELATED THEORY III

Grade 11 Course #1863 Q.P. 1.00 1.00 Credit

The juniors will learn blueprint reading, drawing, layout for heating, ventilating, and air conditioning, along with precision sheet metal mathematics. Additionally, the juniors will learn the theory of gas tungsten welding equipment and supplies along with its safe operation. They will learn the theory of current, power, and electrodes for the metals to be welded; and they will learn about inert and shielding welding gasses, mig welding wires, and plasma arc cutting theory.

METAL FABRICATION & JOINING TECHNOLOGIES SHOP IV

Grade 12 Course #0864 Q.P. 1.00 4.50 Credits

The seniors will learn to perform, with acceptable skill, all of the operations learned and reviewed in the previous three years. They will be able to operate safely all pieces of equipment found in the metal fabrication shop. Their skills will be limited only by a student's ability and willingness to indulge themselves into their work. Students will also be given greater latitude to concentrate on that part of the trade that they prefer or for that which they have shown aptitude. Additionally, the seniors will learn safety and care of gas tungsten arc welding equipment as well as basic skills in the welding of aluminum, stainless steel, and mild steel in the different positions using different types of welding joints. Destructive and non-destructive testing will be taught. Seniors will prepare and take AWS D.15 welding certification test.

METAL FABRICATION & JOINING TECHNOLOGIES RELATED THEORY IV

Grade 12 Course #1864 Q.P. 1.00 1.00 Credit

The seniors will learn advanced blueprint reading and drawing. They will learn the theory of layout work, including parallel line development, radial line development, triangulation and shortcut methods of layout. Seniors will learn the applications of special non-ferrous welding. They will also learn inspection and testing of weldments, heat treatments of metals, metal surfacing, and welder qualification.

PLUMBING

PLUMBING SHOP I

Grade 9 Course #0951 Q.P. 1.00 3.50 Credits

The freshmen will learn how to thread pipe. They will have a basic understanding of I.P.S. measurements and applications. Students will learn the proper use of pipe wrenches, pipefittings, and lubricating oils. Students will learn to cut, ream copper tubing and to assemble the tubing using various procedures including flared, soldered and compression. Students will learn the proper use of torches. Students will learn to safely use various plumbing tools to connect various pipe joints. Students will also learn basic water, and drain line sizing, laws and materials. Safety will be taught during each phase of the course.

PLUMBING RELATED THEORY I

Grade 9 Course #1951 Q.P. 1.00 1.00 Credit

This introductory course will give the new plumbing student a brief history of plumbing as well as a general overview of the many different duties and opportunities available to a student schooled in the plumbing trade. This first year program will make the student proficient in the use of the ruler in conjunction with the proper methods and tools used in the assembly of steel pipe and the soldering of copper pipe.

PLUMBING SHOP II

Grade 10 Course #0952 Q.P. 1.00 3.50 Credits

The sophomores will learn about types of valves, including gate, globe, and quick closing. Students will learn about special valves such as regulators, and about air chambers. Students will learn about water service mains and water meters. Some gas piping, gas appliances, and gas flues will be taught. Different uses for hangers such as resnor, hook, clevis, strap, and van will be taught along with the anchors used to attach them. Ladder safety and proper hoisting methods will be covered. Students will learn about water heaters fueled by gas and electric. Students will learn waste stack sizes, materials, and laws, along with branch line sizes, materials, and laws.

PLUMBING RELATED THEORY II

Grade 10 Course #1952 Q.P. 1.00 1.00 Credit

The sophomores will begin the year by learning the many different types of pipe and fittings involved with the proper assembly of drains and waste pipes such as cast iron, PVC, and copper. The student will be introduced to the many methods of venting a plumbing system. Blueprint reading and drawing will be introduced, and the student will also become proficient in sizing capacities and volumes of all sorts and sizes of piping, tanks, etc. The proper operation of several basic plumbing fixtures such as faucets, water closets, and water heaters will be reviewed extensively. O.S.H.A. 10 Hour Construction Course will be completed for certification.

PLUMBING SHOP III

Grade 11 Course #0953 Q.P. 1.00 4.50 Credits

The juniors will learn air break and air gap indirect wastes. Students will learn storm drain and sewer drain regulations. Septic systems will be taught and all units of the system will be covered. Students will learn plumbing vents including stack, continuous, individual, common,

bow, yoke, battery, circuit, loop, wet, crown, quick, and blind. Students will learn about floor drains, and the different laws covering them. Bathtub and shower installations will be covered. Students will learn about different types of sewer ejectors. Different testing methods will be taught. Students will learn about indirect, direct, and instantaneous heaters. Students will learn about special waste traps including plaster, grease, acid, gasoline, and sand traps.

PLUMBING RELATED THEORY III

Grade 11 Course #1953 Q.P. 1.00 1.00 Credit

The juniors will continue on the blueprint reading and drawing as they move into sizing water mains and appropriate valve installations. The course will cover the Mass. plumbing code requirements concerning drains, vents, water piping, as well as an in-depth look at gas piping and hydronic heating systems. Septic tanks, special wastes, and backflow prevention will also be covered extensively.

PLUMBING SHOP IV

Grade 12 Course #0954 Q.P. 1.00 4.50 Credits

The seniors will learn about repairing fixtures in the plumbing system. Special methods and materials to detect leaks will be taught. Students will learn to install and repair different valves including ballcocks, faucet stem, faucet cartridge, flushometer, gate, globe, mixing, hose bibb, sillcock, wall hydrants, and trap seal valves. Students will learn about trap fixture and pipe stoppages, and how to correct and avoid them. Students will learn about fixtures including wall hung water closets, floor mount water closet, wall hung lavatories, vanity lavatories, kitchen sinks, wall-hung urinals, pedestal urinals and bidets. Students will also learn special hospital and commercial fixtures.

PLUMBING RELATED THEORY IV

Grade 12 Course #1954 Q.P. 1.00 1.00 Credit

The seniors will continue with blueprint reading and will, by this time, be able to design and rough the plumbing system for residences and commercial installations. The finer points of plumbing design will be covered such as different manufacturers and style. The student will learn many principles of business such as estimating jobs, labor costs, pricing material and figuring overhead costs. Heat loss and BTU use related to heating system design will also be covered. A senior class project will involve a design estimate of various plumbing systems complete with all plumbing and heating properly sized and installed.

PROGRAMMING & WEB DEVELOPMENT

PROGRAMMING & WEB DEVELOPMENT

The Programming & Web Development's curriculum consists of programming fundamentals taught through the AP Computer Science Principles course in Python, algorithm-based thinking taught through the AP Computer Science A course in Java, and a variety of projects incorporating visual programming and game development, virtual reality, mobile robotic platforms, humanoid robotics, and professional applications. Students are prepared to enter the field as a junior developer or pursue a post-secondary degree in the field of Computer Science. Students are also prepared to enter the field as a front-end and back-end web developer having been trained in HTML, CSS, JavaScript, various dynamic web development frameworks, and relational databases using both Windows-based and Linux-based operating systems.

FRESHMAN EXPLORATORY

The Programming and Web Development exploratory program is designed to provide the students with an overview of the topics that will be covered if they select Programming and Web Development as their career choice. The one-week curriculum focuses on four topics, web development, console-based programming using Python, visual programming using a graphical library in Python, and finally robotics using the NAO humanoid robots.

PROGRAMMING & WEB DEVELOPMENT SHOP 1

Grade 9, Course #0701 Q.P. 1.00 3.50 Credits

The Programming and Web Development freshman program is an introduction to computer science, programming, and web development. The programming concepts will be taught using the Python programming language. Students will be trained in developing both business and game development applications, as well as the design and testing of these applications. Students will learn basic programming concepts including identifying and using data types, implementing control structures, and creation of procedures. Web development will be introduced using HTML5 and CSS3. It will focus on implementing basic HTML structure, formatting elements using CSS, and page layout. Students will be introduced to humanoid robotics using the NAO robots through the Choreograph program.

PROGRAMMING & WEB DEVELOPMENT RELATED THEORY I

Grade 9, Course #1701 Q.P. 1.00 1.00 Credit

The Programming and Web Development freshman related program focuses on an introduction to the field of Computer Science. Students will study the history of computer science, number conversions, and an introduction to the internet. Students learn about various development environments we use in the program along with various debugging techniques. Students will study various career options and the required knowledge to enter these careers in an entry-level position.

PROGRAMMING & WEB DEVELOPMENT SHOP II

Grade 10, Course #0702 Q.P. 1.00 3.50 Credits

The Programming and Web Development sophomore program centers around the basics of computers science and programming, current web development and design practices, and the seven big ideas incorporated in the AP Computer Science Principles exam. The programming concepts will be taught using the Python programming language. The students will focus on development of algorithms and the use of abstraction throughout their programs. Students will be introduced to object-oriented concepts in Python. The web development concepts will be taught using HTML5, CSS3, and JavaScript during the sophomore year. Building on the basic concept learned in freshmen year, students will create websites with more complex layouts and menus. By the end of the year, students will incorporate JavaScript into their websites and make them more interactive. The AP Computer Science Principles course incorporated into this course focuses on creativity, abstraction, data and information, algorithms, programming, the internet, and global impact. While some of these ideas will be incorporated into the programming portion of the class, others will be addressed during the computer science portion of the class. Students will also practice and complete the Explore task and the Create task portions of the exam during the shop time. Students will continue with the programming of the NAO robots using the Choregraphe program and introducing the Python SDK.

PROGRAMMING & WEB DEVELOPMENT RELATED THEORY II

Grade 10, Course #1702 Q.P. 1.00 1.00 Credit

The Programming and Web Development sophomore related program focuses on advanced front-end web development concepts such responsive web design, menus, slideshows, and advanced page layouts. Students will also begin incorporating JavaScript into their sites, focusing on manipulating DOM elements and writing various functions. Students will end the year with an introduction to content management.

PROGRAMMING & WEB DEVELOPMENT SHOP III

Grade 11, Course #0703 Q.P. 1.00 4.50 Credits

Students learn advanced programming concepts in Java throughout the AP Computer Science A course. The curriculum includes, but is not limited to, decision making concepts, looping structures, one and two-dimensional arrays, lists, object-oriented programming, inheritance, abstract classes, interfaces, and recursion. Class assignments and projects will be taught using both console and visual programming challenges, including recreating popular two-dimensional games. Students will be introduced to various SDKs for the humanoid robots as well as the Arduino environment for various robot platforms. Students will also be introduced to dynamic web development with PHP and MySQL. Students will also have the opportunity to begin working on live projects for the school and outside non-profit organizations.

PROGRAMMING & WEB DEVELOPMENT RELATED THEORY III

Grade 11, Course #1703 Q.P. 1.00 1.00 Credit

In order to qualify for COOP and satisfy a graduation requirement, students will complete a ten-hour OSHA certification course. Students will be introduced to the front-end mobile-first web

framework Bootstrap, various third party JavaScript libraries, source control with Git, and relational databases with SQL. Students will utilize various online software products for source control such as Bitbucket and GitHub and will document their agile process using various online scrum management software.

PROGRAMMING & WEB DEVELOPMENT SHOP IV

Grade 12, Course #0704 Q.P. 1.00 4.50 Credits

During their senior year, students will continue working with more advanced data structures and design patterns with a focus on incorporating these concepts into larger scaled projects. Students will be introduced to the MVC pattern using Ruby on Rails to create their own custom content management system. Students will learn how to implement authentication and authorization systems using roles and permissions along with common functionality requirements for small to medium sized business websites. Students will also incorporate React.js and Node.js into various projects after being introduced in Related. Students will also have the opportunity to work on customer-based projects for various nonprofit organizations during their senior year.

PROGRAMMING & WEB DEVELOPMENT RELATED THEORY IV

Grade 12, Course #1704 Q.P. 1.00 1.00 credits

Students will learn various advanced JavaScript frameworks/libraries such as React.js, Node.js, Socket.io in order to incorporate these into various projects in shop. Students will also be exposed to various Content Management Systems and how they can be used to implement various large scaled applications. Content Management systems include: Umbraco, Drupal, and WordPress. Hosting and deployment concepts will be taught along with various search engine optimization techniques and monitoring tools.