Greater New Bedford Regional Vocational Technical High School

Program of Studies

MISSION STATEMENT

Our mission at Greater New Bedford Regional Vocational Technical High School is to provide education that is rigorous, relevant, and meaningful to each student in a safe and supportive environment, resulting in academic, career, and technical excellence. This experience encourages lifelong learning, fosters mutual respect, and instills social responsibility, respect for diversity, and responsible citizenship.

Welcome

Greater New Bedford Regional Vocational Technical High School is a public, four-year high school for young men and women. We accept students from three communities in our school district: New Bedford, Dartmouth and Fairhaven.

GNB Voc-Tech has been part of the community for many years. Look around: Our graduates are leaders in business and industry, civic life, and politics.

When you are a student at GNB Voc-Tech, you're treated to a rich educational experience – one that blends academic instruction with career and technical education. We offer a full range of academic courses, clubs and activities, and sports, with some of the finest educational and athletic facilities in Massachusetts.

This Guide offers you a chance to take a quick look at the wide range of career and technical programs we offer.

Your choices and opportunities here are almost endless.

SCHOOL PHILOSOPHY

In pursuit of our mission, the faculty, administration, school committee, parents, and students have a responsibility to create and contribute to a school environment in which:

- Students can achieve mastery in reading, writing, speaking, reasoning, computing, investigating, problem-solving, and creating in all core academic subjects according to the standards set by the Massachusetts Curriculum Frameworks.
- Students can achieve mastery in career and technical education that reflects current industry standards and is aligned to the Massachusetts Technical Frameworks.
- Students can engage in responsible citizenship with integrity, commitment to the common good, and with respect for others and their environment.
- Students exhibit respect for diversity through participation in programs and curricula dedicated to creating a culture of understanding of race, ethnicity, family configuration, sexual orientation, gender identity (including gender expression), religion, and socioeconomic status.
- Students' self-esteem and self-confidence are nurtured through healthy social interaction with peers and adults in and outside of the school.
- Students are instilled with a commitment to lifelong learning and flexibility to adapt to social, political, and economic change.
- Students feel safe to attend and participate in all curricular and extracurricular activities without threats to their physical or emotional well-being.

INFORMATION / INFORMAÇÃO / INFORMACIÓN

IN ENGLISH: If you need information in Portuguese or Spanish please call 508-998-3321 ext. 678. Thank you.

EM PORTUGUÊS: Se necessita de ajuda ou informação em Português ligue para o número 508-998-3321 extensão 678 . Obrigada.

EN ESPAÑOL: Si necesita de ayuda o información en Español llame el número 508-998-3321 extensión 678. Gracias.

SCHOOL GOALS

- To provide academic, vocational and technical programs that prepare our students to be productive members of society, and our Greater New Bedford communities;
- To provide integrated academic and vocational/technical programs that challenge each student to achieve state performance standards;
- To provide programs and activities that contribute to a safe and supportive environment for a diverse student body;
- To provide counseling services for all students to achieve academic, personal-social and career goals;
- To use student assessment results to review and improve curricula, courses, programs and instructional practices;
- To utilize the expertise of the Advisory Committees in order to provide new areas of training required for community and industrial development;
- To support special populations in their classrooms and technical programs to help them achieve academic and career goals;
- To provide staff with the professional development opportunities, resources and support needed to motivate and engage students to master challenging content in standards based classrooms and shops;
- To provide teachers with courses and practices that enable them to facilitate student mastery of technology competencies;
- To provide professional development opportunities that will assist staff in obtaining and maintaining professional licensure;
- To develop partnership with parents, businesses, industries and community agencies;
- To provide on-going safety programs;
- To obtain 3rd party certification in our vocational programs;
- To align vocational programs with the Certificate of Occupational Proficiency requirements.

GREATER NEW BEDFORD REGIONAL VOCATIONAL TECHNICAL HIGH SCHOOL

SCHOOL COMMITTEE

Patrick Walsh, Chairperson	New Bedford
Randall C. Durrigan	Fairhaven
Andrew Tillett	Fairhaven
Michael Shea	Dartmouth
John Montigny	Dartmouth
Joaquim Nobrega	New Bedford
Rita Ribeiro	New Bedford
Frederick Toomey	New Bedford

ADMINISTRATION

James L. O'Brien	Superintendent-Director
Paul B. Kitchen	Director of Business Operations
Michael P. Watson	Academic Principal
Robert J. Watt	CVTE Principal
Erin Ptaszenski	Director of Special Services
Dr. Heather D. Larkin	Director of Guidance & Pupil Personnel Services
Helder Angelo	Director of Curriculum, Assessment & Accountability/ ELL Coordinator

Graduation/ Promotion Credit Requirements

	Class of 2018 Minimum 120 credits over 4 years	Class of 2019 Minimum 124 credits over 4 years	Class of 2020 Minimum 125 credits over 4 years	Class of 2021 Minimum 128 credits over 4 years
ENGLISH Must Pass 4 Years	**16 Total** Including 4 from senior year (3 English + 1 Writing)	**15 Total** Including 4 from senior year (3 English + 1 Writing)	**14 Total** Including 4 from senior year (3 English + 1 Writing)	**13 Total** Including 4 from senior year (3 English + 1 Writing)
MATH	**11 Total** Including Algebra 1 & Geometry	**11 Total** Including Algebra 1 & Geometry	**10 Total** Including Algebra 1 & Geometry	**9 Total** Including Algebra 1 & Geometry
SCIENCE	**9 Total**	**10 Total**	**9 Total**	**9 Total** Including Biology 1
HISTORY	**6 Total**	**7 Total**	**7 Total**	**7 Total**
RELATED	**6 Total** From Junior & Senior Year Only	**8.5 Total** From Junior & Senior Year Only	**8.5 Total** From Junior & Senior Year Only	**8.5 Total** From Junior & Senior Year Only
CVTE/SHOP	**Must Pass**	**Must Pass**	**Must Pass**	**Must Pass**
PHYS.ED./HEALTH		**.5 Total**	**1.5 Total**	**3.5 Total**
STRATEGIES/LITERACY (Trimester Courses- 1 cr. Each = 3 credits)			**3 Total** From Freshman & Sophomore Year	**6 Total** From Freshman & Sophomore Year
ATTENDANCE	No More Than 4 Unexcused Absences per Trimester	No More Than 4 Unexcused Absences per Trimester	No More Than 4 Unexcused Absences per Trimester	No More Than 4 Unexcused Absences per Trimester
CAREER PORTFOLIO	✓	✓	✓	✓
CAREER CRUISING	✓	✓	✓	✓
CANNOT FAIL MORE THAN	6 Credits Senior Year	6 Credits Senior Year	6 Credits Senior Year	6 Credits Senior Year

SCHEDULES

Student schedules must include 18 academic and 18 vocational credits per year. A student must successfully pass all MCAS exams currently required by the Commonwealth and earn a minimum of credits in the configuration described above, in order to graduate with a high school diploma and a vocational certificate.

COURSE LEVELS

- Level 1: College Prep 2
- Level 2: College Prep 1
- Level 3: Honors
- Level 4: Advanced Placement

CLASS RANK

Rank in class is established by deriving a quality point average (Q.P.A.) based on points accumulated from the grade in each course.

- College Prep. 2 = 1.0
- College Prep. 1 = 1.1
- Honors course grades (marked with an *) = 1.25.
- Advanced Placement, college courses (marked with **) = 1.5

Valedictorian and Salutatorian are selected using the weighted Q.P.A. and rank in class. The Valedictorian and Salutatorian will be determined at the end of the second marking period of their senior year.

Specific values are clearly illustrated in the "grading system" section of the Student Handbook. Students should note that outside evaluators often look at rank in class as a basis for making predictions regarding success in employment or higher education.

Mass Core and the Massachusetts Board of Higher Education (BHE) Standards

Subjects	MassCore Standards	BHE Admissions Standards (* Most Colleges & Universities)
English	4 years	4 years
Math	4 years	4 years (eff. Fall '16)
Science	3 years lab-based science science and tech/engineering	3 years, 2 with lab natural/physical sciences
History/Social Studies	3 years	2 years, including 1 course in U.S. History
Foreign Language	2 years of the same language	2 years of the same language
The Arts	1 year	--
Other	5 additional "core" courses in business education, career and technical education, health, technology Additional learning opportunities, e.g., AP, dual enrollment, online, work-based learning, senior project	2 electives from the above subjects or from the Arts & Humanities or Computer Sciences

Physical Education

State law (M.G.L. c. 71,s. 3) states: "Physical education shall be taught as a required subject in all grades for all students." Health can be integrated into Physical Education, science, or taught as a stand-alone course.

COURSE CHANGE POLICY

Students select their courses in the spring each year for the following school year. Students have the chance to review course offerings, discuss their choices with their parents and teachers, and review their choices with their guidance counselor prior to submitting their final requests. Once these decisions regarding their schedules are complete, course changes are difficult, if not impossible to make.

Schedule Change Procedure

- **Add/Drop Period**

While we encourage students to solidify schedule requests at the end of the previous school year, there are circumstances that may necessitate a change at the start of the school year. Students may request a change prior to September 30th by making an appointment with their guidance counselor. Changes will be honored only for unusual circumstances, and reassignments are subject to course availability. Students are not allowed to change courses due to teacher preference. Any level changes require a parent, teacher, and/or department head signature.

- **Changes Requested after September 30th**

Course changes after September 30th are extremely rare. In addition to the above procedure, any course changes made after this date require completion of a Student Schedule Change Form which requires approval of the parent, teacher, respective department head and the sign-off of the guidance director. Any changes made after September 30th are reflected on the student's transcript (the original course will be noted as a W= Withdrawal).

- **Changes Requested after Mid-Term**

In addition to the above procedures, all changes requested after marks close for the first mid-term must be approved by the parent, teacher, respective department head, Academic and/or CVTE Principal and Director of Guidance. Any course change this late in the school year would only be considered in an extraordinary circumstance.

ENGLISH DEPARTMENT

Dr. Susan Sylvia - *Extension 302*

STATEMENT OF PURPOSE

The English Department of Greater New Bedford Regional Vocational Technical High School seeks to provide students with experiences that will make them literate people of the twenty-first century. This will enable them to be well prepared for post-high school choices: either college or career choices. Students will read both fiction and informational texts. This will include short stories, novels, drama and poems. Students will be engaged, open-minded and discerning readers and listeners. They will learn to evaluate literature critically and show understanding through different writing assignments, including research projects. Through these writing assignments, students will demonstrate command of the conventions of Standard English grammar and mechanics with the use of academic vocabulary. Students will also showcase understanding of other perspectives through articulate speaking assignments and present information, findings and evidence in a range of conversations with diverse partners. Students will employ technology to enhance their reading, writing, and language use. Students will meet the standards developing the skills in reading, writing, speaking, and listening that are the foundation of the Massachusetts Curriculum Framework for English Language Arts and Literacy. Curriculum in each grade is aligned to these Common Core Standards of the College and Career Readiness Anchor Standards.

Specifically, the student will exhibit

- Increased academic vocabulary
- Clear and coherent writing appropriate to task, purpose and audience
- Mechanically correct writing assignments which incorporate use of technology
- Critical ability to determine central ideas or themes of a text
- Critical ability to evaluate the central argument of a text
- Critical ability to conduct short and more sustained research projects
- Proficient command of the conventions of Standard English grammar and usage
- Critical ability to prepare and participate effectively in a range of conversations and collaborations with diverse partners

Freshman English – 3 Credits

College Prep courses introduce students to various forms and types of literature, while developing the necessary skills to enjoy and appreciate reading. Students will be taught techniques in analyzing and interpreting literature on symbolic, critical and figurative levels by reading works such as Homer's *The Odyssey* and Steinbeck's *Of Mice and Men*. A strong emphasis of the course will be essay writing, with a focus on narrative, argumentative and expository writing. Students learn to develop a thesis based on literature and support it using textual evidence. Students will also learn the basics of MLA through conducting a mini-research assignment and oral presentation. In addition, these courses will include MCAS preparation and Accelerated Reader self-selected readings that will prepare students to take the ELA MCAS test by improving their reading comprehension and emphasizing test-taking strategies. Students will be required to maintain a notebook.

Freshman Honors has a curriculum similar to Freshman CP English, but requires students to analyze literature in more depth and to write with more focus. This course is offered to students who have demonstrated advanced skills on the Renaissance Place STAR Reading placement test.

Sophomore English – 3 Credits

College Prep courses are designed to give students knowledge of great writers who, because of the aesthetic value of their work, are authoritative in world culture. This study provides students with a sense of themselves as citizens of the world through the shared experiences of literature. Students analyze and interpret literature representing many genres, time periods, and cultures. Literature by authors from throughout the world will be considered, including Shakespeare. A strong emphasis of the course will be informational texts and essay writing, with a focus on narrative, argumentative and expository writing.
Students will continue to improve their research skills, in accordance with MLA guidelines, which will result in a research project. Over the course of the year, students will also prepare to take the ELA MCAS test by improving their reading comprehension and emphasizing test-taking strategies. Students will be required to maintain a notebook and to participate in the Accelerated Reader Program, which requires students to read and test on one self-selected novel per quarter.

Honors English has a curriculum similar to Sophomore CP English, but requires students to discuss and analyze literature in more depth. Students will also be required to write with more focus and attention to the requirements of MLA format and standard research requirements. Students will be required to read additional selections from the supplementary book list. Through this course, students will be prepared to transition into the AP Language and Composition course.

Junior English – 3 Credits

College Prep courses are designed to enlighten students with knowledge of great American writers and their lives and work and to explore the historical influences on literature. Students will study non-fiction pieces of literature and they will explore the changes in American life and literature. Students will also analyze fundamental fictional pieces of American literature and poetry. They will continue to develop skills in narrative, argumentative and expository essay writing and literary analysis. In addition, the course will include resume writing and mandatory research assignments following MLA guidelines. SAT preparation and independent reading, through the Accelerated Reader Program, are part of the class. A notebook is required.

Honors English has a curriculum similar to Junior CP English but requires students to discuss and analyze literature in more depth and with a more rigorous pace. They will be required to work and think independently and to participate in student driven class discussion. Students will also be expected to write with more focus and attention to the requirements of MLA format and standard research requirements. Students may be required to read additional selections from the supplementary book list. Through this course, they will be prepared to transition into the AP Literature and Composition course.

Advanced Placement English Language and Composition is designed to provide students with advanced college level instruction in writing that will deepen their textual appreciation and expand their higher order thinking skills.

Students will study writing as a craft through various texts and media and will be expected to analyze those texts as constructions. By studying the structure and style of writing, they will learn to read more critically and to write more effectively. Moreover, students will also write for a variety of purposes, departing from the five paragraph essay and instead crafting more sophisticated pieces mindful of audience, tone, and purpose. Students will learn to see language and media as a set of artistic choices, a construction which can be manipulated to serve a purpose. Students will focus on editing both global and mechanical issues, developing more complex sentence patterns, broadening their vocabulary, and finding their voice.

This course prepares students for the AP English Language and Composition test as well as for college-level readiness in writing and textual analysis. It is <u>strongly</u> recommended that Advanced Placement students have:

- A willingness to accept a rigorous reading and writing curriculum
- The ability to incorporate strong evidence in fiction and non-fiction written responses using basic MLA parenthetical referencing
- Strong writing skills--the ability to write a basic, clear literary essay without major teacher feedback or the use of a computer for spell check
- A good working vocabulary
- A good understanding of basic grammar terms
- Higher order thinking and analytical skills
- Independent learning strategies
- Strong time management and organizational skills
- The maturity to handle controversial/opposing themes

Senior English – 3 Credits

College Prep courses are designed to give students knowledge of great European writers with a focus on British Literature. Students will study great European writers and their lives and work, the complexities and evolution of the English language and the historical and cultural influences on literature. Students will analyze and interpret a variety of literature representing many genres and time periods across Europe. Students will demonstrate an understanding of these works through various styles of writing, including expository, argumentative, and narrative essays. Students will follow MLA guidelines in conducting both mini and sustained research assignments. They are also responsible for reading and testing on one self-selected novel in the first, second, and third quarters for the Accelerated Reader program. A notebook is required.

Honors English has a curriculum similar to Senior CP English but requires students to discuss and analyze literature in more depth and with a more rigorous pace. Students will work more independently and participate in student-driven class discussion. Students will also be expected to write with more focus and attention to the requirements of MLA format and standard research requirements. Students will be required to read additional selections from the supplementary book list.

Advanced Placement English Literature and Composition focuses on independent and challenging reading aligned with consistent writing assignments. It includes the close reading of selected works of fiction, drama, and poetry from the 16th to the 21st century; the development of critical thinking skills; formal and informal writing; and AP practice exercises, with the goal of success on the AP Examination in May. Because a high score on this examination may earn college credit, the course may be considered equivalent to college freshman English and is considered to be rigorous.

Writing is an extremely important component of this English class as it supports the ongoing reading. Students will keep a writing folder of their informal free writing as well as structured essays and creative writing assignments. Among the written work to expect are: analytical essays, including college application essay, reader response journals, double-entry notebooks, reviews, timed in-class practice AP essays. The majority of grades are based on written work. It is strongly recommended that Advanced Placement students have:

- A willingness to accept a rigorous reading and writing curriculum
- The ability to incorporate strong evidence in fiction and non-fiction written responses using basic MLA parenthetical referencing
- Strong writing skills--the ability to write a basic, clear literary essay without major teacher feedback or the use of a computer for spell check
- A good working vocabulary
- A good understanding of basic grammar terms
- Higher order thinking and analytical skills
- Independent learning strategies
- Strong time management and organizational skills
- The maturity to handle controversial/opposing themes

MATH DEPARTMENT

Greg Haley - *Extension 301*

STATEMENT OF PURPOSE

The mathematics courses at Greater New Bedford Regional Vocational Technical High School have been designed to allow all students to develop their math skills to their full potential. These courses will enable them to be successful whether they enter a trade or continue on to a two or four year college. The department uses a variety of instructional methods to meet the needs of all learners and to develop an understanding and appreciation of mathematics. The Mathematics curriculum is aligned with the Massachusetts Curriculum Framework for Mathematics incorporating the Common Core State Standards for Mathematics.

Algebra I CP – 3 Credits

Algebra is a traditional course designed to prepare students who demonstrate strong math skills on the skills assessment test for technical employment and post-secondary education. This course develops the student's ability to think in a logical and systematic way in addition to assisting the student in technical training. Topics include fundamental algebraic principles, concepts and operations, solving equations, word problems and factoring.

Honors Algebra I – 3 credits

This course is offered to students who demonstrate advanced mathematical skills on the mathematics skills assessment test. It is designed to cover algebraic topics more in depth and at a more rapid pace.

Geometry CP – 3 Credits

This course is designed to develop a deductive and analytic approach to geometric concepts. Geometry will help prepare students for both college and the work force by providing them with many different applications in various areas. Students must pass Algebra I to take this course. A deep foundation of geometric principles is presented, which allows students to pursue more advanced courses in mathematics.

Honors Geometry – 3 Credits

Honors Geometry is recommended for those students who successfully completed Honors Algebra I during their freshman year or have the permission of the department head. This course will cover topics of Geometry at a faster pace and in much greater depth.

Algebra II CP – 3 Credits

All students are required to take Algebra II. The successful completion of Algebra I is a prerequisite for Algebra II. This course is a requirement for all students whether they are planning to enter the work force or continue on to a two or four year college.

Honors Algebra II – 3 Credits

Honors Algebra II is recommended for students who have successfully completed Honors Geometry and Honors Algebra I (or have the permission of the department head) and who plan to attend a four year college. This course will follow the Massachusetts Curriculum Framework for Mathematics with the addition of some trigonometry concepts.

- ***One of the graduation requirements at Greater New Bedford Regional Vocational Technical High School is that all students take four years of math. The following courses are senior electives. An additional Math course can be taken as a general elective.***

High School Finance – 3 Credits

High School Finance is designed for students who are planning to work in their technical areas and possibly start their own business. This course concentrates on practical math topics such as check book balancing, loan applications and percentage rates, and insurance and mortgage information. This course is not a college prep course.

Trigonometry CP – 3 Credits

This college prep course is offered to those students who have passed all college prep math courses and successfully passed Algebra II CP with a grade of 84 or better. It is recommended for those who are interested in attending college and plan to enter fields such as: architecture, electronics, electrical, engineering, data processing, medical, and drafting. Topics include: trigonometric functions, solving right angles, radian measure, trigonometric identities, and graphing trigonometric functions.

Statistics CP – 3 Credits

The course will introduce the students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. This course is recommended for students who plan to attend a 2 or 4 year college - particularly those interested in the areas of psychology, sociology, health science and business related majors such as Accounting, Finance, Marketing, etc.

AP Statistics – 3 Credits

This course is recommended for students planning to attend a four year college. Advance Placement Statistics will introduce students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. This is an Advanced Placement course which follows a set syllabus approved by The College Board. An AP test is taken at the end of the year to determine whether the student will receive college credit for this course. Students enrolled in AP Statistics should expect to complete lessons and assignments during both academic and shop cycles. **Permission of the department head is mandatory.**

Pre-Calculus CP – 3 Credits

This course is offered to students who have completed three years of College Prep - Independent Math courses and have demonstrated superior mathematical skills. This course is recommended for students who are interested in pursuing a STEM (Science, Technology, Engineering and Mathematics) based major in college. **Permission of the department head is mandatory.**

Calculus I CP – 3 Credits

This college prep course is offered to students who have successfully completed Pre-Calculus or three years of Honors math courses. A strong mathematical background is required. Topics for discussion include functions, the derivative, techniques of differentiation; curve sketching, exponential and logarithmic functions, the integral and techniques of integration. This course is recommended for students who are interested in pursuing a STEM (Science, Technology, Engineering, Mathematics) based major in college. **Permission of the department head is mandatory.**

SCIENCE DEPARTMENT

Erin Wallace - *Extension 102*

STATEMENT OF PURPOSE

The science curriculum at Greater New Bedford Regional Vocational Technical High School provides students with an understanding and appreciation of physical, chemical and biological sciences. The study of science has an integral relationship with mathematics and incorporates other curriculum areas through writing and understanding the historical aspects of science. Investigation and problem solving are central to the understanding of all areas in the science curriculum and will be incorporated through laboratory experiences.

Science students will be involved in course specific laboratory investigations designed to instill critical thinking and problem solving skills. Students will learn to employ lab safety principles as they conduct investigations that further their understanding of the curriculum. As our students progress through four years of science courses they will develop greater independence in designing and carrying out laboratory investigations while working alone or in groups.

Our goal is for students to not only understand the science disciplines but to use these disciplines when participating in intellectual, democratic, and vocational activities during their four years of high school and beyond into post-secondary education and the work place.

Freshman Science

Honors Biology I (Lab) – 3 Credits

Students in the science honors program will be challenged with a college preparatory biology course that covers several biological topics including biochemistry, microbiology, biological processes such as cellular transport, respiration, photosynthesis, body systems and ecology. Students will master laboratory techniques and safety through investigations that involve critical thinking, problem solving and written lab reports. Following this course, students will be enrolled in Honors Biology II (Lab) in the tenth grade and will be eligible to take the biology MCAS in June of the tenth grade. **Note:** ***A student earning a term average of 70 or below will be required to meet with the Science Department Head in order to discuss his/her commitment to the Honors program with a possible result of removal from the science honors program. Students who have difficulty in this class are encouraged to work after school with the teacher or request further support from the science department head.***

College Prep Biology I (Lab) – 3 Credits

Ninth grade students in this college preparatory course will be introduced to several biological topics including biochemistry, microbiology, biological processes such as cellular transport, respiration, photosynthesis, DNA structure, body systems and ecology. In addition, students will develop scientific inquiry skills through participation in hands-on laboratory activities and projects. Students will be expected to form hypotheses, conduct experiments, record and analyze data in order to prepare written laboratory reports. To ensure comprehension of complex topics students will be regularly assigned homework that reinforces their learning or prepares them for the next topic. Through laboratory investigations students will be encouraged to develop critical thinking and reasoning skills while they gain both knowledge of biological concepts and an appreciation for the diversity of life. Following this course, students will be enrolled in Biology II (Lab) in the tenth grade and will be eligible to take the biology MCAS in June of the tenth grade.

Sophomore Science

Honors Biology II (Lab) – 3 Credits

This course is a continuation of Honors Biology I that will complete the high school biology curriculum. Students will be challenged to develop scientific inquiry skills through participation in hands-on laboratory activities and projects. Students will be expected to form hypotheses, conduct experiments, record and analyze data in order to prepare written laboratory reports. Tenth grade students will be introduced to the topics of ecology, protein synthesis, mitosis, meiosis, genetics and evolution. The course will feature projects specific to these topics that provide students with opportunities to participate in experimental design, data collection, analysis, and reporting conclusions. Students will participate in the biology MCAS test at the end of this course.

Note: ***A student earning a term average of 70 or below will be required to meet with the Science Department Head in order to discuss his/her commitment to the Honors program with a possible result of removal from the science honors program. Students who have difficulty in this class are encouraged to work after school with the teacher or request further support from the science department head.***

College Prep Biology II (Lab) – 3 Credits
This course is a continuation of Biology I that will complete the high school biology curriculum. Students will develop scientific inquiry skills through participation in hands-on laboratory activities and projects. Students will be expected to form hypotheses, conduct experiments, record and analyze data in order to prepare written laboratory reports. Tenth grade students will be introduced to the topics of ecology, protein synthesis, mitosis, meiosis, genetics and evolution. The course will feature projects specific to these topics that provide students with opportunities to participate in experimental design, data collection, analysis, and reporting conclusions. Students will participate in the biology MCAS test at the end of this course.

Junior Science

Honors Chemistry (Lab) – 3 Credits

This course in the science honors program designed to challenge motivated and independent science students who wish to prepare themselves for college. This rigorously paced college preparatory course requires thoughtful analysis, synthesis of a great number of concepts including atomic structure, chemical equations, the periodic table, chemical bonding, stoichiometry, gases, solutions, kinetics, thermodynamics and nuclear chemistry with an understanding of algebra. Students are expected to complete longer and more complex assignments nightly as well as outside of class. Strong organizational skills including time-management are required for success in this course. This is a required course for students who complete Honors Biology I and II. The prerequisite for this course is an 80 or higher in Honors Biology (Lab) and a 70 or higher in Geometry. Students who successfully complete this course with a grade above 70 will be eligible to select Honors Physics for twelfth grade. Students who have difficulty in this class are encouraged to work after school with the teacher or request further support from the science department head.

Note: ***A student earning a term average of 70 or below will be required to meet with the Science Department Head in order to discuss his/her commitment to the Honors program with a possible result of removal from the science honors program. Students who have difficulty in this class are encouraged to work after school with the teacher or request further support from the science department head.***

College Prep Chemistry (Lab) – 3 Credits

This challenging college preparatory course is designed to aid students in further developing the skills they will need to be successful in college. An understanding of Algebra is necessary to be successful in this course. Students will be expected to perform experiments, master proper lab techniques, write detailed lab reports, solve problems, complete homework on a nightly basis and make presentations. Areas of study include atomic structure, chemical equations, the periodic table, chemical bonds, stoichiometry and gases. The prerequisite for this course is an 80 or higher in Biology (Lab) and a 70 or higher in Geometry. Students who have difficulty in this class are encouraged to work after school with the teacher or request further support from the science department head.

College Prep Physical Science (Lab) – 3 Credits

This college preparatory course is designed to aid students in further developing the skills they will need to be successful in college. An understanding of Algebra is necessary to be successful in this course. This course is designed for students who plan to attend college or technical school after graduation. Students will be introduced to the study of motion, electricity, magnetism, the periodic table, states of matter and chemical reactions. Students will learn to apply algebraic concepts to scientific principles to better understand the physical world.

Senior Science

Honors Physics (Lab) – 3 Credits

This is the next college preparatory course in the science honors program designed to challenge outstanding science students who wish to prepare themselves for college. A strong background in Algebra is required. The course will be a math intensive introduction to the study of motion, electricity, magnetism, fluid dynamics, sound, light and quantum physics. The skills required for an understanding of these principles and concepts are developed through laboratory investigations, problem solving, and other student-centered activities. Students are expected to complete longer and more complex assignments nightly as well as outside of class. Strong organizational skills including time-management are required. The prerequisite for this course is a 70 or higher in Honors Chemistry or department head approval. Students who have difficulty in this class are encouraged to work after school with the teacher or request further support from the science department head.

College Prep Physics (Lab) – 3 Credits

This challenging college preparatory course is designed to prepare students to be successful in college. A strong background in Algebra is required. The course will be a math intensive introduction to the study of motion, electricity, magnetism, fluid dynamics, sound and light. The skills required for an understanding of these principles and concepts are developed through laboratory investigations, written lab reports, problem solving, frequent homework and other student-centered activities. The prerequisites for this course are grades of 70 or better in Chemistry and Algebra II. Students who have difficulty in this class are encouraged to work after school with the teacher or request further support from the science department head.

College Prep Environmental Science (Lab) – 3 Credits

This college preparatory course will further develop students' understanding of environmental issues pertaining to ecological interactions and ecosystem structure. Through a series of outdoor investigations and laboratory exercises, students will become familiar with issues facing the flora and fauna of New England. A variety of environmental topics will be examined including energy systems, air, water, and land pollution, natural resource management, pest control, and land use. Also considered are the economic, political, and sociological factors influencing resource management and environmental policy.

Exercise Physiology – 3 Credits

This college preparatory course is designed to introduce students to the structure and performance of the human body in the context of sports and exercise. Upon completion students will possess a general background knowledge concerning the function and interconnectedness of major organ systems of the human body in relation to physical fitness. Goals of this course include an awareness of how exercise, nutrition and sport specific training can positively affect health, fitness and athletic performance.

Horticulture – 3 Credits

This course is designed to introduce students to the care and management of plants. Students will explore topics that include plant identification, plant parts and functions, garden design and maintenance, greenhouse management, plant propagation and garden care. Students will participate in hands-on projects that include the greenhouse, school grounds, nature trails and school gardens.

College Prep Biotechnology (Lab) – 3 Credits

Biotechnology is a laboratory based course in which students will acquire a basic understanding of the study of biotechnology. The major topics will include the study of DNA as a diagnostic tool, forensic science, genetic engineering, cloning, and ethical conduct in biotechnology. The course will also emphasize the basic laboratory skills needed in modern biotechnology laboratories.

HISTORY & SOCIAL SCIENCES DEPARTMENT

Brian Patnaude - *Extension 108*

STATEMENT OF PURPOSE

The purpose of the history and social science curriculum is to provide students the knowledge, skills, and judgment to make responsible and just decisions as citizens of this nation and to understand world issues. Students study history, geography, economics, civics, and government to help understand and place in perspective the people, ideas, and events that have shaped our state, nation, and the world. Mastery of the methods of history and social sciences ensures students' ability to apply this knowledge in their college, career, and civic lives.

A balanced curriculum ensures that students understand the underlying values, principles, and operation of the United States constitutional democracy so that they may become better informed and responsible citizens. The social studies curriculum provides exposure to the traditions and values of other cultures so that students may appreciate cultures and become active global citizens. The curriculum also instructs students in the skills of debate, discussion, writing, research, and data interpretation so that they can form reasonable opinions on issues affecting their lives.

U.S. History I (CP) – 3 Credits

Beginning with the American Revolution and continuing through the Reconstruction Period in post-Civil War America, students will analyze the social, political, economic, and military implications of the decisions made by our government and its leaders. Analyzing the effects of previous decisions and their subsequent consequences enable students to better understand the nation's prior successes and failures, better equipping them with the ability to analyze current issues impacting our nation.

U.S. History I (Honors) -3 Credits

This course, which mirrors the content provided in College Prep United States History I, e*mphasizes writing, analysis of primary and secondary sources, and articulate discussions of challenging materials, both within the traditional classroom setting and independently at home.* This course is offered to students who have demonstrated advanced skills in reading and writing on the placement test.

U.S. History II (CP) – 3 Credits

This course begins with the Post Reconstruction Era and continues through Post Vietnam-America. Students will analyze the social, political, economic, and military implications of the decisions made by our government and its leaders. Analysis of the effects of previous decisions and their subsequent consequences will enable students to understand the nation's prior successes and failures, further equipping them with the ability to analyze current issues impacting our nation.

U.S. History II (Honors) – 3 Credits

This course, which mirrors the content provided in College Prep United States History II, e*mphasizes writing, analysis of primary and secondary sources, and articulate discussions of challenging materials, both within the traditional classroom setting and independently at home.* This course is offered to students who have successfully completed Honors U.S. History I or have been recommended for placement by their teachers.

American Government – 1 Credit

This course is a study of the origins, development, structure, and functions of American national government. Topics include the constitutional framework; federalism; the three branches of government, including the bureaucracy; civil rights and liberties; political participation and behavior; and policy information. Upon completion, students should be able to demonstrate an understanding of the basic concepts and participatory processes of the American political system. In addition the course will examine the role and responsibilities of local, state and federal government in the context of addressing issues related to contemporary American society. This is single trimester course.

World History I (CP) – 3 Credits

Students study the development of world civilizations after the fall of the Roman Empire. Students study the history of the major empires and political entities of this period: the Ottoman Empire, the Moghul Empire, the Chinese dynasties, the Byzantine Empire, and the major pre-Colombian civilizations that existed in Central and South America. Students examine the important political, economic, and religious developments of this period, including the development of democratic, scientific, and secular thought in the major events and developments of Europeans history. To the extent practical, students study the origins and development of major civilizations in Africa, India, and East Asia.

World History I (Honors) – 3 Credits

This course, which mirrors the content provided in College Prep World History I, e*mphasizes writing, analysis of primary and secondary sources, and articulate discussions of challenging materials, within a blended classroom setting*. This course is offered to students who have demonstrated advanced skills in reading and writing and have an interest in enrolling in the Advanced Placement course their senior year.

SENIOR HISTORY ELECTIVES

World History II (CP) – 3 Credits

Students study the rise of the nation state in Europe, the French Revolution, and the economic and political roots of the modern world. They will study the origins and the consequences of the Industrial Revolution, 19th century political reforms in Europe, and imperialism in Africa, Asia, and South America. They will examine the causes and consequences of the great military and economic events of the past century, including World War I, the Great Depression, World War II, the Cold War, and the Russian and Chinese revolutions. Students will also study the rise of nationalism and the continuing political, ethnic, and religious conflicts in many parts of the world.

World History II (Honors) – 3 Credits

This course, which mirrors the content provided in College Prep World History II, e*mphasizes writing, analysis of primary and secondary sources, and articulate discussions of challenging materials, within a blended classroom setting.* ***Students will demonstrate and master their skills through a capstone and/or extensive research-based class projects.*** This course is offered to students who have demonstrated advanced skills in reading and writing. This course is offered to students who have successfully completed Honors World History I or have been recommended for placement by their teachers.

European History (AP) – 3 Credits

Students will study from approximately 1450 to the present. They will study the rise of the nation state in Europe, the French Revolution, and the economic and political roots of the modern world. Students will analyze the origins and the consequences of the Industrial Revolution, 19th century political reforms in Europe, and imperialism in Africa, Asia, and South America. They will examine the causes and consequences of the great military and economic events of the past century, including World War I, the Great Depression, World War II, the Cold War, and the Russian and Chinese revolutions.
Students will also study the rise of nationalism and the continuing political, ethnic, and religious conflicts in many parts of the world. These topics require students to reason historically about continuity and change over time and make comparisons among various historical developments in different times and places. This is a vigorous blended course, which requires participation in the Moodle platform, online discussions and the completion of various shop assignments**.** ***All students are required to sit for the AP exam.*** This course is recommended to students who have successfully completed Honors World History I or have been recommended for placement by their teachers.

General Psychology – 3 Credits

General Psychology introduces students to the seminal theories of modern psychology and traces the evolution of psychology to its acceptance as an empirical science. In addition, it provides a comprehensive overview of human development and the effects of environment and heredity on individuals. The anatomy and function of the brain, human behavior, personality, perception and various modes of learning are topics which are emphasized in this course. Students considering professions in education, nursing and law enforcement may find this course particularly useful. This course includes an end of the year capstone project.

Sociology – 3 Credits

This course is the study of societies and how people interact with in another in those societies. Sociology can be used as a tool to study just about everything in our social world. In this course, students will use readings, film, music and other sources to discuss and critically analyze such topics as culture, race, gender, adolescence, poverty, social institutions and globalization. The ultimate goal of the course is to help students acquire a broad and deep understanding of social forces that influence the world in which we live. Students considering a profession in criminal justice, social work education and healthcare may find this course particularly useful.

Local History – 3 Credits

Learn Backwards! This course will be taught from the present (today) to the past, ending in the 1600s. Local History is a great way for students to learn fun facts and the unknown history of the places they pass and live by every day. Students study the history of Old Dartmouth, which became New Bedford, Dartmouth, Fairhaven, Acushnet, and Westport. It will include the study of the areas of economic and ethic future, the effects of hurricanes, blizzards, and national movements on the area. Students will learn about the importance of the whaling industry and major figures in the anti-slavery movement. This course includes a field trip that highlights the interesting local history students will be uncovering. This is single trimester course.

Small Business – 1 Credit

This course covers topics that include sole proprietorships, partnerships, corporations, workman's compensation, social security, taxes, permits, licenses, insurance, and retirement systems. The course includes tables, calculations, and the necessary mathematical skills to maintain record keeping aspects of a small business. Emphasis is placed on mastery of percentages, reading, using tables, and basic formulas. Also included will be management decisions and the topic of managing the growth of your business over time. Students considering owning a small business or a career in business or finance may find this course particularly useful. This is single trimester course.

PHYSICAL EDUCATION / HEALTH DEPARTMENT

Ryan Methia -*Extension 293*

STATEMENT OF PURPOSE

The Physical Education / Health Department at Greater New Bedford Regional Vocational Technical High School promotes a sense of self-awareness and well-being in all of our students. Our Health Education Program will provide our students with the information needed to make informed decisions regarding their health as well as any necessary associated preventative measures.

Our Physical Education Program will provide our students with the opportunity to develop lifelong skills in various physical activities while promoting the value of fair play and sportsmanship. The goal of this integrated department is to develop a sound mind in a sound body which will help each of our students meet the everyday challenges of the emotional, social and physical aspects of everyday life.

Freshmen (1 Credit) & Sophomore (1 Credit) Physical Education

Freshmen and sophomore physical education will teach basic understanding and fundamental skill development in a variety of activities and games while emphasizing the importance of life-long fitness as a personal goal. Games and activities will include weight training & conditioning, volleyball, basketball, badminton, pickleball, Frisbee games, cooperative games, softball/whiffleball, hockey, soccer and football. During these units students will improve their coordination, agility, strength, flexibility, and endurance. Freshmen and sophomore students will complete the National Athletic Testing Program at the beginning and end of the school year. To facilitate the department's student learning goal freshmen and sophomore physical education classes will include a daily warm-up, skill-based instruction, gameplay and assessments. In addition this program will attempt to instill confidence and self-esteem in our students as they learn about the importance of physical fitness to their overall wellness and promote a healthy lifestyle.

Junior Physical Education (1 Credit)

Junior physical education will be delivered to our students in a recreational style. Activities will include weight training & conditioning, volleyball, basketball, badminton, pickleball, Frisbee games, cooperative games, softball/whiffleball, hockey, soccer and football.

Senior Physical Education (1 Credit)

Senior physical education classes will be gameplay focused and will push students to develop their strategic understanding of the games and activities we offer. While senior students will not complete the National Athletic Testing Program the physical education department will still instill the importance of confidence and self-esteem in relation to physical activity to promote our a healthy lifestyle.

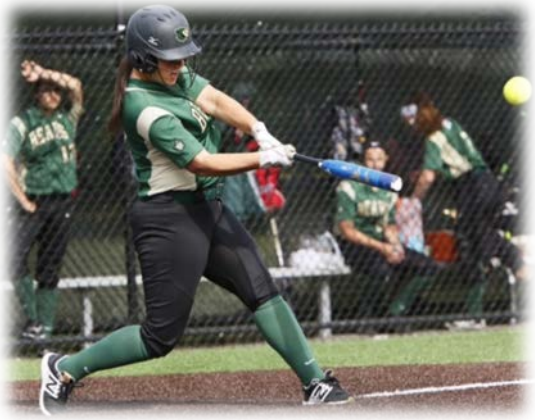
Freshmen Health (1 Credit)

The goal of our freshmen health program is to deliver essential information to our students that will help them deal with issues in a positive way and make healthy decision that will have a direct impact on their lives. The Freshman Health classes combine with our Physical Education classes to make up our Wellness Program. Freshmen Health classes will cover the following topics in 6 lesson units: Opioids/Drug Education & Prevention, Human Sexuality (RAPP program, contraception/STDs, Transgender education) and Personal Health (Bullying, Sexual Harassment and Self-Esteem). The following topics will be covered in 3 lesson units: Mental & emotional health, Violence prevention and education, Pregnancy, and Nutrition.

Physical Education & Health Graduation Requirement

All physical education and health classes are 1 credit courses. All students will need to receive a passing grade in 3 out of the 4 physical education/health classes they are enrolled in. One of those credits has to be health.

ATHLETICS ELIGIBILITY REQUIREMENTS



All students at GNB Voc-Tech are expected to pass all of their courses. Academic eligibility is then determined at the end of each of the three marking periods based on the following criteria:

In order to be eligible to participate in athletic competition, a student must not be failing more than 6 credits in a term. For questions regarding eligibility, contact the athletic director.

If a student athlete fails to meet these criteria in any quarter, the student/athlete will not be eligible until he/she receives their next report card. Students who are on probation are ineligible until their next report card.

GNBVT uses the official date that report cards are printed. All grade changes after that point will be held until report cards are distributed to all students.

For the Fall Season academic eligibility is determined by the 4th quarter report card. Students that fail more than 8 academic credits in the 4th quarter are expected to make up credits during summer school to meet the requirement and become eligible for the Fall Season.
**Students cannot make up Career/Technical credits during summer school. Any student failing their Career/Technical area in the 4th quarter will not be eligible for Fall Season. **
Fall Eligibility will be changed for the 18-19 school year to align with our 3 trimester schedule.

When a student-athlete is determined to be academically ineligible by the Athletic Director, the student's guidance counselor and coach will be notified about the situation and asked to touch base with the student-athlete and/or family directly. Academically ineligible student-athletes may not participate in any team practice or contests and must forfeit all end of the season awards.

ATTENDANCE

Students whose report card is incomplete due to attendance issues will not be eligible to participate in athletics until the next quarterly report card issued. In cut sports, an athlete may lose the entire season.

Students who are absent from school may not participate in any school activity that afternoon or evening. Any student who is absent from school is ineligible to play in a game that day or to participate in after-school or evening activities (practices) on that same day. Students must attend school for a minimum of three periods in a day in order to be eligible to participate in after-school or evening activities on that same day. There may be extenuating circumstances that are exceptions to the above rule; however, only the Principal and/or his designee may decide when this rule may not apply. The principal and Athletic Director have the authority to investigate possible situation in which this rule is being abused.

CITIZENSHIP EXPECTATION SUSPENSIONS

GNBVT is committed to offering an athletic program to our student-athletes that not only improves their physical and emotional states but also builds character traits that will help them later in life. To this point GNBVT takes any suspension of a student-athlete very serious. Our student-athletes represent our school in a very public and open forum. To ensure our student-athletes will represent our school well on and off the playing field the district is committed to ensuring the behavior of our student-athletes in their academic and career technical areas will reflect the expectations and culture we work to set on a daily basis. Any student-athlete that is in-school suspended or out-of-school suspended will face the following penalties.

1st Suspension under 2 periods = Written Warning (to be signed and returned by parent/guardian)
2nd Suspension under 2 periods = 1 game suspension
3rd Suspension (and on) under 2 periods = 2 game suspension

1st Suspension 3 -6 periods = 1 game suspension
2nd Suspension (and on) 3 -6 periods = 2 game suspension

1st Full Day Suspension = 2 game suspension

*** All individual suspensions over 2 days will be reviewed by the Athletic Director for final determination***
*** GNBVT will follow MIAA Rule 62 as a minimum in situations dealing with Chemical Health Situations ***

INJURY & STATUS WITH TEAM

In certain situations at the desecration of the Head Coach and Athletic Director a student-athlete who was injured before or during try-outs may be granted a spot on the team and allowed to participate once cleared if they meet this criteria:

1. Was a member of the team the previous season
2. Remains in good standing with team
3. Has completed all rehab assignments with athletic trainer
4. Has been to all practices and games.
5. Completes try-out

LEARNING STRATEGIES & LITERACY COURSES

STATEMENT OF PURPOSE

Greater New Bedford Regional Vocational Technical High School seeks to provide students with the opportunity to engage in a broad variety of enriching educational opportunities. The elective courses described in the Program of Studies offer students the opportunity to develop and pursue their interests through the individual choice of a variety of learning experiences that augment the core academic and technical curricula.

In addition, some enriching courses may be required for students who, through testing, have demonstrated specific areas that need improvement. These required electives are specifically geared to enrich student learning in targeted areas.

LITERACY COURSES (9th and 10th Grade)

These courses support and strengthen achievement in core curriculum subjects through disciplinary literacy strategies, media literacy, and digital literacy. In a vocabulary-rich classroom, students will increase comprehension of informational and complex texts, learn to determine the authority of online resources, increase efficacy in using databases and create digital presentations to showcase their learning.

LEARNING STRATEGIES

Math Strategies I – 1 Credit

Math Strategies I is a course designed for freshmen who have a demonstrated weakness in certain mathematical skills. This course will review all basic operations, fractions, decimals, and percentages. Simple equations, order of operations, patterns, graphs and ratio and proportions are also topics that will be covered. The main objective of the course is to provide students with additional mathematical skill-building time to afford them the best possible chance to earn a proficiency rating on the Sophomore MCAS Math test.

Math Strategies II – 1 Credit

Math Strategies II is a continuation of Math Strategies I for designated sophomores. In addition to the skill building component found in the Math Strategies I course, students will focus on review of Algebra and MCAS Math Test preparation. Students will incorporate test-taking strategies, and focus on improving their performance on open-response questions. This course will have a strong focus on skill building, vocabulary, test-taking strategies and MCAS Math preparation.

ELA Strategies I – 1 Credit
This course is designed to contribute to preparing students for the tenth grade English Language Arts (ELA) MCAS test. The course will focus on multiple choice and open response test taking strategies and will emphasize improving critical reading skills, increasing vocabulary use and using textual evidence in writing. Students will learn these skills via the use of such strategies as understanding prefixes/suffixes, annotating texts and evaluating peer writing. Students will be required to maintain a binder of work that will count as their final portfolio grade for the course.

ELA Strategies II – 1 Credit
This course designed to contribute to preparing students for the tenth grade English Language Arts (ELA) MCAS test and the grade 11 English class. The first and second trimesters of the course will focus on ELA MCAS long composition test taking strategies and will emphasize evaluating composition prompts, organizing an essay and developing a thesis statement and topic. The third trimester will focus on SAT preparation, MLA formatting and research strategies. Students will learn these skills via the use of such strategies as creating a composition outline, sequencing ideas and evaluating peer writing. Students will be required to maintain a binder of work that will count as their final portfolio grade for the course.

Biology Strategies I – 1 Credit
The Biology I strategies course prepares students for the Biology MCAS test. The course will begin with an understanding of the scientific method and test taking skills. Students will encounter standards in the areas of The Chemistry of Life, Anatomy and Physiology, Cell Biology, and Ecology. Students will apply test-taking strategies to sample multiple choice and open response items.

Biology Strategies II – 1 Credit
The Biology II strategies course is a continuation of the Biology I strategies course that prepares students for the Biology MCAS test. Students will encounter standards in the areas of Cell Biology, Genetics, Evolution and Biodiversity, and Ecology. Students will apply test-taking strategies to sample multiple choice and open response items. The Biology MCAS will be taken at the end of this course.

VIRTUAL HIGH SCHOOL ONLINE OFFERINGS

The mission of Virtual High School is to develop and deliver standards-based, student-centered online courses to expand students' educational opportunities and 21st century skills and to offer professional development to teachers to expand the scope and depth of their instructional skills.

Greater New Bedford Regional Vocational Technical High School supplements our physical course offerings with rigorous VHS Online Courses. Virtual High School's Course Catalogue contains over 200 offerings. Aside from core subjects like Math, English, Science and History, VHS gives students a chance to study topics like Environmental Science, Drama, Video Game Design and Veterinary Medicine. These courses will enable students to freely share their thoughts with students and educators all over the world and increase their knowledge of collaborative online learning (e-learning) that will be a critical component of their college life and future careers. Classes are taught by an Online teacher are no larger than 25 students each. Students are able to access their courses 24/7 through any connection to the internet.

The GNBVT VHS Site Coordinator acts as a liaison to support students and online teachers for maximum success. All materials for the course are supplied by the online teacher and it is free to GNBVT students. Students have the ability to take these classes as their regularly scheduled class, or for the ambitious, as a 7th class. All classes are reflected on the official transcript and classes are weighted according to academic level. See your guidance counselor to find out how to sign-up.

Contact: Helder Angelo – Ext. 678

Vocational Technical Programs

Career Vocational Technical Academies

Cluster	Academy & Shop Openings	Coordinator
A	***Agriculture & Construction Academy*** ✓ Environmental Science & Technology ✓ Carpentry ✓ Electrical Technology ✓ HVAC ✓ Painting & Design ✓ Plumbing	**Ted Haggerty Ext. 285**
B	***Legal, Life Sciences & Service Academy*** ✓ Early Childhood Education ✓ Culinary Arts ✓ Dental Assisting ✓ Health Assisting ✓ Medical Assisting ✓ Legal & Protective Services	**Joanne Romanelli Ext. 267**
C	***Consumer Services, Information & Transportation Academy*** ✓ Cosmetology ✓ Business technology ✓ Fashion Design ✓ Information Technology • Information Support Services & Networking • Programming & Web Development ✓ Automotive Technology ✓ Collision Repair Technology ✓ Diesel Services Technology	**Guy Shepard Ext. 113**
D	***Arts & Manufacturing Academy*** ✓ Drafting Technology • Architectural Drafting • Mechanical Drafting ✓ Engineering Technology ✓ Machine Technology ✓ Metal Fabrication & Joining ✓ Media Technology ✓ Stationary Engineering ✓ Visual Design	**Steve Walker Ext. 632**

Agricultural & Construction Academy

ENVIRONMENTAL ENGINEERING

FRESHMAN EXPLORATORY PROGRAM

During this 3-day introduction the 9th grade students are provided with an overview of the Environmental Science program. Each student is introduced to general shop safety, and testing instruments used in the field. Students are introduced to the dynamic spheres of the earth and investigate how humans impact the earth and what steps need to be taken to protect it. Students investigate the importance of the use of models in scientific engineering. Students build a scale model boat while learning how to read multi-view blue print, electrical schematic and pectoral diagrams. Students investigate wild life biology and biotic relationships while conducting an owl pellet dissection.

FRESHMAN PROGRAM

In the second part of the freshman year the students study and investigate the Earth's dynamic systems, including the Geosphere, Atmosphere, Hydrosphere and Biosphere. Students are introduced to proper laboratory protocols, writing and performing standard operating procedures in a state of the art Aquiculture Laboratory. The topics investigated are **Hydrology, Meteorology, GIS/location services, Geology, Atmospheric Sciences, and Topography**. Students are instructed in OSHA Hazardous Waste Operations and Emergency Response in order to obtain useful OSHA certification. Students investigate a wide range of uses for Geographic Information Systems (GIS) software and use handheld GPS units in order to construct maps. Students will learn and/or review the math topics such as basic math operations, measurements, data analysis and statistics.

SOPHOMORE PROGRAM

During the sophomore year the students conduct field studies in a wide range of local ecosystems using widely used tools and scientific procedures. They are introduced to proper laboratory protocols, and writing and performing standard operating procedures in a state of the art Aquiculture Laboratory. The topics investigated during this second year are **Limnology, Marine Biology, Renewable Energy, and Vernal Pools**. Students continue to be instructed in OSHA Hazardous Waste Operations and Emergency Response and investigate a wider range of uses for Geographic Information Systems (GIS) software and use handheld GPS units in order to construct maps.

SOPHOMORE RELATED THEORY COURSES

- **Introduction to the Environment**

The Fundamentals of Environmental Science & Technology offers students a solid foundation for a career in environmental technology and/or preparation for post-secondary education. It provides practical experiences in applying technical principles to solve occupationally related problems. The course instructs students in the topics investigated during this second year. Students are instructed in Limnology, Wild Life Biology, Land Use Planning, Watershed Management, Energy and Air Quality during this second year.

- **Introduction to Geodesy**

The Environmental Science & Technology Related Math course offers students a solid foundation for a career in environmental technology and/or preparation for post-secondary education. It provides practical experiences in applying technical principles to solve occupationally related problems. The course instructs students in orientation, combined operation of whole numbers, addition and subtraction of common fractions, multiplication and division of common fractions, combined operations of common fractions, combined operations of decimal fractions, measurements, interpreting and analyzing data, electricity and land management.

JUNIOR PROGRAM

In the third year, students investigate and apply their knowledge of the Earth's dynamic systems, including the Geosphere, Atmosphere, Hydrosphere and Biosphere. Students conduct field studies in a wide range of local ecosystems using widely used tools and scientific procedures. The topics investigated during this third year are **Soil Science, Forestry, Nursery/Greenhouse Management, Environmental Justice, Water/Wastewater Management, and Conservation/Sustainability**. Students are instructed in municipal water treatment, municipal and industrial wastewater treatment in order to obtain useful Massachusetts operation licenses. Students apply their knowledge of Geographic Information Systems (GIS) software and handheld GPS units in order to construct maps. Students will learn and/or review the following math topics: Algebra, Geometry, measurements, data analysis and statistics related to the field.

JUNIOR RELATED THEORY COURSES

- **Applied Water Technology & Environmental Sampling Techniques**

The Fundamentals of Environmental Science & Technology course offers students a solid foundation for a career in environmental technology and/or preparation for post-secondary education. It provides practical experiences in using principles of environmental technology to solve occupationally related problems. The course will instruct students in Applied Water Technology, Wastewater Treatment, Environmental Microbiology, Field Sampling and Testing, Laboratory Sampling and Testing and Marine Technology. Students are instructed in municipal water treatment and municipal and industrial wastewater treatment in order to obtain Massachusetts operation licenses.

- **Applied Mathematics for Environmental Technology**

This HVAC/R Schematics and Design Course provides students with the information required to resolve and diagnose electrical discrepancies in systems, wire control circuits, troubleshoot electrical problems and distinguish the difference between low voltage and high voltage circuits. It defines the requirements of electrical codes pertaining to HVAC-R Equipment, illustrates ladder and schematic diagrams, outlines basic comprehension of electrical symbols and applies electrical theory to systems operations.

- **Introduction to Geographic Information System**

The Applied Technology course offers students a solid foundation for a career in Environmental Technology and/or preparation for post-secondary education. It provides practical experiences in using principles of environmental technology to solve occupationally related problems. Students will be instructed in the use of current technology tools in order to evaluate problems, research current topics and communicate environmental information. The students use GIS mapping software to construct environmental maps. Students investigate management and employability skills needed to be successful in the field of Environmental Science & Technology.

SENIOR PROGRAM

In the fourth year the students investigate and apply their knowledge of the Earth's dynamic systems, including the Geosphere, Atmosphere, Hydrosphere and Biosphere. Students conduct field studies in a wide range of local ecosystems using widely used tools and scientific procedures. The topics investigated are **Aquaculture, Environmental Engineering, Wildlife Biology, Land Use Planning, Landscape Design/Management, and Senior Capstone/Independent Study.** Students who meet Co-Op requirements are placed throughout the Greater New Bedford area at: Coalition of Buzzards Bay, Massachusetts Water Works, SAGE Environmental, New Bedford Parks & Recreation, Buttonwood Park Zoological Society, and many others.

SENIOR RELATED THEORY COURSES

- **Environmental Site Assessment and Remediation**

The Fundamentals of Environmental Science & Technology offers students a solid foundation for a career in Environmental Technology and/or preparation for post-secondary education. It provides practical experiences in using principles of environmental technology to solve occupationally related problems. The course will instruct students in environmental site assessment, environmental site remediation, oceanography, marine technology, aquiculture, hydroponics and surveying. Students will participate in an OSHA eight-hour HAZWOPER refresher course.

- **Applications of Geographic Information System**

The Applied Technology offers students a solid foundation for a career in Environmental Technology and/or preparation for post-secondary education. It provides practical experiences in using principles of environmental technology to solve occupationally related problems. The course will instruct students in the use of current technology tools in order to evaluate problems, research current topics and communicate environmental information. The students use GIS mapping software to construct environmental maps. Students investigate management and employability skills needed to be successful in the field of Environmental Engineering.

- **Applied Mathematics for Environmental Technology**

The Environmental Science & Technology Related Math offers students a solid foundation for a career in Environmental Technology and/or preparation for post-secondary education. It provides practical experiences in applying technical principles to solve occupationally related problems. The course instructs students in the topics investigated during this fourth year are environmental site assessment, environmental site remediation, oceanography, marine technology, aquiculture, hydroponics and surveying.

CERTIFICATIONS:

- OSHA 10-hour Construction Safety and Health training certification
- OSHA 10-hour Industry Safety and Health training certification
- American Red Cross CPR & First Aid certification
- 40-Hour OSHA Hazardous Waste Operation and Emergency Response (HAZWOPER)
- Massachusetts Municipal Water and Wastewater Operator Certification

CAREER OPPORTUNITIES:

- Landscaper/ Groundskeeper
- Aquaculture Technician
- Environmental Marketing
- Forest and Conservation Worker
- Greenhouse/ Nursery Manager
- Pet Store Manager
- Air-Sampling/Monitoring Apprentice
- Air Quality Apprentice
- Lab Survey Apprentice
- Environmental Microbiological/Testing Apprentice
- Municipal Wastewater Treatment Technician
- Industrial Wastewater Treatment Technician
- Drinking Water Treatment Technician
- Hazardous Materials Response Technician
- Environmental Testing Technician
- Hazard Remediation Technician

POST SECONDARY EDUCATION & OPPORTUNITIES:

- Archaeologist
- Architectural Historian
- Astronomer
- Biological Oceanographer
- Biologist
- Chemical Oceanographer
- Climatologist
- Decontamination Technician
- Ecologist
- Emergency-Disaster-Response Technician
- Entomologist
- Environmental Biologist
- Environmental Data Analyst
- Environmental Engineer
- Environmental Geologist
- Environmental-Health-Safety
- Environmental Monitor
- Environmental Psychologist
- Environmental-Sampling Technician
- Environmental Writer
- Geographer
- Geographic-Information-Systems Specialist
- Geologist
- Groundwater-Sampling Technician
- Habitat Restoration Engineer
- Hydrologist
- Lab Technician
- Marine Biologist
- Meteorologist
- Oceanographer
- Ornithologist
- Paleontologist
- Remote Sensing Specialist
- Seismologist
- Wildlife Biologist
- Zoologist

CARPENTRY

The carpentry field has had a demand for skilled carpenters for centuries; the demand never seems to diminish so there is always a need for highly trained carpenters. The Carpentry program at Greater New Bedford Regional Vocational Technical High School is designed to expose students to all aspects of residential carpentry such as house construction and millwork, as well as commercial construction. This course of study will prepare students to be a qualified apprentice when they graduate. The curriculum is based on the 2014 Vocational Technical Education Frameworks written by the Massachusetts Department of Elementary and Secondary Education.

FRESHMAN EXPLORATORY

The freshman carpentry exploratory course is structured around the Massachusetts CVTE Frameworks. The freshmen get a brief synopsis of the carpentry trade through hands-on experience using carpentry basics. The students will learn to use carpentry tools safely and correctly, demonstrate their ability to measure correctly, solve basic math problems, proper installation of building products, and read and understand carpentry fundamentals. Upon completion of the carpentry exploratory program, students will have an understanding of the carpentry trade.

FRESHMAN PROGRAM

This program provides carpentry students with basic woodworking knowledge and the relevance of shop safety. Students are instructed in the proper use and maintenance of hand tools as well as the proper use and operations of portable and stationary power tools. General shop safety and individual power tool safety tests are administered to all students in the program. Students are introduced in basic blueprint reading and interpreting measured drawings related to assigned projects. A series of woodworking projects will be constructed using a variety of cabinet joinery methods, materials, fasteners and machine operations. Related theory is taught as an integral part of the shop cycle which provides students with a basic understanding of carpentry and woodworking terminology, tool identification and applications, woodworking joinery and machine operations. Reading, writing and math assignments related to carpentry theory are an integral part of this class. Students receive instruction on interpreting measured drawing and creating a material list related to assigned shop projects. Student will be introduced to basic CAD and CNC machining. Course instruction will be conducted in shop and classroom setting.

SOPHOMORE PROGRAM

This course builds on the skills students acquired in Grade 9. Students will continue to receive additional training in both portable and stationary power tool operations; their respective safety rules are reviewed. In addition to the shop safety that is covered the sophomore students are given OSHA 10 Construction training. Upon completion and passing of a written exam, students are given an OSHA 10 Construction card.

Program topics include safety, interpreting measured drawings, planning, layout and construction of assigned projects that align with the Career Connections Project Book 2 and the Massachusetts 2014 VTE Carpentry Frameworks. Students are instructed on proper use of ladders, basic scaffolding, and job-site safety. Construction projects students participate in range from building a sawhorse to framing a small model house, and sheds. Related theory is taught as an integral part of the shop cycle which provides students with a more in-depth understanding of framing methods and terminology, machine operation and joinery, and sketching and drawing projects to full scale. This provides carpentry students with a basic knowledge of house construction components and building methods including layout work and framing floors, walls and roofs.

SOPHOMORE RELATED THEORY COURSES

The related subjects provide carpentry students with related theory connected with house construction components and building methods including blueprint reading, foundations, and floor, wall and roof framing. Students are introduced to the proper methods of drafting a set of scaled drawings usually related to the construction project for that year. Students are given formulas and practical problems in stair building, common roof rafters, concrete estimation, and estimating stock lists for a floor frame. Reading, writing and math assignments related to carpentry theory are an integral part of this class.

JUNIOR PROGRAM

This course provides carpentry students with advanced knowledge of construction practices and building methods. Topics include exterior finishes such as siding, trim work and roofing, as well as an introduction to estimating, in conjunction with state and local building codes. The curriculum is such that, students gain technical knowledge and experience related to house building and light commercial construction. Students work at off-campus projects as well as in the shop environment. It is the goal of the Carpentry Department to work with the Greater New Bedford Vocational High School District's sending communities and local non-profit community service organizations each year to assist with construction projects that provide learning opportunities to our students. Off-campus construction students leave the school to work on construction projects within the community. Along with the other construction trades, the students work on new residential and light commercial building construction. Projects may include, but are not limited to the construction of single family homes, remodeling projects of wood framed structures, light commercial remodeling projects and exterior wooden structures. During the student's in-shop rotation, topics of study include correct use of advanced machinery, planning and construction projects.

- Assessments include grades for observation of skill attainment, along with daily employability and performance skills from live work situations.

JUNIOR RELATED THEORY COURSES

The related subjects continue to provide carpentry students with related theory connected with house construction components and building methods including blueprint reading, and foundations, floor, wall and roof framing. Students are introduced to the proper methods of drafting a set of scaled drawings usually related to the construction project for that year. Students are given formulas and practical problems in stair building; common roof rafting, concrete estimation, and estimating stock lists for a floor frame. Reading, writing and math assignments related to carpentry theory are an integral part of this class.

SENIOR PROGRAM

This course builds on the carpentry and construction skills students acquired in Grade 11, and is structured to provide each student with the technical knowledge and experiences essential to secure employment as a carpenter and/or transition to a post-secondary educational institution. Senior year students are responsible for constructing from a detailed set of prints, stage props for our Drama club. Along with other community service construction projects, this course provides carpentry students with a continued focus towards advanced knowledge of construction practices and building methods as well as preparing students to participate in the Co-op employment opportunities. Projects include but are not limited to construction stage sets, remodeling projects of wood framed structures, finish trim of interior and exterior wooden structures, including basic construction and installation of cabinets and advanced CAD/CNC training of millwork, cabinetry and signage. Related theory is taught as an integral part of this course.

SENIOR RELATED THEORY COURSES

The related subjects continue to provide carpentry students with related theory connected with house construction components and building methods including blueprint reading, and foundations, floor, wall and roof framing. Students are introduced to the proper methods of drafting a set of scaled drawings usually related to the construction project for that year. Students are given formulas and practical problems in stair building, common roof rafting,

concrete estimation, and estimating stock lists for a floor frame. Seniors are required to complete a senior project as part of their graduation requirements. The senior projects are issued a set of blueprints and must estimate the cost of building a one story ranch house. Student also draw a plot plan, properly fill out a building permit application, and write an essay on steps needed to complete the senior project. Reading, writing and math assignments related to carpentry theory are an integral part of this class.

CERTIFICATIONS:

- OSHA 10-hour Construction Safety and Health training and certificate
- 1 year credit towards the 3 year (minimum employment) requirement needed to take the CSL, Construction Supervisors License Exam
- 1 year apprenticeship credit towards in the United Brotherhood of Carpenters and Joiners (students will enter the union as a second year apprentice).

CAREER OPPORTUNITIES:

- Home Builders
- Construction
- Remodeling Contractors
- Building Material Vendors
- Cabinet Making Shops

United Brotherhood of Carpenters and Joiners

* Carpenters and Joiners
* Millwrights
* Pile Drivers
* Residential Carpenters
* Interior Systems Carpenters
* Lathers and Drywallers
* Cabinet Makers and Millworkers
* Floor Layers

POST-SECONDARY EDUCATION & OPPORTUNITIES:

- Architecture
- Design
- Civil Engineering
- Carpenters Union
- Apprenticeship Training Center
- Construction Management

ELECTRICAL TECHNOLOGY

Students entering into the Electrical Technology program must possess good math skills and mechanical aptitude. They must also demonstrate the ability to work with abstract concepts. Electrical Technology students work with all the standard equipment and materials used in the industry. Emphasis is placed on reading and understanding blueprints and various types of mechanical drawings, and interpreting theory and codes associated with the industry.

Upon completion of the Electrical Technology program, students can choose many basic or specialty areas. These areas include home wiring, industrial and manufacturing, fire and burglar alarms, electrical distribution, programmable controllers, and energy management systems.

Massachusetts law requires all individuals in the electrical industry to serve an apprenticeship before applying for the required license. Part of this requirement is fulfilled by the training received at GNB Voc-Tech; the remainder is done through on-the-job training upon completion of the program. Students often proceed directly into the workplace as apprentice electricians or further their education in areas such as electrical engineering, electrical drafting and estimating.

FRESHMAN EXPLORATORY

The freshman electrical exploratory is a brief synopsis of the electrical trade. They get hands-on experience using electrical basics. The students will learn to use electrical tools safely and correctly, demonstrate their ability to create basic electrical circuits with bell wires and the construction of an electric lamp. Upon completion of the electrical exploratory, they will have an understanding of the electrical trade. Exploratory students are introduced to trade related careers. Assessments include grades for a lamp assembly projects, bell wire task completed and observation of skill attainment.

FRESHMAN PROGRAM

The freshman electrical shop course students study the fundamentals of the electrical trade. They get hands-on experience using electrical basics, which consists of many hands-on projects. The students will learn and demonstrate their abilities to use electrical tools safely and correctly, demonstrate basic bench projects using series and parallel circuits to complete both bell-wire and non-metallic sheath cable tasks. This foundation will ready the student for his/her sophomore year, where the student will assemble more advanced bench/wall projects. The

competencies from the 2014 electrical Vocational Technical (VTE) Frameworks, and objectives contained within the six strands of the VTE Frameworks are covered within this course. Assessments include grades for electrical assembly projects, and observation of skill attainment, along with daily employability and performance skills.

SOPHOMORE PROGRAM

The sophomore electrical shop gives students hands-on experience with the latest installation techniques, materials, tools, and fixtures. The sophomore electrical students will have a continued concentration of the electrical basics, with more advanced hands-on bench and wall projects as well as wiring a model house located in the shop. The students will demonstrate their abilities from what they have learned in their first year and continue using electrical tools safely and correctly. He/she will demonstrate advanced bench projects using nonmetallic sheath cable, service cable, an assortment of electrical boxes and fittings, electrical service equipment and panel boards, and heating and generator equipment all in accordance with the current Massachusetts electrical code. This foundation will prepare the student for their junior year, with an after-graduation goal of becoming an apprentice, then a licensed electrician. Assessments include grades for electrical assembly projects, and observation of skill attainment, along with daily employability and performance skills.

SOPHOMORE RELATED THEORY COURSES

Students study the theory, design, installation, and maintenance of electrical equipment. Additional instructional topics include residential blueprint-reading, trade-related math, code definitions and terminology.

JUNIOR PROGRAM

The junior electrical students use mechanical skills learned in their freshman and sophomore years to perform commercial electrical work and pipe-bending. The tasks will consist of electrical conduit bending for installation in a commercial or industrial application along with all the associated components. The students will learn the different voltage and lighting systems and a significant period of time will be spent on electrical equipment and tools used in the field. In addition, live electrical tasks throughout the school will offer additional hands-on experience for students. This course will prepare students to move on to their senior year and future

employment through the school's co-op program in the electrical trade. This course is based upon the 2014 Electrical Vocational Technical (VTE) Frameworks, and objectives contained within the six strands of the VTE Frameworks are covered within this course. Assessments include grades for electrical assembly projects, and observation of skill attainment, along with daily employability and performance skills.

Grade 11 Junior Onsite

Junior on-site electrical students enrolled in the Electrical Technology Program spend one third of their time working with the on-site electrical teacher. The students work on a variety of new electrical system installations within the school. Students are also instructed in service-work and how to make any necessary repairs to the existing system as needed, while also troubleshooting electrical systems. The on-site electrical course is based on the Massachusetts 2014 Electrical Frameworks and the National Electric Code with Massachusetts amendments. Assessments include grades for observation of skill attainment, along with daily employability and performance skills from live work situations.

JUNIOR RELATED THEORY COURSES

Instruction consists of allowable materials for electrical controls, AC/DC theory and electrical technical math and current Massachusetts Electrical Code I.

SENIOR PROGRAM

The senior electrical program consists of students continuing to master the mechanical skills that they have already learned. The students will continue to apply these skills to industrial motor controls and automation as well as some commercial applications. The students will learn how to install, wire and troubleshoot electrical motor controls for industrial applications. The students will also work with programmable logic controllers, in both hardware and software. The program includes students working on community construction projects with the off campus construction program. This course is based upon the electrical 2014 Vocational Technical (VTE) Frameworks, and objectives contained within the six strands of the VTE Frameworks are covered within this course. This will prepare senior students for the post-secondary schooling needed after graduation and steady employment. Assessments include grades for pipe assembly projects, and observation of skill attainment, along with daily employability and performance skills.

SENIOR RELATED THEORY COURSES

Instruction consists of allowable materials for electrical controls, AC/DC Theory and electrical technical math and current Massachusetts Electrical Code II.

Senior Off-Campus Electrical Technology

Off- campus construction students leave the school to work on construction projects within the community along with the other construction trades. The students work on new residential and light commercial electrical installations. Students work on additions to existing electrical systems; they are instructed on how to make any necessary repairs to the existing system as needed, while troubleshooting electrical systems. Students are introduced to service work by performing electrical service work in the building under the supervision of the instructor. All off-campus electrical projects meet the guidelines as required by the local electrical inspectors. Assessments include grades for observation of skill attainment, along with daily employability and performance skills from live work situations.

CERTIFICATIONS:

This Technical Program offers the following certifications for students:

- OSHA 10-hour Construction Safety and Health training and certificate
- 300 hours of the 600 hours needed towards their electrical apprentice per the provisions 13.03: Journeyman Electrician License Exam Application Eligibility Criteria
- 1600 hours of 8000 hours needed towards their electrical apprentice per the provisions 13.03: Journeyman Electrician License Exam Application Eligibility Criteria

CAREER OPPORTUNITIES:

- Cable TV Service Technician
- Careers in Code Enforcement
- Careers in Energy and Power
- Careers in Lighting
- Careers in Solar and Wind Power
- Electric Motor Installer
- Electrical Engineer
- Electrician
- Electrician's Helper
- Garage Door Installation
- Industrial Electrician
- Instrument Technician
- Lighting Technician
- Line and Cable Installer
- Maintenance Electrician
- Meter Reader
- Motor Repair Technician
- Programmable Control Technician
- Security
- Wiring Inspector

POST-SECONDARY EDUCATION PROGRAMS:

- Electrical Engineering
- Electro-Mechanical Engineering
- Industrial Engineering
- Mechatronic Engineering

HEATING/VENTILATION, AIR CONDITIONING (HVAC) AND REFRIGERATION/APPLIANCE TECHNOLOGY

FRESHMAN EXPLORATORY

During this 3-day introduction the 9th grade students are provided with an overview of the HVAC/R program. Each student is introduced to general shop safety, equipment, tools and testing instruments used in the field. Each student will complete group shop projects consisting of silver soldering copper tubing and electrical projects. At the conclusion of the exploratory the students are given an assessment in the form of an in shop competition that assesses their mechanical ability and their general knowledge of the program.

FRESHMAN PROGRAM

Students entering the 9th grade HVAC/R program will be provided with the general knowledge and safety for success in this industry. Students will be introduced to the hand tools and specialty tools used in the HVAC/R profession. Students will learn how to work with copper tubing as it applies to the industry; this will consist of flaring, swaging, soldering and brazing projects to pass a leak test. Other shop projects will consist of working with steel pipes, and high and low voltage electrical projects.

SOPHOMORE PROGRAM

This Appliance Repair sophomore course is part of the HVAC/AT program; it is a 90-day course that provides training through organized classroom study, and shop or lab hands-on application. The training includes but is not limited to identifying, analyzing, diagnosing and repairing items such as washers, dryers, dishwashers, microwave ovens and ranges. This curriculum is competency based, emphasizes good work habits, and includes employability skills.

At the end of the sophomore year, the students will participate in a Student Professional Certification Exam. To earn National Certification, the students need to pass 8 different comprehensive tests, which measure their skills in areas such as, consumer relations, diagnostic techniques and repair ability for all types of domestic major appliances.

Successful completion of this course will enable the student to advance to their junior year and work on more complicated units including commercial equipment.

SOPHOMORE RELATED THEORY COURSES

- **Applied Theory**

The Appliance Repair Technology, Applied Theory course, is an integral part of the shop cycle in the HVAC-R/AT program and is a daily part of our program. It is directly tied to the particular subject being covered and is taught in the shop along with the hands-on approach. Many types of teaching and learning techniques are used during this process, such as, demonstrations, training videos, as well as reading and interpreting technical manuals.

- **Technical Solutions**

The Appliance Repair sophomore course is part of the HVAC/AT program; it is a 90-day course that provides the training through organized classroom study, shop or lab hands-on application. The training includes but is not limited to identifying, analyzing, diagnosing and repairing items such as washers, dryers, dishwashers, microwave ovens and ranges. This curriculum is competency based, emphasizes good work habits and includes employability skills. Successful completion of this course will enable the student to advance to their junior year and work on more complicated units including commercial equipment. Students will receive instruction on mathematical principles to solve occupationally related problems. Topics covered are blue print reading, electrical circuit/ Ohm's law calculations, decimals, fractions, percentages, base rate and portion, motor efficiency , graphs, charts, pressure/temperature relationships, appraisals, estimates, discounts, specific volume of cylinders, Fahrenheit – Celsius conversions, measurements and heating and cooling loads.

JUNIOR PROGRAM

The goals for 11th grade students are to further the development of the student's mechanical skills and enhance their technical knowledge of the industry. Students will continue with more advanced tubing, electrical, small refrigeration and air conditioning projects. Students will be introduced to the principles of thermodynamics, temperature pressure relationship, basic

refrigeration cycle and basic electricity applied to refrigeration. This course will provide student with the knowledge in refrigeration sealed systems; they will explore the major components of a refrigeration cycle such as the compressor, evaporator, condenser and metering device. Students will identify and learn the function of each component and how it applies to the refrigeration cycle. This course of study will focus on small hermetic refrigeration systems and their components. Each student will build small refrigeration projects throughout the year and advance to more complex systems. Other projects will introduce students to electricity and how it is applied to refrigeration. Students will wire projects that will have power supplies, controls and accessories found on small residential and commercial refrigeration systems. Students will also be introduced to residential heating and air conditioning for the first time in the program. This will consist of introduction to heat pumps and ductless mini-split air conditioning units. Related classroom instruction will be given throughout the year covering the subject matter outlined above. Students will be exposed to integration of Math and English both in shop and related theory classes. Students will gain knowledge of the safe and proper handling of refrigerants and will have the opportunity to test for the EPA Section 608 refrigerant recovery certification.

JUNIOR RELATED THEORY COURSES

- **Residential and Commercial HVAC**

HVAC-R theory class offers the conceptual foundation for understanding components affiliated with the refrigeration system. It provides the building blocks for troubleshooting mechanical equipment, interpreting and prioritizing system problems and evaluating operations. This class provides technical information to students that will define and explain how components work mechanically. In conclusion, it elaborates on relationship between thermodynamics and refrigeration theory.

- **Schematics and Design**

This curriculum focuses on electrical wiring for circuits and controls. It is based on the electrical prerequisite covered in Grade 11. Intermediate level schematics and associated electrical concepts are explored. Subjects such as field wiring, installation, troubleshooting, evaluation of circuits, electrical code, combination circuits, electricity applied to refrigeration and air conditioning systems, symbols, ladder and pictorial diagrams, inductance, capacitance, motors and safety controls.

- **HVAC Applied Math**

Applied mathematics for Grade 11 is composed of a combination of circuit evaluation, heating and cooling load calculations, estimates, graphs, tables, charts, cylinder volumes, voltage and amperage measurement, area, perimeter, Ohm's law, wattage and power evaluation, motor horsepower assessment, price assessment, job evaluation and billing.

SENIOR PROGRAM

This course will introduce students to low voltage controls, gas and oil heat, forced air and hydronic heating systems, blueprint reading and systems design. Electrical code as it applies to the HVAC/R industry will be reviewed as preparation for future licensure and apply it to their current projects. At this level of the HVAC/R program, students will work with architectural drawings of homes and design different types of heating and air conditioning systems. This will represent some of the engineering practices that go on in the HVAC/R industry. A focus on residential heating and air conditioning systems will be the main subject for this course. Forced hot air furnaces utilizing electric resistance heat will be covered, as well as furnaces burning natural gas, propane and oil. Different types of hydronic heating will be discussed, designed and installed in a shop setting. Natural gas and oil-fired boilers will be installed and tied into baseboard, fan coil heaters and hydronic air handling units. Students will be introduced to oil burner code and prepare for future licensure as an oil burner technician. The related theory classroom subjects will be aligned with the subject matter above.

Commercial heating and air conditioning will be explored and students will be introduced to water sourced heat pumps and cooling towers. Students will be introduced to chilled water systems and how they apply to commercial air conditioning systems. When students become familiar with these types of systems, the course will further examine commercial building water loop systems and how they are sized. The students will review additional electrical code in more detail and apply it to their projects.

SENIOR RELATED THEORY COURSES

- **Service Manager Applications**

The HVAC-R Theory course provides students with the required information in sheet metal, oil heat, gas heat, air conditioning and peripheral components. The objective is also to introduce students to low voltage controls for oil and gas heat, fan coil heaters, baseboard heat, air handling units, boilers, heat pumps and fan coil units. By utilizing the previous training in electrical theory and controls, students will be able to make a distinction between different standards of wiring for individual systems. Students will gain knowledge of safe and proper handling of refrigerants and have the opportunity to test for EPA Section 608 refrigerant recovery certification.

- **Heating AC and Certifications**

The HVAC/R Science Course is a 90 day course that offers a solid foundation for a career as a refrigeration and air conditioning technician. This course was developed to provide technical information necessary for a technician to be able to perform satisfactorily on the job.

- **Senior Related Theory Math**

The HVAC-R Math course extends an overview of trade math for technicians entering the trade. Included in this course are motor efficiencies, calculating resistance, voltage and amperage, determining the seasonal energy efficiency ratio, estimates, finances, loans, cost averaging, heating and cooling load calculations, charts and graphs for enthalpy criteria, wet bulb and dry bulb evaluation, refrigerant line sizing, filter drier sizing, evaporator and compressor comparison for selection, metering device evaluation, refrigerant charging amounts, oil tank capacities, air volume requirements and duct sizing.

CERTIFICATIONS:

- OSHA 10-hour Construction Safety and Health training certification
- EPA 608-Universal Recovery Certification
- EPA R-410a High Pressure Certification
- Reduction of in field hours to 2000 prior to being eligible for Massachusetts Refrigeration Technician License. GNB Voc-Tech has been approved by the Department of Public Safety as an approved school for licensure.

CAREER OPPORTUNITIES:

- HVACR and Appliance Repair Field Technician
- HVACR and Appliance Installation Technician
- Retail-Product or parts supply/distribution
- Customer Service-HVACR and Appliance repair
- Manufacturer Technical and Service support

Painting and Design

2 Year Program

Painting and Design is a two year program in the construction cluster of occupations. Students learn about various painting techniques and finishes, proper surface preparations, and their applications including power washing & sandblasting, installation & removal of residential & commercial wall covering, faux finishes, and furniture refinishing. Interior design concepts are taught utilizing the 20/20 Kitchen & Bath CAD and Chief Architect software programs for residential and commercial applications. Students attain an OSHA Construction 10-hour safety certification. The OSHA 10 hour card is required by most companies for employment. Students also review the proper use of staging and ladders and continue to hone their skills by completing live jobs within the school. Community service is another integral part of the program where students may go out into the district to live jobsites implementing skills they have acquired. Students may also be eligible for a paid co-op placement at approved industry sites during shop cycles, providing all placement requirements have been maintained.

Students will be prepared to enter the trade confidently knowing they have gained a wide variety of the necessary experience and basic skills needed to succeed in today's job market. Furthermore, students may also be prepared for matriculation into a two or four-year technical or traditional college program to further enhance their knowledge, skills, and career advancement.

JUNIOR PROGRAM

Students are provided with thorough shop specific safety training, including an introduction to OSHA and safety procedures for using shop equipment. They learn preparation and paint application procedures for various types of surfaces, and application procedures for decorative finishes. Shop curriculum is project based; students complete a theatrical set design project that introduces them to architectural prints and involves designing and creating props and backdrops for the school play from conception to completion. Related theory instruction is an inclusive component of the shop that includes basic technical instruction and studies including life skills, communicating for success, standard operating procedures, and maintaining a shop notebook and portfolio.

This course is designed to further develop the basic skills and knowledge needed for success in the painting and design field. Students learn the properties and functions of paints and coatings and how to operate spray system components. Students acquire knowledge and the skill to install wall coverings. Procedures for finishing and patching drywall are introduced; students create a decorative faux-finish panel that will be entered into a state competition held by a

national trade organization. They learn the common methods of glazing, wood-graining, marbling, sponging, rag rolling, and gilding on various surfaces.

JUNIOR RELATED THEORY COURSES

Related instruction is taught in the academic cycle consisting of two classes, Fundamentals of Design where students are introduced to the fundamentals of design utilizing the latest software, and Painter's Trade Science where students learn scientific terms, chemical make-up of paints, and painter's trade math that will be used in the field.

In the Fundamentals of Design class students demonstrate procedures involved in computer-aided sign making and design using current industry standard software. The design component of the program includes, print reading, architectural styles of houses, color theory, and the elements and principles of design. In Related Painter's Science, as part of their safety training, students develop a PowerPoint presentation. Related theory incorporates employability knowledge and skills needed to obtain and maintain a job. Students create professional cover letters, resumes, and portfolios in a variety of formats and demonstrate good interviewing skills.

SENIOR PROGRAM

This program is designed to give students the opportunity to advance their knowledge and technical skills in the Painting and Design program through real-world work experiences. Students learn the general procedures for estimating and planning a job; they receive advanced instruction in print reading, determine raw cost and overhead for pricing a job, and develop a detailed schedule to complete a job. They demonstrate an understanding of the progression of job levels and career opportunities within the painting trade by performing the foreman's duties on a work site on a rotating basis, and by researching and visiting trade organizations. Students also work on simulated and live work sign projects; they work on community projects that require advanced skills such as power washing, airless spraying, plaster repair, drywall finishing, and decorative painting. Students learn advanced faux finishing techniques, mural painting, and airbrush painting skills. They further their design abilities by identifying the distinguishing features of period furniture and become knowledgeable in materials and functional requirements of fabrics, window treatments and home textiles. They gain confidence to transform space by creating interior design presentation boards that include product samples, technical drawings, renderings, and concept details describing a finished project.

SENIOR RELATED THEORY COURSES

Related instruction is taught in the academic cycle consisting of two classes, Fundamentals of Design II where students continue designing utilizing the latest software, and Painter's Trade Science II, where students expand their knowledge of scientific terms, chemical make-up of paints, and painter's trade math that will be used in the field.

As part of the interior design component of the program, students plan and design living areas according to location, size, and arrangement. They prepare renderings, elevations, and sketches, using appropriate media. Related theory includes assignments that allow students to demonstrate leadership and teamwork skills such as the ability to set, reach, and evaluate goals. Students learn the importance of professionalism, including reliability, honesty, responsibility, and ethics. Knowledge and skills will be evaluated at various non-profit community worksites. This course is designed to provide students with the opportunity to master their technical skills and comprehension level in the Painting and Design program.

CERTIFICATIONS:

- OSHA 10-hour Construction Safety and Health training and certificate

CAREER OPPORTUNITIES:

- Interior / Exterior Painting
- Wallcovering Installation
- Decorative Faux Finishing
- Interior Design consulting
- Kitchen Designing
- Interior Decorating
- Drywall Installing
- Drywall Finishing
- Theatrical Set Design and Layout
- Estimator
- Retail and Commercial Sales
- Trade Show and Display Design

PLUMBING & PIPE FITTING

The piping industry today is growing rapidly and the need for plumbers and pipe fitters is in great demand. The opportunity for employment is endless. The program is designed to expose students to all aspects of residential plumbing and some commercial work. The course will prepare them to be a qualified apprentice when they graduate. This curriculum is based on the Vocational Technical Education Frameworks written by the Massachusetts Department of Elementary and Secondary Education.

FRESHMAN EXPLORATORY

The freshmen plumbing exploratory is a brief synopsis of the plumbing and pipefitting trade. They get hands-on experience using plumbing basics. The students will learn to use plumbing tools safely and correctly, demonstrate their ability to use plastic piping, copper piping, and carbon steel piping. Upon completion of the exploratory program, students will have an understanding of the plumbing and pipefitting trade. Exploratory students are introduced to trade related careers. Assessments include grades for pipe assembly projects, and observation of skill attainment.

FRESHMAN PROGRAM

The freshmen plumbing shop students study the fundamentals of the plumbing and pipefitting trade. They get hands-on experience using plumbing basics, which consists of many hands-on projects. The students will learn and demonstrate their abilities to use plumbing tools safely and correctly, demonstrate basic bench projects using plastic piping, copper piping, carbon steel piping, cast-iron piping, and joining no-hub and spigot pipe using resilient pop-gaskets. This foundation will ready the student for his/her sophomore year, where the student will assemble more advanced bench/wall projects and water heaters. This course utilizes the competencies from the Vocational Technical (VTE) Frameworks, and Objectives contained within the six strands of the Plumbing VTE Frameworks. Assessments include grades for pipe assembly projects, and observation of skill attainment, along with daily employability and performance skills. Instruction consists of OSHA 10 hour Hazard Awareness Course for Construction, the history of the plumbing trade, materials, tools, and pipe joining methods, safety and installation practices, as well as valves and devices.

SOPHOMORE PROGRAM

The sophomore plumbing shop course gets hands-on experience with the latest installation techniques, materials, tools, and fixtures. The Sophomore Plumbing students will have a continued concentration of the plumbing basics, with more advanced hands-on bench and wall projects. The students will learn and demonstrate their abilities from what they have learned in their first year and continue using plumbing tools safely and correctly. He/she will demonstrate advanced bench projects using plastic piping, copper piping, carbon steel piping, cast-iron piping, and joining no-hub and spigot pipe using resilient pop-gaskets. Students will also learn and demonstrate their ability to install gas and electric water heaters, and hydronic-heating boilers and various piping installations. This foundation will ready the student for their junior year, with an after-graduation goal of becoming an apprentice, and then a licensed plumber. This course utilizes the competencies from the 2014 Vocational Technical (VTE) Frameworks, and Objectives contained within the six strands of the Frameworks. Assessments include grades for pipe assembly projects, and observation of skill attainment, along with daily employability and performance skills.

SOPHOMORE REALTED THEORY COURSES

Instruction consists of Plumbing students studying the theory, design, installation, and maintenance of plumbing and hot water heaters, residential blueprint reading, trade related math, code definitions and terminology, potable water supply, as well as building waste and venting system

JUNIOR PROGRAM

The plumbing junior program consists of students using mechanical skills they have learned in their freshman and sophomore years, and apply them to all aspects of residential plumbing and piping. The tasks will consist of water piping, gas piping, live appliances, hydronic heating and an introduction to drainage waste and vent piping. A large segment of time will be spent on plumbing fixture installation. This course will prepare students to move on to their senior year and future employment through the schools co-op program in the plumbing & pipe fitting trade. This course is based upon the 2014 Plumbing Vocational Technical (VTE) Frameworks, and Objectives contained within the six strands of the VTE Frameworks. Assessments include grades for pipe assembly projects, and observation of skill attainment, along with daily employability and performance skills.

JUNIOR RELATED THEORY COURSES

Instruction consists of allowable materials for storm, sanitary, and venting systems, plumbing traps, cleanouts, joints and connections, general provisions governing the conduct of plumbing and gas work performed in the commonwealth, portable water supply, math, as well as introduction to gas fitting.

Grade 11 - 12 Onsite Learning

Junior on-site plumbing students enrolled in the Plumbing & Pipefitting Program spend one third of their time working with the on-site plumbing teacher. The students work on a variety of systems within the school. Students are also instructed in service-work and how to make any necessary

repairs to the existing system as needed, while troubleshooting plumbing systems. The on-site plumbing course is based on the Massachusetts 2014 Plumbing Frameworks. Assessments include grades for observation of skill attainment, along with daily employability and performance skills from live work situations.

SENIOR PROGRAM

The senior Plumbing program consists of students continuing to master the mechanical skills that they have already learned. The students will continue to apply these skills to residential plumbing as well as some commercial applications. The students will learn how to repair faucets, water closets, lavatories and urinals, and practice these skills on live fixtures. This program is based upon the Plumbing 2014 Vocational Technical (VTE) Frameworks, and objectives contained within the six strands of the VTE Frameworks which are covered in this course. This program of study will prepare senior students for the Post-secondary schooling needed after graduation and for steady employment. Assessments include grades for pipe assembly projects, and observation of skill attainment, along with daily employability and performance skills.

SENIOR RELATED THEORY C OURSES

Instruction consists of blueprint reading, definitions, math, gas fitting, code relating to drainage waste and venting, as well as code related to water supply and distribution. Grade 12 students are introduced to fixture installations, storm drains and testing and safety.

Grade 11 - 12 Off-Campus Plumbing & Pipefitting

Off- campus plumbing & pipefitting students leave the school to work on construction projects within the community along with the other construction trades. The students work on new residential and light commercial plumbing installations. Students also work on additions to existing plumbing systems; they are instructed on how to make necessary repairs to the existing system as needed, while troubleshooting plumbing systems. Students are introduced to service work by performing plumbing service work in the building under the supervision of the instructor. All off-campus plumbing & pipefitting projects meet the guidelines as required by the local plumbing inspectors. Assessments include grades for observation of skill attainment, along with daily employability and performance skills from live work situations.

This Technical Program is certified in the following areas:

- Massachusetts Board of Examiners of Plumbers and Gasfitters

CERTIFICATIONS:

- OSHA 10-hour Construction Safety and Health training and certificate
- Tiers 1, 2 and 3 of the educational requirements for licensure under the Massachusetts Plumbing Code

CAREER OPPORTUNITIES

Apprenticeship in the following fields:

- Plumbing, gas fitting, sprinkler fitting, and oil burner technician
- Wholesale industry opportunities such as material handling, counter sales, inside as well as outside sales
- Plumbing supply sales

POST-SECONDARY OPPORTUNITIES:

- Tiers 1 and 2 and 3 of the educational requirements for licensure under the Massachusetts Plumbing Code, a total of 5 tiers are required to be eligible to take the journeyman exam. The remaining two tiers are offered through area adult education facilities.

The provisions of 248 CMR 11.00 govern the requirements for providers of plumbing and gas fitting primary and continuing education. Greater New Bedford Regional Vocational Technical School's Plumbing Department provides delivery of this instruction to comply with the following mandates.

Education Hours Requirements for Apprentice Plumbers who must follow the 550-clock hour program.

1. The course shall be segregated into five Tiers.

2. Each Tier shall contain 110-clock hours.

3. Each Tier shall be consecutive and shall be designed to coincide with the years of experience of the apprentice student.

4. Each Tier shall be administered and designed in compliance with the standards issued by the Board.

5. Students shall be required to demonstrate proficiency and competency in each tier by passing an examination designed by the school and/or the instructor.

6. Each Tier shall include coverage in but shall not be limited to the following subject areas:

a. M.G.L. c. 142: Supervision of Plumbing;

b. The Board adopted most current edition of 248 CMR 3.00 through 11.00;

c. Occupational Safety and Health Administration (OSHA) Rules and Regulations including the Construction Outreach Training Program;

d. Material Safety Data Sheets (MSDS);

e. Dig Safe Systems in the Commonwealth of Massachusetts, M.G.L. c. 82 § 40.

7. Students may not advance from one Tier to another until the clock hour and examination requirements of the preceding Tier have been successfully completed.

8. Students need not complete all Tiers with the same school/provider, however, each individual Tier must be completed with the same school/provider. Notwithstanding this prohibition, a student may petition the Board to be permitted to complete an incomplete Tier with a different school/provider when the new provider is able to certify that the student will be able to complete all content areas of said Tier

Legal, Life Sciences & Service Academy

EARLY CHILDHOOD EDUCATION

STATEMENT OF PURPOSE

An early childhood education student is an individual with an interest in working with young children in a classroom setting. Initially, ninth graders and sophomore students are assigned to train in GNB Voc-Tech's Developmental Laboratory Pre-School. The on-site experience allows students to work closely with classes of three, four and five year olds.

Students observe the growth and development of children, focusing on their physical, social-emotional and cognitive growth. Students help to plan the activities that are part of the preschool day. Upper-classmen work with the pre-kindergarten aged children in the school's Center. They teach lessons and run a five day a week program and co-op.

With the help of our related subjects, students put to use both the theory and practical methods to make them a well-rounded student and eventually, a better teacher. Besides teaching in the preschool or kindergarten areas, students go on to family child care, become health care workers, and elementary education teachers, or enter any field related to children. The Early Childhood Education program is accredited by the National Association for the Education of Young Children (NAEYC).

FRESHMAN PROGRAM

This program introduces students to early childhood education and teaching as they get practical experience working with three, four and five year olds. Students are taught the rudimentary skills needed to become a teacher, such as developing, writing, and implementing developmentally appropriate learning activities. During this time, skills are being taught and will be refined throughout the student's three and a half years in the program.

SOPHOMORE PROGRAM

This sophomore introduction course is designed to help students become proficient in becoming skilled early childhood workers. Students gain immeasurable experience working with three, four , and five year olds in a live setting. This is a ninety day course which consists of six day cycles. Students obtain practical experience in determining their own curriculum for two different age groups and many developmental levels amongst the varied children that they teach in our preschool program. Students become aware of children's individual interests and strengths and find ways to engage and expand them; they do so by arranging for a rich variety of learning experiences that appeal to the children physically as well as through their visual and auditory senses. This is accomplished by alternating individual, partnered, small group and large group activities so that children experience various kinds of social interaction.

Our students 1) Plan activities that they feel will stimulate the child's learning needs and engage children in age appropriate activities. 2) They provide materials and equipment with which children can play and learn by doing. 3) Students then reflect on the activities and decide if their ideas were implemented properly. 4) They then revisit that idea and make changes to better the child's needs. 5) Finally, the students help children connect their new knowledge with their past experiences creating links between subject areas and areas of skill development.

SOPHOMORE RELATED THEORY COURSES

- ☐ Introduction to Early Childhood Education
- ☐ Principles of Business

JUNIOR PROGRAM

The Early Childhood Education and Teaching junior course builds and expands on the student's knowledge of children's growth and development. They will focus in the five major areas of growth: emotional, social, physical, psychological, and cognitive growth.

The Early Childhood Education and Teaching junior students will work in the lab school pre-k program. These students will interact and plan lessons that are developmentally appropriate for a class of 15-16 five year olds. Students will be trained to organize a daily plan and to write a lesson plan using the technical language learned in their related class and shop class for one of the following areas, oral language, fine motor, gross motor, art, music, science, and math.
Students are required to implement their daily plan and their written lesson plan with the pre-k students. When the pre-K students leave, the Early Childhood Education and Teaching students evaluate the day and their lesson plan, complete their daily jobs, clean the classroom and prepare their lessons for the next day.

JUNIOR RELATED THEORY COURSES

- ☐ Curriculum Development
- ☐ Child Development I

SENIOR PROGRAM

The Early Childhood Education and Teaching senior course is a one-year course that builds and expands on the student's knowledge of children's growth and development. They will focus in the five major areas of growth: emotional, social, physical, psychological, and cognitive growth.

The Early Childhood Education and Teaching senior students will work at area public schools, day care centers and special needs classrooms. These students will experience different teaching styles and philosophies with the teachers in these classrooms. Students will work alongside the teachers in their classrooms and be able to be responsible for conducting oral language, fine motor, gross motor, art, music, science, and math lessons.

The senior students will have a task list to implement and an evaluation form that their placement teacher will grade them on. They will also be responsible for maintaining a senior shop notebook throughout the year.

SENIOR RELATED THEORY COURSES

- ☐ Childcare Methods - elective
- ☐ Child Development II/ Classroom Management

CERTIFICATIONS:

Department of Early Education and Care Preschool Teacher Qualification certificate and/or Infant/Toddler Teacher Qualification certificate

CAREER OPPORTUNITIES:

- Certified Preschool Teacher
- Director-Early Childhood Center
- Elementary Teacher
- Family Counselors
- Guidance Counselor
- Occupational Therapist
- Pediatric Nurse
- Preschool Teacher
- Recreational Therapist
- School Adjustment Counselor
- School Psychologist
- Social Worker
- Special Education Teacher
- Speech Therapist

CULINARY ARTS / HOSPITALITY MANAGEMENT

STATEMENT OF PURPOSE

The mission of the Culinary Arts program is to offer high-quality multifaceted education to prepare students for employment in the Culinary Arts/ Hospitality Management industry or post-secondary education. Students are exposed to a majority of basic tasks in actual live industrial conditions. Our Program at GNBVT is nationally certified by the American Culinary Federation Foundation's Secondary Certification Committee. The students are also given the opportunity to take the Serve-Safe Certification examination and become certified ServSafe, which is recognized in the industry nationwide. The Culinary Arts students are also certified and trained in CPR and First-aid.

The Culinary Arts program consists of hands-on instruction in cooking, baking, and dining room service. Cooking involves the preparation of all types of soups, sauces, and meals using a variety of cooking techniques. Baking entails the preparation of cakes, cookies, pies, breads, and many elegant pastries and desserts. The dining room encompasses customer service relations, hosting, taking orders on MICROS Point of Sale and management fundamentals. Culinary Arts graduates are in great demand and because our students' education is conducted under live working conditions, they have the greatest advantage for obtaining employment. Upon graduation, students may continue their education at a two or four-year college or enter the workforce. Culinary Arts students are prepared to take the ServSafe examination and passing the examination provides these students with the nationally recognized ServSafe Certificate which many employers require. We also offer a cooperative learning program with foodservice businesses in the communities during the student's senior year of the Culinary Arts Program. The student must achieve the required grade point average to participate in this program.

FRESHMAN & EXPLORATORY PROGRAMS

Students entering the ninth grade are provided with the basic knowledge and skills necessary for success in the Culinary Arts/ Hospitality Management industry. Students receive practical instruction on food safety and sanitation, shop safety, equipment identification, proper uniform and hygiene, weights and measurements, point of sales operation, workstation set-up and breakdown, basic restaurant operations, and basic culinary and baking operations.

SOPHOMORE PROGRAM

This course is designed to immerse the learner in a commercial foodservice environment, with live “ala minute” cooking, live food preparation, classroom instruction and technical demonstrations. An instructional emphasis will be on food safety practices, knife skills, basic cooking and “Mise en place”. Students will be introduced to the production of stocks, sauces, hot entrees, sides, salads, sandwiches and soups. Meat, fish, shellfish, grain, starch and vegetable cookery all will be practiced in a progressive method delivered starting day one and using the frameworks and our text as the guide.

Sophomores will have exposure to a wide range of recipes and techniques as they will be taking on a number of live work experiences in the form of catering to in house events such as the monthly retiree breakfast, and various awards
banquets, meetings and public projects. Students produce a daily hot breakfast program where they are responsible for prep, pars, inventory and output of the breakfast program in addition to preparing food for the Lighthouse Café and our in-house Early Childhood Education program. This allows for the individualized instruction that is necessary at this level of learning. The sophomores will be exposed to a dynamic computer class related to the field of culinary arts and restaurant management. The instructor will teach the Microsoft Office Suite of software to students using a restaurant management curriculum known as “Luigi’s Pizza Shop”. The students learn how to develop inventory lists, work schedules, marketing pieces, business cards, and resumes.

SOPHOMORE RELATED THEORY COURSES

- ☐ Fundamentals of Cooking
- ☐ Back of the House Operations

JUNIOR /SENIOR PROGRAM

The junior and senior students will rotate through three areas in their junior and senior years. Each rotation takes place over the course of one trimester. The co-op program, Tech-Prep and articulation agreements with Bristol Community College and Johnson and Wales University are in place for junior and senior students who maintain specific criteria for acceptance into these programs.

Rotation I - The baking program provides students with basic knowledge of baking and pastry arts. The program is in line with the DESE standards and strands as well as the recommendations of the advisory committee and industry standards. In the beginning of the rotation the students will be instructed in the fundamentals of baking to include methods of preparation, techniques, product identification, sanitation and safe operation of equipment. The remainder of the rotation is spent with a more challenging curriculum; including a variety of breads, sweet dough products, laminated dough, cookies and bars, pie dough, pastry products and frosting, fillings and custards as well as cake decorating. Supplemental instruction is given daily in the areas of career portfolio, food service math and theory research from the Baking Fundamentals text book and internet.

Rotation II – This rotation in the production kitchen will cover trade related fundamentals associated with the hospitality trade. Students will review the basic fundamentals of sanitation, safety, and first aid procedures, combined with instructional use of large and small commercial equipment and wares. Advanced instruction within the American and international cooking methods will begin under the watchful eyes of highly qualified staff. Students will work toward becoming proficient of competencies related to the foodservice industry. These competencies cover reviews and new concepts based on seafood, meats, poultry, stocks, sauces and sandwiches. Students will begin the school year with production of 1000 meat pies for the annual Open House. The students will then receive advanced instruction on the makeup of soups, salads, entrees, and sandwiches, vegetable and starch preparation in a live daily production style restaurant while receiving opportunities of management positions within the shop area. These opportunities will not only focus on the production of food but the flow of products received and stored in the facility according to the Board of Health rules and regulations. Students will also prepare and serve at banquets ranging from 100-600 patrons. Upon completion within the production kitchen, senior students will be able to pursue a more in-depth training as a college student within the hospitality trade, or start contributing within a high quality restaurant.

Rotation III - During this rotation, students will be introduced to the basic fundamentals of dining room service. They will actively participate in the preparation of the dining room for breakfast and lunch service. In the beginning of the rotation, the students will be exposed to safety and sanitation practices, as well as bus person competencies. As their skills are honed, the students will be assigned a section of tables to serve. Once students have developed basic table service skills, they will have an opportunity to work at banquets held after regular school hours. Restaurant Management focuses on service related skills and knowledge used in the food service industry. This course is designed to enable the student through a functioning cafe setting, to practice skills and acquire the knowledge of “front of the house” operations common to dining rooms in the industry.

JUNIOR RELATED THEORY COURSES

Food Service Math/Hospitality
Food Service Theory

SENIOR RELATED THEORY COURSES

- ☐ ServSafe
- ☐ Entrepreneurship - Elective

CERTIFICATIONS:

- ServSafe
- First Aid/CPR

CAREER OPPORTUNITIES:

- ☐ Line Cooks
- ☐ Stewards
- ☐ Chefs
- ☐ Executive Chef
- ☐ Banquet Servers
- ☐ Front Desk Clerks
- ☐ Bussers
- ☐ Event Manager
- ☐ Cruise Ship Personnel
- ☐ Restaurant Servers
- ☐ Pastry Chefs
- ☐ Bakers
- ☐ Restaurant Manager
- ☐ Food and Beverage Manager
- ☐ Restaurant-Equipment Sales
- ☐ Food Product Sales
- ☐ Food Product Test Kitchen
- ☐ Franchise Restaurant/ Hotel Owner
- ☐ Bed and Breakfast Owner/Manager
- ☐ Hotel Director of Sales
- ☐ Bartender
- ☐ Butcher
- ☐ Careers in Public Health
- ☐ Caterer
- ☐ Food Inspector
- ☐ Food Science Technologists
- ☐ Host/Hostess

POST-SECONDARY-EDUCTION OPPORTUNITIES:

- ☐ Early Enrollment at Johnson & Wales
- ☐ Degree programs in Culinary Arts and Hospitality Management

DENTAL ASSISTING

FRESHMAN EXPLORATORY

Freshmen Exploratory is a 3-day program that provides students with a basic overview of the dental profession and how a Dental Assistant plays an important role in the care of patients. Students will learn entry level hands-on skills (competencies) such as identifying permanent teeth, and anatomical tooth structures using correct terminology. Clinical procedures will include seating and dismissing the dental patient and instrument identification. Obtaining alginate impressions, pouring and trimming gypsum models for the fabrication of study models will take place in the dental laboratory. During the 3-days students will spend one period a day in Administrative Skills (related) learning common dental terms relevant to the lessons being taught during the exploratory process. In addition the students will discuss the career and college avenues available to our students upon graduation.

FRESHMAN PROGRAM

The freshmen dental assistant course is a half year program. Students are exposed to the dental profession and importance is placed on becoming part of the dental team. Instruction focuses on the student introduction to basic chairside assisting procedures. Topics covered include greeting, seating and dismissing the patient, preparation of the treatment room, administering disclosing agents, providing oral hygiene instruction and obtaining vital signs. The student pays close attention to OSHA guidelines within the treatment area, and will demonstrate the principles of infection control including hand washing, donning and removing personal protective equipment, use of chemical disinfectants, ultrasonic cleaners, sterilizers and instrument storage.

The dental assistant student identifies tooth anatomy and uses the universal method of tooth identification. Dental charting of conditions affecting the permanent and deciduous dentitions using electronic patient management software will be performed in both shop and administrative skills. The student will practice and promote good oral hygiene and become knowledgeable about the oral disease process and importance of practicing good nutrition.

SOPHOMORE PROGRAM

The sophomore dental assistant course is a 90 day program, which provides the student with the knowledge and practical skills required to perform dental assistant functions. The student will learn to administer chairside assistance for the dentist in the transferring of instruments and proper maintenance of the operating site. These tasks include proper suction tip placement, dental dam application and use of dry-angles and cotton rolls. Students will also place and

remove various types of dental matrices. The student is trained to support the dentist as well as the patient in the treatment room. The student practices the current concepts of four-handed dentistry and exhibits practical knowledge of dental equipment and its use. Students will practice routine care and maintenance and maintain and understand the importance of universal precautions to protect patients and themselves.

The dental assistant student identifies dental equipment and instruments for their use, care and sterilization or disinfection. Students will learn to prepare dental materials for restorative procedures such as composite and amalgam restorations. Alginate impressions, obtaining bite registrations and pouring gypsum laboratory models will be performed. Students will have the opportunity to make custom fitted mouth guards and have experience using a variety of laboratory equipment.

Upon successful completion of this course, students will have met the standards set by the American Dental Assistants Association and the Vocational Technical Education Frameworks. Students will also prepare for the Infection Control certification exam administered by the Dental Assistant National Board.

SOPHOMORE RELATED THEORY COURSES

- ☐ Infection Control
- ☐ Administrative Skills

JUNIOR PROGRAM

Students are instructed in the most advanced skills used by a dental assistant, with special emphasis on skills used in the dental specialty practices and the dental laboratory. The students are prepared to become proficient in placing, exposing, processing and mounting both traditional and digital radiographs. Instruction is also focused on oral communication, administrative assistant skills, professionalism, refining basic skills, and direct patient care. By the completion of the course, students are expected to demonstrate mastery in the areas of patient care and advanced dental assistant skills. This course provides students with the technical skills required to succeed in any dental office setting. Upon successful completion of this course, students will have met the standards set by the American Dental Assistants Association and the Vocational Technical Education Frameworks. Students will also be preparing for the Radiology Health and Safety exam administered by the Dental Assistant National Board.

JUNIOR RELATED THEORY COURSES

- ☐ Head &Neck Anatomy
- ☐ Dental Radiology

SENIOR PROGRAM

Dental students are now proficient in the most advanced skills used by a dental assistant. The students are proficient in exposing radiographs. Students participate in the program's clinical placement rotation, including all dental specialties to further their skills in a professional learning environment. Students are eligible by meeting the guidelines of the Massachusetts Department of Education, interviews at dental offices and participating in the school's Cooperative Education program. The student is then gainfully employed while having a strong learning environment to further refine their dental assistant skills.

SENIOR RELATED THEORY COURSES

- ☐ Tooth Morphology
- ☐ Dental Law & Ethics/ Nutrition & Dental Health - elective

CERTIFICATIONS:

- Radiology Health and Safe certification with Dental Assisting National Board
- Infection Control Certification with Dental Assisting National Board
- Students also become CPR certified for the Health Care Provider from the American Heart Association.
- Students also complete the Five Hour OSHA on-line program CareerSafe.

CAREER OPPORTUNITIES:

- Dental Assistant
- Orthodontic Assistant

- ☐ Dental Receptionist/Administrative Assistant
- ☐ Dental Laboratory Technician

POST-SECONDARY EDUCATION OPPORTUNITIES:

- ☐ Dental Hygienist
- ☐ Dental Public Health Hygienist
- ☐ Dentist
- ☐ Dental Office Manager

NURSE/ HEALTH ASSISTING

The Nurse/Health Assisting students care for acute and chronically ill patients as well as physically and mentally challenged individuals. The patient population ranges from infants in pediatrics through adults and the elderly in geriatrics. Clinical experience is provided in acute and chronic settings including various departments in the hospital including Radiology, Physical Therapy, and Endoscopy, a rehabilitation center, Long Term Care facilities, an Emergency Medical Services (EMS) department, a school nurse's office, Assisted Living Centers, Adult Day Care Centers, and a walk-in clinic.

FRESHMAN EXPLORATORY

Freshman Exploratory is a three day program that provides students with a basic overview of the health care system and how a Certified Nursing Assistant plays an important role in the care of patients from birth to old age. Students will learn entry - level hands-on skills (competencies), basic infection control theory, techniques, patient and nursing assistant body mechanics, safety, and communication skills. Ninth grade exploratory curriculum includes an introduction to Infection Control (handwashing and removing contaminated gloves), use of patient equipment (wheelchairs), and vital signs assessment. Throughout this course, students will become familiarized with common medical terms and procedures used within this vocation. Students will also spend one period each day in the Principles of Business computer room learning about career opportunities available in the health care field.

FRESHMAN PROGRAM

This course introduces the student to basic infection control, health and safety practices that will be used initially in shop, and then later in the clinical setting. It provides an overview of the health care system as well as detailed instruction explaining the role and scope of practice of the Certified Nursing Assistant within the system. A brief overview of home care and the role of the Home Health Aide are also provided. The concepts of patient's needs, rights, and cultural diversity are addressed. Documentation is introduced during the freshman year. Portfolio binders will be created and maintained throughout the course. Students will learn entry level hands on skills (competencies) and the basic theory related to them. In addition, they will learn communication and employability skills. Math and English skills are reinforced through health-related homework assignments.

Students will spend one period each day in the Administrative Skills computer room researching career opportunities available in the health care field or other health related topics, as well as learning keyboarding, and an introduction to office and business/entrepreneurial skills. Basic Medical Terminology is also covered as part of the related class. Successful completion of this course is required in order for students to continue on to the sophomore Nurse/Health Assisting course. This course meets the Department of Public Health's beginning requirements for eligibility to take the state Certified Nursing Assistant (CNA) exam.

SOPHOMORE PROGRAM

Sophomore Nurse/Health Assisting course begins with a general review of the competencies (skills), theory, and documentation introduced during the freshman year, and then discusses those topics in further detail using a body system approach. More complex competencies are taught, which also incorporate the concepts of infection control, and patient and nursing assistant safety. The importance of critical thinking and observation skills are stressed.

Communication and employability skills are reinforced throughout the course. Focus is placed on guiding the students toward independent thinking and team work. Each cycle, students are assigned to work as shop assistants. They are responsible for the general upkeep of the shop area and are expected to perform as a team, with minimal instructor supervision. Portfolio binders will be maintained throughout the course. Math and English skills are reinforced through health-related homework assignments. Clinical experience begins during Term 1. Students will spend two days with the instructor in supervised health care settings (pediatrics and geriatrics). Sophomores are trained and certified in CPR for the Healthcare Provider as well as Basic First Aid.

Microbiology is also covered in the shop setting for one period each day. This course provides a more detailed description of microorganisms, how they cause disease, and OSHA guidelines to reduce the spread of infection.

Principles of Business for the sophomore curriculum covers the use of Microsoft Office applications and an entrepreneurial project. Additionally, students will complete Career Safe, an OSHA online career and safety training program.

Successful completion of this course is required in order for students to continue on to the Junior Nurse/Health Assisting course. This course meets the Department of Public Health's beginning requirements for eligibility to take the state CNA exam.

SOPHOMORE RELATED THEORY COURSES

- ☐ Microbiology
- ☐ Principles of Business

JUNIOR PROGRAM

Junior year's instruction focuses on providing information to support the successful mastery of critical thinking and technical skills with an emphasis on patient care. Students learn advanced competencies (skills) which they utilize to complete patient care scenarios, while also focusing on maintaining privacy and treating the patient/client with dignity and respect. Students complete clinical placement rotations at an acute care hospital, and LTC facilities, as well as observation rotations at Assisted Living Centers and Adult Day Care Centers. Instruction also includes dementia care and the Home Health Aide curriculum, for which students receive certificates of completion. This course is designed to prepare the student to function independently as a skilled team member under the supervision ofa licensed nurse in an acute or long term facility.

Upon successful completion of this year's coursework and clinical hours, the student is eligible to take the Massachusetts Certified Nursing Test to become a Certified Nursing Assistant(CNA).

JUNIOR RELATED THEORY COURSES

- ☐ Anatomy & Physiology
- ☐ Nutrition

SENIOR PROGRAM

The senior year curriculum consists of Cooperative job placement or Advanced Clinical Placement. Students who meet the school's eligibility requirements and have passed the CNA certification test may obtain a Co-op job working as a CNA in an Assisted Living Center, Long Term Care Facility, or an Adult Day Care Center. Students, who do not wish to obtain a Co-op job, will complete Advanced Clinical Placement rotations in various departments at SouthCoast Hospitals Group, Fairhaven EMS, Bedford Gardens Rehabilitation Center, or other local health care facilities. CPR recertification is done prior to graduation. As part of the Related (elective) class curriculum, students will be trained in medication administration and will be eligible to sit for the Medication Administration Program (MAP) certification test once they are 18 years old.

SENIOR RELATED THEORY COURSES

- ☐ Growth & Development/ Pharmacology - elective
- ☐ Advanced Medical Terminology

CAREER OPPORTUNITIES:

- ☐ Certified Nursing Assistant
- ☐ Speech Therapist/Pathologist
- ☐ Registered Nurse
- ☐ Nurse Midwife
- ☐ Nurse Practitioner
- ☐ Physician's Assistant
- ☐ Nurse Anesthetist
- ☐ CPR/First Aid Instructor
- ☐ Health Care Assistant
- ☐ Home Health Aid
- ☐ Massage Therapist
- ☐ Occupational Therapist
- ☐ Paramedic/EMT
- ☐ Physical Therapist/Sports Trainer

MEDICAL ASSISTING

FRESHMAN EXPLORATORY

The Medical Assistant exploratory program consists of a three day rotation. The goal is to attract students into the medical assistant program by acquainting them with the various career opportunities available, as well as specific basic skills performed by the health care worker. The students will be instructed on American Heart Association guidelines for CPR. Upon successful completion of exploratory, a certification in CPR may be obtained.

FRESHMAN PROGRAM

The Medical Assistant 9th Grade program will prepare the student to learn the basics of medical assisting. The students will receive instruction in medical terminology, roles and functions of a Medical Assistant, communication skills, OSHA regulations, fire and safety procedures, medical asepsis and the height and weight of an adult, child and infant. Students will also be certified by the American Heart Association, in Basic Life Support for the Health Care Provider. Medical math will be taught on a regular basis. Computer projects, including research into medical careers and illnesses will be done during the course of the year. The basis of the ninth grade curriculum is to prepare students for placement, beginning in tenth grade.

SOPHOMORE PROGRAM

Sophomore Medical Assistant career and technical program is a 90 day course, which consists of 6-day cycles. The students learn the necessary theory and skills required to function in the role of a medical assistant. Instruction is offered in clinical skills, which include: vital signs, vision and hearing screenings, assisting with the physical exam and specialty procedures, sterilization techniques, and collecting, handling and storing of specimens. Instruction is also focused on oral and written communication, employability skills, professionalism, and medical terminology. During the sophomore year, students participate in clinical placement. Each student is assigned to an elementary or middle school, for two days each cycle, through area schools in New Bedford and Dartmouth. The students assist the school nurse with a variety of clinical procedures including first aid assessment, height and weight screenings, assisting with vision and hearing screenings and dismissal procedures. Clerical duties can include filing, telephone skills, and inputting data in electronic medical records. This course provides the student with the technical skills to advance to junior year.

SOPHOMORE RELATED THEORY COURSES

- ☐ Medical Terminology
- ☐ Administrative Skills

JUNIOR PROGRAM

The Junior Medical Assistant Program is designed to prepare students who will assist physicians in a health care setting. During Junior Shop the student spends six day cycles in shop. Students develop advanced skills in shop which include sterile technique, performing electrocardiography, venipuncture, and advanced laboratory techniques. The students spend part of the shop cycle placed at diverse clinical placements to further develop and implement these advanced skills. The varied clinical settings provide the student the opportunity to efficiently perform learned skills in an actual clinical situation and allows for the continuation of career exploration.

JUNIOR RELATED THEORY COURSES

- ☐ Anatomy & Physiology
- ☐ Pathophysiology

SENIOR PROGRAM

Senior Medical Assisting students who are eligible may obtain a co-op opportunity as a medical assistant in a health care setting. All other students will attend placement at a variety of health care settings for the duration of the cycle. Each trimester the student will change sites.

SENIOR RELATED THEORY COURSES

- ☐ Pharmacology
- ☐ Coding/Advanced Medical Terminology/ Nutrition - elective

The Medical Assisting program at Greater New Bedford Regional Vocational Technical High School has approval from the National Health Career Association.

CERTIFICATIONS:

- ☐ Certified Phlebotomy Technician (CPT)
- ☐ Certified EKG Technician (CET)
- ☐ Certified Clinical Medical Assistant (CCMA)
- ☐ Certified Billing & Coding Specialist (CBCS)
- ☐ Certified Medical Administrative Assistant (CMAA)

CAREER OPPORTUNITIES:

- ☐ EMT / Paramedic
- ☐ Licensed Practical Nurse
- ☐ Medical Billing
- ☐ Medical Coder
- ☐ Medical Lab Technician
- ☐ Nurse Practitioner
- ☐ Occupational Therapist
- ☐ Pharmacist
- ☐ Pharmacy Technician
- ☐ Phlebotomist
- ☐ Physical Therapist
- ☐ Physician Assistant
- ☐ Registered Nurse
- ☐ Respiratory Therapist
- ☐ Surgical Technician

LEGAL AND PROTECTIVE SERVICES

FRESHMAN EXPLORATORY

During this 3-day introduction the 9th grade students are provided with an overview of the Legal and Protective Services program. Each student will be introduced to mock trial skills, crime scene investigation, Massachusetts laws, and the Lizzie Borden project. The fingerprinting will consist of learning about the history of fingerprinting, and will start lifting fingerprints themselves. The students will then learn how to investigate a small crime scene; they will be divided into groups and each group will have to identify a variety of crimes and evidence, and then conclude with a police report. At the conclusion of the Exploratory the students are given a task of presenting the evidence and police report to the class demonstrating their ability and their general knowledge of the program.

FRESHMAN PROGRAM

Students entering the 9th grade Legal Protective Service will be provided with the general knowledge for success in this industry. Students will be introduced to the Lizzie Borden case learning how to research transcripts and do a mock trial. The students will learn about the Massachusetts court system and will be instructed on specific crimes and sanctions. The students will then learn about our local courthouse and prisons. Other shop projects consist of learning about constitutional law, local laws, and a variety of community service projects.

Classroom instruction in Legal and Protective Service will be given daily in shop related subjects.

SOPHOMORE PROGRAM

The sophomore curriculum is designed to provide an in-depth introduction to various aspects of law and the criminal justice system. Students begin to develop critical reasoning skills through case analysis and the application of law which supports advanced learning in the junior and senior years. Students will earn a variety of professional and FEMA certifications preparing them for college and workplace readiness upon graduation. All certifications correlate to real-world skills used by first responders in the protective services field.

SOPHOMORE RELATED THEORY COURSES

Health and Wellness

The Legal and Protective Service Program has a cardiovascular, strength training, agility and Wellness Plan component to the curriculum. The students are required to stretch before and after every physical training session to prevent injury and keep the body flexible. In addition to a concern for the prevention of injuries, the program is committed to optimizing the opportunity for all students to fully benefit from and to be successful in completing the Health and Wellness program. In order to meet these goals, student must know what to expect ahead of time and must prepare in advance of the first day of training. The most significant factors in this preparation are weight control, aerobic capacity, muscular strength, endurance, and flexibility. Students entering the program are expected to be able to run/jog a distance of 2 miles. In addition to endurance runs, student should also expect other cardiovascular, callisthenic and resistance training exercise routines; these will include push-ups, sit-ups and abdominal crunches, jumping rope, circuits and sprint work.

Sophomore Legal & Protective Services/Certifications

FEMA (Federal Emergency Management Association) CERTIFICATIONS:

- Community Hurricane Preparedness
- Diversity Awareness in the Workplace
- Civil Rights and FEMA Disaster
- Ethics Orientation
- Leadership and Influence
- Decision Making and Problem Solving
- Goal Writing
- Workplace Security Awareness
- Workplace Violence Awareness
- Workplace Surveillance
- Active Shooter
- Until Help Arrives
- Iris Certification
- Youth Court Certification

- Social Media
- Effective Communication
- Technical Writing
- CERT (Citizens Emergency Response Team)
- OSHA 10 General Industry
- CPR Adult & Infant
- AED
- First Aide
- State Ethics Examination

JUNIOR PROGRAM

Students entering the 11th grade in Legal Protective Service will be provided with knowledge in police work and investigations on every level from white collar and internet crimes to gangs and terrorism. Some of the subjects covered in this program are:

Trimester I - Criminal Law, Assaults, Sexual Assault, Domestic Violence, Abuse, Victimology, Larceny, Robbery, First Responder, Report Writing Crime Scene Investigation, the Crime Scene, Crime Scene Integrity, Crime Scene Search, Identifying Evidence, and Physical Evidence.

Trimester II – Photographing, Community Policing, Ballistics, Forensics, Evidence Documentation, Interpreting the Crime Scene, Crime Scene Sketch, and Crime Scene Perspective.

Trimester III – White Collar Crime, Private Investigation, Public Records, Interviewing and Interrogation, Field Notes, Resolution and Investigation, Motor Vehicle Stops, Reading Non-Verbal Body Language, and Mediation.

JUNIOR RELATED THEORY COURSES

- Criminal Justice Theory 1
- Legal & Protective Procedures and Safety I

Junior Legal & Protective Services/Certifications

- NIMS 700
- ICS 100
- Telecommunications Emergency Response
- Role of Voluntary Agencies in Emergency Management
- 911 Tele-Communicator
- 911 Equipment Operations
- Police Information Officer

SENIOR PROGRAM

In the senior year students will be on placement at legal and protective sites throughout the district. Some of the sites students are placed at are the New Bedford Police Department, the District Attorney's Office, Third District Court, New Bedford EMS, and the New Bedford Fire Department.

SENIOR RELATED THEORY COURSES

- Criminal Justice Theory II
- Legal & Protective Procedures and Safety II

Senior Legal & Protective Services/Certifications

- CPR Recertification
- State Ethics Examination
- Telecommunications Emergency Response
- Role of Voluntary Agencies in Emergency Management
- In-Depth Guide to Citizens Preparedness

- Hazardous Materials
- HAZMAT Contingency Planning
- FEMA Advanced Planning
  Preparing FEMA

Consumer Services, Information & Transportation Academy

COSMETOLOGY

FRESHMAN EXPLORATORY

This 3 day course provides students with an overview of the cosmetology program. Students are introduced to safety and sanitary practices, cosmetology skills, equipment, and different types of careers available to Cosmetology students. The skills discussed and equipment used involves manicuring, roller placement, facials, shampooing, scalp treatments, braiding, and blow drying with an emphasis on client safety and sanitation. Hands-on work will demonstrate hand-eye coordination, dexterity, and maintain an exploratory binder describing their experience to determine students' potential success in the Cosmetology profession.

FRESHMAN PROGRAM

Students entering the 9th grade shop are provided with the basic knowledge and skills necessary for success in the cosmetology industry. Students receive practical instruction on safety and sanitation and how to maintain a professional shop setting. Practical work includes the use of blow dryers, rollers, curling irons, flat irons, manicuring and facial cosmetics. Tasks will enable students to practice hand-eye coordination and dexterity. The course will train students to perform such tasks as draping, shampooing and conditioning, long hairstyling, wet hairstyling, hair and scalp treatments, manicuring, facials and hair removal. The history of cosmetology is explored and students work to create a professional image and develop communication skills. Students also maintain a portfolio that includes before and after photographs of tasks they have accomplished which shows the progression of their work through senior year. The portfolio will be utilized by students when seeking employment upon attaining their cosmetology license. Instruction includes demonstrations, hands-on practice, writing, and reading assignments; quizzes and tests determine a student's competency level.

SOPHOMORE PROGRAM

This course is designed to further develop the basic skills and knowledge needed for success in the cosmetology field. The students will work on the fundamentals of hair design. These tasks include wet and thermal hairstyling, and haircutting. Makeup application and the demonstration of artificial hair and wigs are also explored. Students will develop an

understanding of the usage and implementation of tools, along with safety and sanitary practices.

The students refer to their Milady Standard Cosmetology textbook as a reference tool. Instruction includes demonstrations and hands-on practice; writing and reading assignments, portfolio development, quizzes and tests will determine competency levels.

SOPHOMORE RELATED THEORY COURSES

Principles of Design

This course is taught once a day in the shop setting. Students will be provided instruction in the areas of wet and thermal hairstyling, principles of design, haircutting, hair removal, facial makeup, manicuring, pedicuring, wigs and hair enhancements. Students will have an opportunity to apply the related theory to students in the shop setting. Included in this class are lectures, textbook, online resources, videos, reading and writing assignments, projects, maintaining a notebook, quizzes and tests.

Biological Science

This course is taught once a day in the shop setting. Students will be instructed in the care, structure, composition, analysis, function, and the identification of disease and disorders that relate to hair, skin, and nails. Students will be able to put into practice after instruction, a client consultation, explain the importance of good posture and follow sanitary precautions when performing a haircut. Students will acquire knowledge pertaining to facial massage, skin types, and skin care products. Students will also be able to discuss types of hair loss and services available. Instruction includes lecture, textbook, online resources, videos, reading and writing assignments, projects, tests, notebook, and quizzes.

JUNIOR PROGRAM

This course is designed to give students the opportunity to advance their knowledge and technical skills in the cosmetology program. The junior year in Cosmetology is designed to give the student a strong foundation in basic hair color theory, classification of color, formulation, application of temporary, semi-permanent, demi-permanent and permanent hair color, bleaching, lightening, and special effects. Students will also be able to review competencies from freshmen and sophomore year. Students will conduct client consultation and learn to keep and record services. This course will provide students with the opportunity to perform cosmetology services in a realistic salon setting. This course will provide daily opportunities to develop desirable workplace habits and behaviors. Throughout the year, a strong emphasis will be placed on developing decision-making and time-management skills. Instruction will include portfolio development, demonstration, hands on practice; maintaining a notebook, writing and reading assignments, projects, quizzes and tests will determine competency levels.

JUNIOR RELATED THEORY COURSES

Hair Coloring

Hair coloring is a junior level related course, offered twice a day during the academic cycle. This course will provide students with the necessary theory instruction to perform successful hair coloring services, such as color theory, classification and differentiation of color, lightening products, level, tone, color correction techniques, and industry standard terminology relating to hair color. Students will have an opportunity to develop sound problem-solving and decision making skills through hair color formulation. A variety of teaching methods will be utilized throughout this course, including lectures, hands on classroom assignments, audio visual presentation and a notebook will be maintained.

Cosmetology Health and Sciences

This junior course is offered once a day during the academic cycle. During this course students will identify appropriate methods to ensure personal health and well-being. Soft skills examined, are active listening and communication skills. Anatomy and physiology is taught in respect to the needs of the cosmetology profession and personal health. . A variety of teaching methods will be utilized throughout this course, including lectures, articles, presentations, hands-on classroom assignments, audio-visual presentations and brainstorming.

SENIOR PROGRAM

This senior course is designed to provide students with the opportunity to master their technical skills and comprehension level in the Cosmetology program. Students will review subject matter in the areas of safety and sanitation, professional practices, skin, hair, and nail care. The course will train students to perform permanent waving and chemical hair relaxing. Students will receive practical experience working in and operating the clinic, and review practical procedures. Upon competition of 1,000 hours of study, a mock State Board examination will be given in preparation to take the Massachusetts Cosmetology Licensing Exam.

Students may pursue co-op opportunities by the last quarter of senior year provided they have reached the 1,000 hour requirement, have successfully completed the cosmetology curriculum, and have met school-wide attendance and grade requirements. Instruction will include portfolio development, demonstration and hands-on practice; maintaining a notebook, writing and reading assignments, projects, quizzes and tests will determine competency levels.

SENIOR RELATED THEORY COURSES

State Board Preparation

This senior related course is provided once a day during the academic cycle. Students will review subject matter in the areas of safety and sanitation, professional practices, chemical services, hair coloring, and structure, function, disease and disorders pertaining to skin, hair, and nail care. Students will also obtain information on exam requirements, eligibility, and content.

Business of Cosmetology

This senior course is provided once a day during the academic cycle. Upon completion of this course, students will review communication skills and salon ethics, create a business plan for a "mock" salon, and examine business laws and banking services. Students will also study factors for establishing a salon, review state rules and regulations, and create a salon floor plan. Instruction will include lectures, hand-outs, articles, role playing, guest artists, presentations, classroom assignments, tests, quizzes, audio visual presentations and brainstorming.

Texture Services

Students will develop an understanding of the products, procedures, and history on the topics of chemical texture services, which include permanent waving, chemical hair relaxing, and soft curl perms. Braiding, hair extensions, and basic spa services will also be examined.

Students will have an opportunity to apply the related theory in the shop setting. Instruction will include lectures, hand-outs, articles, role playing, guest artists, presentations, classroom assignments, tests, quizzes, audio visual presentations and brainstorming.

CERTIFICATIONS:

- Cosmetology State Board Licensure – Massachusetts
- Acrylic Nail Application- OPI/Creative Nail/Cuccio

CAREER OPPORTUNITIES:

- Cosmetologist
- Salon Owner
- Make-up Artist
- Platform Artist
- National Product Educator
- Retail/Sales-Associate

BUSINESS TECHNOLOGY

Beginning with the Class of 2021 the Business Technology will be a two-year, pre-professional program designed for students planning careers in the business field. In a simulated setting, students become knowledgeable with the skills, abilities and attitudes needed for successful job performances in the technical business and/or office profession. Students learn a wide range of technical procedures including keyboarding, computer applications, internet exploration, records management, accounting, automated accounting, financial literacy, banking, insurance operations, consumer education, business mathematics, operation of office machinery, and general office procedures. Students focus on employability and operational skills required to be effective in today's work force including professional written and verbal communications, customer service, marketing, leadership training, and problem solving.

Business Technology students will also become members of Business Professionals of America (BPA) and are eligible to take part in BPA sponsored skills competitions involving high school students from across Massachusetts. State winners become eligible to participate in BPA's national competitions.

SOPHOMORE PROGRAM
Class of 2020

The program is designed to provide a detailed and accurate depiction of the informational, technical, and project based course work that encompasses Business Technology core procedures. Group and individual projects are assigned on a daily and/or cycle basis. This information is delivered through lecture, open discussions, activities, and project reinforcement. Students complete a combination of group interactive and individual assignments focusing on introductory business concepts, teamwork, and communication. There are several tracks that are incorporated within this simulation environment. Demonstrated at a comprehensive conceptual capacity the tracks include: Computer Applications MS Office Software (Word, Excel,

and PowerPoint), Business Procedures, School Store Operations, Introduction to Business, Business Math, Keyboarding techniques, Employability Knowledge and Skills, Management, and basic Employability Knowledge and Skills. Students will also be eligible to test for Certifications in MS Word and PowerPoint.

SOPHOMORE RELATED THEORY COURSES

Office Operations

This comprehensive course provides essential skills for success in today's business world. The Office course is designed to teach knowledge and skills that are needed in a variety of careers where workers communicate, manage information, use technology, handle records, work with others, and solve problems in an office setting. The activities in the text are task-oriented, requiring students to apply knowledge and skills learned to complete an assignment or solve a problem.

JUNIOR PROGRAM

The course is designed to provide a detailed and accurate depiction of the informational, technical, and project based course work that encompasses Business Technology curriculum frameworks and procedures. Group and individual projects are assigned on a daily and/or cycle basis. This information is delivered through lecture, open discussions, activities, project reinforcement, and assessments. Students complete a combination of group interactive and individual assignments focusing on advanced business concepts, teamwork, leadership, management, employability, and communication. There are several tracks that are incorporated within this simulated environment. Demonstrated at an advanced conceptual capacity the tracks include: Computer Applications MS Office Software (Excel, Access, and Outlook), Business Procedures, Marketing, Human Resources, Customer Service, Public Speaking Presentations, Employability Knowledge and Skills, Management, and Entrepreneurship. Students will also be eligible to test for Certifications in MS Excel, Outlook, and Access.

JUNIOR RELATED THEORY COURSES

Financial Literacy

Financial Literacy is a course that focuses on basic personal finance skills that are relevant to the lives of pre-teens, and young adults. The goals of this course are to provide students with learning experiences that serve to build confidence to make financial decisions, apply sound foundational financial decision making principles, and exhibit mindful money management behaviors. This course also partners with the M. Ellen Carpenter Financial Literacy program and the National Endowment for Financial Educations program and includes a trip to the Boston Bankruptcy Court to participate in a mock bankruptcy trial.

Accounting 1A

The fundamentals of accounting will be introduced and developed to give the student a foundation on which to build. Students will complete accounting functions for a service business which is organized as a proprietorship. In this related course students will perform manual accounting entries using a course workbook. Concepts will be introduced in class together, and reinforced in homework assignments. Concepts taught during related cycles will be reinforced in each subsequent shop cycle using automated accounting.

SENIOR PROGRAM

Senior students who are eligible for the Co-op program by maintaining a 70% or greater in all academic and shop grading evaluations, maintaining attendance standards, and performing successfully will be placed in either the GNB Voc-Tech Placement or Co-op programs. Co-op is paid employment, the students must submit accurate resumes and interview for the position. Job appointment is determined by the site hiring managers. The Placement program is designed for students who do not meet eligibility standards of Co-op, do not have transportation, or prefer to participate in the non-paid internship. Students will be bussed to their sites during school hours only, and will follow a regular school schedule. Placement jobs are determined by the instructor and site management together with consideration to the skill set of the students.

Students who do not meet either eligibility requirements, or if a site is not immediately available, will remain in the shop area to continue supporting the Massachusetts curriculum frameworks by working on Microsoft Office Certifications and/or project-based assignments.

SENIOR RELATED THEORY COURSES

Accounting 1B

The fundamentals of accounting introduced in Accounting 1A will be expanded to include concepts and practices required to perform accounting entries for a merchandising business organized as a partnership. The primary differences between a merchandising business and a service business are that merchandising businesses purchase merchandise for resale, charge sales tax on sales of merchandise, and include a Cost of Merchandise sold section on the income statement. Students will also be introduced to the use of subsidiary ledgers as well as payroll. Concepts will be introduced in class together, and reinforced in homework assignments. Concepts taught during related cycles will also be reinforced in each subsequent shop cycle using automated accounting.

Specialized Business

Specialized Business provides students with the opportunity to explore specific business sectors. Students will spend four cycles each researching the insurance and banking industries. The insurance industry is an integral part of finance as is banking. Studying insurance operations will prepare students for the real world of the insurance business including becoming financially capable about insurance. Students will also acquire the skills to be competent consumers and employees in the banking industry. This course will provide students an opportunity to complete both college and career readiness activities.

FASHION DESIGN

FRESHMAN EXPLORATORY

During the three days of exploratory, students will get an overview of the Fashion Design program. The stages of apparel design and development will be explored. Students will learn to safely use basic hand tools and machinery to create a project. Fashion Design course content and career opportunities will be discussed.

FRESHMAN PROGRAM

Freshmen placed in the Fashion Design career and technical area learn the basic tools and techniques used in garment construction. These techniques, including pattern layout, cutting, construction, and finishing, are explored while creating basic projects using industrial equipment. Students learn terminology related to hand tools, machine operation and garment construction while sewing skills are built upon as the year progresses. Fabric selection, figure drawing, fashion illustration and garment design software are introduced. Learning proper clothing construction techniques is the foundation for the many other facets of fashion design. Students in all grades build a personal portfolio and take part in community service projects.

SOPHOMORE PROGRAM

Sophomores build their commercial pattern layout and clothing construction skills while creating a variety of garments and accessories for women and men. Students learn to work with a variety of woven and knit fabrics and specialty machines including overlock, buttonhole, cover stitch, blind stitch and purl edge. Flat pattern drafting is introduced as students begin to design their own custom garments. Students learn fabric identification while creating a swatch binder and continue to develop their fashion illustration skills and technical vocabulary. Students take part in several design challenges and will utilize the “Starting a Clothing Line” software.

SOPHOMORE RELATED THEORY COURSES

Tenth grade related theory is comprised of two courses: **Math for the Fashion Industry** and **Apparel Science**. In the math course, students will be exposed to and work with fractions, decimals, percentage, markup and discounts, sales transactions, and calculating wages. In addition to Math, students will obtain a strong education in the science of the fashion industry. Concepts will include a foundation of color theory, an introduction to natural and man-made fibers and fabric construction, garment care and wardrobe building. Students complete a research project on different fashion designers and their contributions to the fashion industry. They also research different fashion careers.

JUNIOR PROGRAM

Juniors continue to build their apparel design, pattern drafting and advanced garment construction skills with attention to fit. In addition to redesigning existing garments, students design new outfits and create patterns for themselves and models for the department's fashion show. They also perform garment alterations for clients. During units on fashion for the home, students learn to construct several different types of window treatments and patchwork quilts. Product development, computer aided drawing using Adobe Illustrator and computer-aided pattern drafting using the industry standard, and Gerber software will be introduced. Technical terminology continues to develop by including fashion industry terms, garment styles and design features.

JUNIOR RELATED THEORY COURSES

The related theory component for junior year encompasses three topics covered in two classes. Students are enrolled in **Apparel Design and Marketing** as well as **Textile Science**. Students learn about the elements and principles of design, the role Pantone plays in the fashion industry, visual display planning, marketing functions and fashion cycles, promoting a fashion image, as well as business ethics. Students will learn how to cost out their garment after it is designed, and will make actual cost sheets using Microsoft Excel. They will also continue to use Adobe Illustrator to aid in the garment design and illustration process. In addition, students receive a strong education in the science of the textile industry. They will be provided an overview of the different types of textiles, including their fibers, structures, performance characteristics, physical properties, and uses. Yarn and fabric construction methods will be covered, as well as the dyeing, printing, and finishing methods. Students will continue to build their swatch notebooks with fibers, yarns, and various fabric samples.

SENIOR PROGRAM

Seniors in fashion design use mannequins to explore the three-dimensional draping approach to garment design. Projects emphasize the important principles of grain, balance, and construction. Through critiqued design development on the dress form, students develop their own sense of proportion, silhouette, line and style. Pattern drafting skills continue to be developed. In addition to advanced garment construction, seniors use their strong sewing skills to complete alterations for clients. After researching trends, designing a project and selecting materials, students move on to product development where they create a product with market appeal and develop technical specifications. In addition, students are introduced to Photoshop and continue to work with Adobe Illustrator and the Gerber CAD program. Towards the second half of the year, students begin working on the department's spring runway show. They design garments for themselves or other models as they develop a collection. Their collection focuses on a unifying theme which highlights their creativity and construction techniques and is a culmination of all that is learned over the past three years.

SENIOR RELATED THEORY COURSES

Related theory during the senior year is comprised of one required course, **Fashion Industry and Entrepreneurship**, and a **Fashion & Visual Merchandising elective**. The required course covers a broad area of topics including fashion history, sources of inspiration, textile design, and many projects necessary to produce the department's spring runway show. In addition, students will also learn how to launch a mock fashion business. They practice interview skills and customer service, as well as prepare their own business plan. It is designed to prepare them for the professional working world. The elective course will provide an introduction to those students wishing to become involved in fashion merchandising, including the planning, buying and selling in the fashion industry. The students will explore the retail environment, location, shop design, layout and display, store operations, customer services and selling skills and the future of retail. They will also learn how to create positive and eye-catching visual displays.

CERTIFICATIONS:

Upperclassmen have the opportunity to take a national pre-professional assessment to obtain a certificate in Fashion, Textiles and Apparel.

CAREER OPPORTUNITIES:

- Alterations assistant
- Seamstress/stitcher
- Fashion/fabric retail sales associate
- Entry-level retail management
- Retail visual display associate
- CAD technician
- Stylist
- Production artist color picker
- TV/movie day player design assistant
- Textile merchandiser
- Sample maker
- Theater costumer/wardrobe stylist

POST-SECONDARY EDUCATION OPPORTUNITIES:

- Fashion Design
- Fashion and Visual Merchandising
- Fashion Marketing
- Fashion Production and Management
- Fashion Communication and Promotion
- Patternmaking
- Product Development
- Retail Management
- Textile Design
- Fashion Education
- Costume Design

COMPUTER INFORMATION TECHNOLOGY

FRESHMAN EXPLORATORY
Computer Programming and Web Development

Exploratory is also designed to introduce students to the disciplines taught in the two tracks of Programming/Web Design and Information Support Services and Networking. Students will take part in lessons and activities that will introduce them to the information and skill sets required in each program. Students will work in both individual and group projects and present the results of their work to the class.

FRESHMAN PROGRAM

The lessons will include technical information such as technical instructions, manuals, labs, product management documentation, product or technology reviews, and work samples. The students will be introduced to mathematics of computers; numbering systems and logic. Students will be introduced to the purpose and theory of relational databases and then progress to hands on activities such as creating and managing databases. Students participate in two sessions: Information Support Services and Networking in the morning and Programming and Web Design in the afternoon.

During the morning sessions, students will be introduced to networking, hardware, cyber security, software installation, technical writing, electronic notebook development, and portfolio design. The course is designed to introduce the information technology students to relational databases and related technologies. Students will learn the database concepts required to create a database structure including relationships and table structures. Students will use Microsoft Access to construct databases with tables and queries to store and retrieve information. Students are also introduced to the CISCO Academy through lectures, presentation and labs.

During the afternoon session, students are introduced to programming and Web design concepts. Students work with graphic design software to edit photographs and create original designs. They design and create Web sites using HTML and learn programing concepts including flowcharting and technical writing. In the afternoons, students also learn digital math and number conversions.

INFORMATION SUPPORT SERVICES & NETWORKING

Grades are comprised of technical performance, productivity, and professional development. Instruction includes hands-on practice, individual and group projects, round table discussions, laboratories, case studies, audio-visual presentations/demonstrations, online/interactive self-paced training programs, individual instruction, individual computer based assignments, and lectures. Assessments include writing and reading assignments, projects, class participation, professional development, quizzes, presentations, peer assessments, case studies, and tests. Students are introduced to the latest in development tools and software currently utilized in the industry.

SOPHOMORE PROGRAM

Sophomores will have an understanding about computer networking, hardware, and operating systems. The main focus of their sophomore year is what components are required for a computer and the purpose they serve independently and as part of a network. Students will also focus on technical writing, presentation skills, and customer support and service skills.

SOPHOMORE RELATED THEORY COURSES

Computer Science

Computer Science prepares students to take the Microsoft Certified Application Specialist exam in Microsoft Word, Excel and PowerPoint (comprehensive level) and gives the students the foundation skills in word processing, spreadsheets and presentation software, ethics and safe working environments. In addition, students will learn to convert decimal to binary, binary to decimal and binary addition.

In addition, this course instructs students to create and format professional business documents. Students will learn and/or review the following business math topics: gross pay, checking accounts, simple and compound interest, and calculate car insurance premiums. This implements math into the shop with assigned homework, increases MCAS scores, and teaches survival skills.

Database Administration

The course is designed to introduce the information technology students to relational databases and related technologies. The focus is on the purpose and structure of databases. Students will learn the database concepts required to create a database structure including the following: ERM Models, Normalization Forms, Relationships, Table Structures, Queries, Forms, and

Reports. Students will use Microsoft Access to construct databases with tables, queries, reports, and forms to store and retrieve information.

The course is also designed to adapt with the Web Development and Programming and Information Support Services and Networking shop curriculums. Database administration focuses on installing, configuring and maintaining enterprise databases. Database programming focuses on creating web applications that interact with databases to display dynamic content. By introducing students to these concepts prior to graduation, they will be well prepared for employment or continuing education and will understand the importance of databases in the information technology world.

JUNIOR PROGRAM

Juniors begin a two-year Cisco Networking curriculum by taking the Advanced Data Communications and Networking course. This course introduces students to fundamental networking concepts and technologies while providing hands-on use of industry standard tools and hardware. This course introduces the architecture, structure, functions, components, and models of the Internet and computer networks. The principles of IP addressing and fundamentals of Ethernet concepts, media, switches, routers and operations are introduced to provide a foundation for the curriculum. By the end of the course, students will be able to build simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes. Students learn technology concepts with the support of interactive media and apply and practice this knowledge through a series of hands-on and simulated activities that reinforce learning.

SENIOR PROGRAM

The Cisco CCNA Routing and Switching curriculum teaches comprehensive networking concepts and skills, from network applications to the protocols and services provided to those applications by the lower layers of the network. Students will progress from basic networking to more complex enterprise and theoretical networking models later in the curriculum.

This course describes the architecture, components, and operations of routers and switches in a small network. Students learn how to configure a router and a switch for basic functionality. By the end of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with RIPv1, RIPv2, single-area and multi-area OSPF, virtual LANs, and inter-VLAN routing in both IPv4 and IPv6 networks.

The second year of the CCNA Routing and Switching provides extensive coverage of networking topics, from fundamentals to advanced applications and services, with plenty of opportunities to

gain hands-on practical experience and develop career skills. Students learn technology concepts with the support of interactive media and apply and practice this knowledge through a series of hands-on and simulated activities that reinforce learning.

JUNIOR/SENIOR RELATED THEORY COURSES:

Technical Communication

The purpose and philosophy of this course is to introduce the information technology juniors and seniors to the various forms of technical communication utilized in the IT field and to prepare them to create and deliver such forms of communication. Technical communication includes the communication of technical information such as technical instructions, manuals, product management documentation, product or technology reviews and work samples, and technical articles. Students are trained to deliver prepared and extemporaneous speeches and presentations. Additionally, students will be exposed to the forms of communication necessary to secure employment or start businesses of their own by creating the necessary documentation. The skills gained in this class will prepare the student to continue learning and adapting to technology changes post-graduation whether they continue on to a two or four year school or related employment.

Fundamentals of Math/Analytical Math

The purpose and philosophy of this course is to introduce students to technical math through a combination of conceptual and practical activities. Students first learn the mathematics of computers; digital/analog, numbering systems and logic. Students will also be introduced to math skills required in personal finance and business applications. The underlying fundamentals of the program will include career and technical training, integrated English, math, related science, and OSHA safety training to provide each student with the background to advance educationally as well as professionally.

Entrepreneurship Portfolio/Certification

This course instructs students to explore career opportunities and compare and contrast types of businesses, including sole proprietorships, small businesses, companies, corporations, governmental agencies and non-profit organization. In addition, students will market a company, choose a business, name, design a logo, business cards, letterhead, promotional materials, create a web site and advertise.

The purpose and philosophy of this course is to introduce students by completing a series of integrated hands-on projects that combine the concepts of entrepreneurship and computer skills. The underlying fundamentals of the program will include career and technical training, integrated English, math, related science, and OSHA safety training to provide each student with the background to advance educationally as well as professionally

CERTIFICATIONS:

- Career Safe Certification, recognized by the Occupational Safety and Health Administration (OSHA)
- Cisco Certified Entry Networking Technician (CCENT) Certification
- Microsoft Office Specialist (MOS) Certification

CAREER OPPORTUNITIES:

- Network Technician
- Support Engineer
- Network Administrator
- Computer Help Desk
- Computer Sales
- Computer Systems Analysis
- Cyber Incident Response
- Cyber Risk and Strategic Analysis
- Digital Forensics and Forensics Analysis
- Network Designer
- Network Engineer
- Systems Administrator
- Computer Maintenance Technician
- Cyber Risk and Strategic Analysis
- Digital Forensics and Forensics Analysis
- Software Assurance
- Software Assurance
- Database Administrator

PROGRAMMING AND WEB DESIGN

Grades are comprised of technical performance, productivity, and professional development. Instruction includes hands-on practice, individual and group projects, round table discussions, laboratories, case studies, audio-visual presentations/demonstrations, online/interactive self-paced training programs, individual instruction, individual computer based assignments, and lectures. Assessments include writing and reading assignments, projects, class participation, professional development, quizzes, presentations, peer assessments, case studies, and tests. Students are introduced to the latest in development tools and software currently utilized in the industry.

SOPHOMORE PROGRAM

Students will have an understanding of general Web Development Concepts. Material for Web Development will be a history of the World Wide Web, HTML validations, CSS referencing, Web Browsers, Project Planning, Storyboarding, Web Design, and basic HTML and CSS elements. Students will continue their learning of the database concepts required to create a database structure including relationships and table structures. Students will use Microsoft Access to construct databases with tables, queries, forms, and reports to store and retrieve information.

Students will also have an understanding of fundamental computer programming concepts. Material covered for Computer Programming will be the History of Computer Programming, types of Programming languages, Troubleshooting Techniques, Pattern Recognition, Software Testing as well as fundamental programming instructions.

SOPHOMORE RELATED THEORY COURSES

Computer Science

Computer Science prepares students to take the Microsoft Certified Application Specialist exam in Microsoft Word, Excel and PowerPoint (comprehensive level) and gives the students the foundation skills in the areas of word processing, spreadsheets and presentation software, ethics and safe working environments. In addition, students will learn to convert decimal to binary, binary to decimal and binary addition.

In addition, this course instructs students to create and format professional business documents. Students will learn and/or review the following business math topics: gross pay, checking accounts, simple and compound interest, and calculate car insurance premiums. This implements math into the shop with assigned homework, help increase MCAS and teaches survival skills.

Database Administration

The course is designed to introduce the information technology students to relational databases and related technologies. The focus is on the purpose and structure of databases. Students will learn the database concepts required to create a database structure including the following: ERM Models, Normalization Forms, Relationships, Table Structures, Queries, Forms, and Reports. Students will use Microsoft Access to construct databases with tables, queries, reports, and forms to store and retrieve information.

The course is also designed to adapt with the Web Development and Programming and Information Support Services and Networking shop curriculums. Database administration focuses on installing, configuring and maintaining enterprise databases. Database programming focuses on creating web applications that interact with databases to display dynamic content. By introducing students to these concepts prior to graduation, they will be well prepared for employment or continuing education and will understand the importance of databases in the information technology world

JUNIOR PROGRAM

Students will learn web design techniques and HTML programming to create the pages and then format multiple web pages using Cascading Style Sheets. HTML, CSS, JavaScript, PHP, and MySQL are utilized to complete the Web Design curriculum. This class is project-based as students will have the responsibility to maintain portions of the school's web site as well as their own. Web Design students will be introduced to various authoring software. Advanced topics will include adding audio, video, and plug-ins to their web sites.

SENIOR PROGRAM

Seniors in Web Management will be further trained in Internet Programming and Site Maintenance. Students will learn web design techniques and HTML programming to create the pages and then format multiple web pages using Cascading Style Sheets. Students will create, publish, and market web sites through simulated and live projects. This class is project-based as students will have the responsibility to maintain the school's web site as well as their own. Web Management students will learn XHTML and standardized Web programming. Advanced topics will include using JavaScript and server-side technologies.

JUNIOR/SENIOR RELATED THEORY COURSES

Technical Communications

The purpose and philosophy of this course is to introduce the information technology juniors and seniors to the various forms of technical communication utilized in the IT field and to prepare them to create and deliver such forms of communication. Technical communication includes the communication of technical information such as technical instructions, manuals, product management documentation, product or technology reviews and work samples, and technical articles. Students are trained to deliver prepared and extemporaneous speeches and presentations. Additionally, students will be exposed to the forms of communication necessary to secure employment or start businesses of their own by creating the necessary documentation. The skills gained in this class will prepare the student to continue learning and adapting to technology changes post-graduation whether they continue on to a two or four year school or related employment.

Fundamentals of Math/Analytical Math

The purpose and philosophy of this course is to introduce students to technical math through a combination of conceptual and practical activities. Students first learn the mathematics of computers; digital/analog, numbering systems and logic. Students will also be introduced to math skills required in personal finance and business applications. The underlying fundamentals of the program will include career and technical training, integrated English, math, related science, and OSHA safety training to provide each student with the background to advance educationally as well as professionally.

Entrepreneurship Portfolio/Certification/Portfolio

This course instructs students to explore career opportunities, colleges and compare and contrast types of businesses, including sole proprietorships, small businesses, companies, corporations, governmental agencies and non-profit organization. In addition, students will market a company, choose a business, name, design a logo, business cards, letterhead, promotional materials, create a web site and advertise

The purpose and philosophy of this course is to introduce students by completing a series of integrated hands-on projects that combine the concepts of entrepreneurship and computer skills. The underlying fundamentals of the program will include career and technical training, integrated English, math, related science, and OSHA safety training to provide each student with the background to advance educationally as well as professionally.

CERTIFICATIONS:

- Career Safe Certification, recognized by the Occupational Safety and Health Administration (OSHA)
- Cisco CCENT Certification
- Adobe Certified Associate (ACA) – A global, validated, standards-based training and certification program for Adobe products.

CAREER OPPORTUNITIES:

- Entry-level Web Development
- Computer Programming Internships
- Assistant Network Administrator
- Computer Help Desk
- Computer Sales
- Entry-level Computer Programming
- Entry-level Game Programmer
- Assistant Systems Administrator
- Computer Maintenance Technician

AUTO COLLISION TECHNOLOGY

FRESHMAN EXPLORATORY

This 3 day course provides the 9th grade student with basic awareness of the skills needed in the collision repair and refinishing field, as well as applications and use of tools necessary to complete collision repair procedures. The use of visual demonstrations as well as hands on experience provides students with an excellent introduction to a career in collision repair technology. Students will experience the Sim Virtual Spray System. Students will demonstrate the use of an airbrush and produce a custom painted project to take home.

FRESHMAN PROGRAM

Students in the 9th grade collision repair program will have a basic knowledge of the entry level skills that are required in the trade for an introductory position in an auto body repair facility. Personal and shop safety and hand tool usage, minor dent repair on fender bench systems and use of spray guns for priming repaired surfaces are included in the Grade 9 curriculum. Grade 9 Related Theory will introduce the students to the trade of auto collision. They will learn about safety in the shop, basic skills to be successful in the trade, and terminology that is common in the industry.

SOPHOMORE PROGRAM

The 10th Grade Collision Repair Program provides the student with the opportunity to acquire skills in the areas of shop and personal safety procedures, non-structural repair, metal straightening & using body fillers, refinishing tools & equipment, materials, mixing & reducing, refinishing spray technique, surface preparation, paint application, oxyacetylene and MIG (metal inert gas) welding and cutting.

Students will demonstrate the care and use of power tools, hand tools, and shop equipment. Students will be given the opportunity to recognize, diagnose, and repair minor collision damage and participate in spot repair and overall refinishing. Students gain experience working on customers' automobiles in a shop environment that simulates an auto body shop in the industry. Collision repair technology is covered in this course, particularly, refinishing, MIG, oxyacetylene welding, spray equipment, and power and hand tool use. Students gain knowledge of the history in collision and frame construction, analysis and repair of metal damage, including panel replacement, and spraying of both color and clear coats.

JUNIOR PROGRAM

The 11th Grade curriculum provides the students with a more in-depth knowledge of collision repair and automotive refinishing techniques using state-of-the-art water based paint on live customer jobs. Students will analyze and repair areas of damage, including plastic repair, paint theory tinting and blending, color matching, and specialty painting. Students will demonstrate how to read and write an estimate on a damaged vehicle.

Students will learn about advanced welding, including I-Car aluminum welding, factory spot welding, and panel sectioning with I-Car structure repair panel. They will also have a chance to participate in ASE junior certification and I-CAR welding qualification Test.

JUNIOR RELATED THEORY COURSES

Students learn about refinishing and advanced MIG welding, aluminum welding and repair, and advanced spray equipment. Students also gain knowledge of the history in collision and frame construction, analysis and repair of metal damage, including panel replacement, and spraying of both color and clear coats.

SENIOR PROGRAM

The 12th grade program provides the student with complete coverage of advanced auto body repair, as well as the most advanced types of paints used, and proper application methods. Other areas covered in this course include analysis and repair of major collision damage, determining when to repair or replace parts, estimating and preparing for job interviews. Co-op program is available to all seniors who qualify.

SENIOR RELATED THEORY COURSES

Auto collision repair for both minor and major damage, I-CAR and auto collision repair curriculum, provides students with the most up to date information on paints used in the industry, as well as methods of application and troubleshooting paint problems. Analyzing major collision damage and when to repair or to replace parts, estimation preparation, and preparing for job interviews and career success are included in Grade 12 related theory classes.

The GNBVT program is NATEF (National Automotive Technician's Education Foundation) Certified

- Painting and Refinishing
- Non–Structural Analysis and Damage Repair
- Structural Analysis and Repair
- Mechanical and Electrical Components

CERTIFICATIONS:

- I-CAR Welding Qualification
- ASE (Automotive Service Excellence) Junior Certification – One year trade credit towards two year requirement.

CAREER OPPORTUNITIES:

- Paint Technician
- Auto Body Repair Technician
- Frame Repair Technician
- Parts Person
- Insurance Estimating
- Automotive Detailing
- Dealer Prep Person
- Commercial Coating Painter

DIESEL SERVICE TECHNOLOGY

The development of a viable Diesel training program will solve a multitude of shortcomings in the Diesel field. Technical training will enable companies to add to the expertise of their staff members by being able to hire local students at an entry level position. Through labs and classroom situations, students are taught to operate state-of-the-art equipment available in today's modern repair facilities.

The curriculum is competency based using a multi-module approach to learning and is supported using the National Automotive Technicians Education Foundation (NATEF), the Automotive Service Excellence (ASE) standards, and the Transportation Occupational Cluster Diesel Technology (VDIESL) CIP Code 470605 June 2014 (DESE). The Diesel Service Technology program is NATEF certified and all instructors are ASE certified.

Students also receive training in soft skills, part ordering, and Motor All-Data computerized repair information systems. Students are encouraged to participate in Distance Learning, SkillsUSA, and a variety of activities and clubs offered here at Greater New Bedford Regional Vocational Technical High School.

Students are encouraged to strive for excellence in their academic and technical studies. Upon graduation, they will have acquired the necessary skills to enter the workforce or enroll in postsecondary or technical colleges to further their education. Articulation agreements have been developed with technical colleges to reduce the cost of tuition for the students furthering their education.

FRESHMAN EXPLORATORY

The Diesel Technology Exploratory program provides 9th Grade exploratory students with an overview of the Diesel Technology Program and an introduction into the diesel field and the careers available in the fields of Transportation Technology.

Students will have the opportunity to lift, jack & properly support a vehicle, disassemble and reassemble an engine, disassemble and reassemble a hydraulic brake system, perform basic electrical measurements, perform basic mechanical measurements, perform wire soldering tasks, and learn about and perform tire changing. The first day includes a thirty to forty five minute lesson covering safety, tool identification and use, and career choices in the Transportation field.

FRESHMAN PROGRAM

Students entering the 9th Grade Diesel Technology shop/laboratory are provided with the basic knowledge and skills necessary for success in the Diesel industry. Students receive practical instruction in safety including general safety rules, specific rules for the Diesel workshop and an introduction to hand tools and shop equipment including proper use, care and identification. Practical work will include, but is not be limited to tasks using service information systems, engine principles, air/fuel ratio and basic internal combustion theory. Students will identify chemicals used in the diesel industry and learn the proper use, storage and HazMat procedures necessary in the trade. Instruction will include an introduction to braking, disc and drum systems, hydraulic theory, valves, bleeding procedures and other basic introductory topics.

Related theory is an integral component of the Grade 9 Diesel Technology Program curriculum. Instruction will support topics listed above and instruction will include use of textbooks, diesel handouts, worksheets, PowerPoint presentations, diesel components, training aids, and tools.

SOPHOMORE PROGRAM

Students entering the 10th Grade Diesel Technology shop/laboratory will receive training in the following areas, Diesel Services Safety and Health Skills; they will demonstrate health and safety practices with hand tools, power tools, fasteners, precise measuring, driveshaft assemblies, power steering system, suspension system, vehicle chassis, frame, starting systems, clutches, transmissions, and general engine diagnosis. Students will perform shop tasks involving live work and static projects; they will learn soft skills such as problem solving and communication skills, along with teamwork and collaboration. Related theory is an integral component of the Grade 10 Diesel Technology program curriculum.

Students will receive one hour of related time a day. The curriculum is competency based using a multi-module approach to learning and is supported using the National Automotive Technicians Education Foundation (NATEF), the Automotive Service Excellence (ASE) standards, and the Transportation Occupational Cluster Diesel Technology (VDIESL) CIP Code 470605 June 2014 (DESE).

Instruction will support topics listed above and will include use of textbooks, handouts, worksheets, PowerPoint presentations, instructor presentations, along with Diesel components, tools, and simulators. An interactive whiteboard and computer based instruction including Motor All-Data computerized repair information systems, and related sites will be used. Grade 10 students are required to successfully complete certifications in SP2 Hazardous Waste

Management & Safety, and the shop's safety sign off sheets related to all shop equipment and tools.

JUNIOR PROGRAM

The curriculum is competency based using a multi-module approach to learning and is supported using the National Automotive Technicians Education Foundation (NATEF) the Automotive Service Excellence (ASE) standards and the Transportation Occupational Cluster Diesel Technology (VDIESL) CIP Code 470605 June 2014. The Diesel Service Technology program is NATEF certified and all of the instructors are ASE certified.

Students receive training/instruction in soft skills, parts ordering, Motor All-Data computerized repair information systems, diesel services, safety and health skills. Students demonstrate health and safety practices using hand tools, power tools and fasteners. Topics covered in this class will be precise measuring, engine, mechanical, cylinder head and related components, lubrication, coolant system, air intake and exhaust system, fuel system (mechanical), engine brake and related components, driveshaft assemblies, heavy duty axle service and repair, truck brake systems, foundation truck brakes, parking brake systems, hydraulic brakes, mechanical brakes, hydraulic brake system components, anti-brake system, power steering system units, suspension systems, wheels and tires, vehicle chassis frame, general and related electrical systems, batteries, starting systems, charging systems, lighting systems, warning systems, cab and hood, and safety equipment.

JUNIOR RELATED THEORY COURSES

Related theory is an integral component of the Grade 11 Diesel Technology program curriculum. Instruction will support topics listed above and will include use of textbooks, diesel handouts, worksheets, PowerPoint presentations, instructor presentations, along with diesel components, tools, and simulators. An interactive whiteboard and computer based instruction including Motor All-Data computerized repair information systems, and related sites will be used. Students are encouraged to participate in Distance Learning, SkillsUSA, and a variety of activities and clubs offered here at Greater New Bedford Regional Vocational Technical High School. Students are encouraged to strive for excellence in their academic and technical studies. Upon graduation, they will have acquired the necessary skills to enter the workforce or enroll in postsecondary or technical colleges to further their education. Articulation agreements have been developed with technical colleges to reduce the cost of tuition for the students furthering there education.

SENIOR PROGRAM

The curriculum is competency based using a multi-module approach to learning and is supported using the National Automotive Technicians Education Foundation (NATEF), the Automotive Service Excellence (ASE) standards, and the Transportation Occupational Cluster Diesel Technology (VDIESL) CIP Code 470605 June 2014 (DESE).

Students receive training/instruction in soft skills, parts ordering, and Motor All-Data computerized repair information systems, diesel services, Safety and Health Skills, and health and safety practices. Students will define and demonstrate health and safety regulations and practices; they will be able to demonstrate responses to situations that threaten health and safety. Students will learn about fasteners, measuring, hand tools, power tools, general engine diagnosis, cylinder head and valve train diagnosis and repair, lubrication system diagnosis and repair, cooling system diagnosis and repair, air intake and exhaust system diagnosis and repair, fuel system diagnosis and repair, engine brakes and related components, heavy duty axle service and repair, air brake diagnosis and repair, foundation truck brakes, parking brake systems, mechanical brakes, antilock brake systems, power steering systems diagnose and repair, general electrical systems, lighting systems, warning systems, related electrical areas, heavy duty ventilation and air conditioning systems, engine malfunctions, cylinder head and related components, engine blocks, advanced air intake and exhaust systems, electronic fuel systems, and transmissions.

SENIOR RELATED THEORY COURSES

Related theory is an integral component of the Grade 12 Diesel Technology program curriculum. Instruction will support topics listed above and will include use of textbooks, diesel handouts, worksheets, PowerPoint presentations, instructor presentations, along with diesel components, tools, and simulators. An interactive whiteboard and computer based instruction including Motor All-Data computerized repair information systems, and related sites. Students are encouraged to participate in Distance Learning, SkillsUSA, and a variety of activities and clubs offered here at Greater New Bedford Regional Vocational Technical High School. Students are encouraged to strive for excellence in their academic and technical studies. Upon graduation, they will have acquired the necessary skills to enter the workforce or enroll in postsecondary or technical colleges to further their education. Articulation agreements have been developed with technical colleges to reduce the cost of tuition for the students furthering there education.

CAREER OPPORTUNITIES:

- Aircraft Body Repairer
- Technical Service Writer
- Parts Department
- New Truck Department
- Used Trucks Department
- Independent Retailer
- Diesel Technician
- Shop Foreman
- Parts Manager
- Finance Manager
- General Manager
- Instructor
- Heavy Equipment Vehicle Designer
- Service Manager
- Repair Shop Owner
- Operations/Safety Supervisor
- Mechanical Engineer
- Manufacturer Engineer
- R & D Engineer

Arts & Manufacturing Academy

ARCHITECTURAL DRAFTING

FRESHMAN EXPLORATORY

The **CAD-Drafting** Exploratory program introduces the student to basic Architectural and Mechanical Drafting techniques using the latest version of AutoCAD, a 2D software used for architectural and mechanical drafting and Chief Architect, a 3D BIM (Building Information Modeling) software. The AutoCAD assignments include an assortment of 2 dimensional objects, floor plans and a multitude of mechanical parts. A Chief Architect assignment includes designing a penthouse apartment. During each project the student will be introduced to more advanced commands and applications. Students will learn the various career paths available to graduates from this program. All students are assessed on each assignment and results are compiled using the school wide exploratory rubric grading template.

FRESHMAN PROGRAM

Permanent CAD Drafting students entering the 9th Grade are provided with the basic knowledge and skills necessary for success in the drafting profession. The Basic Level 100 course will be in AutoCAD and Chief Architect. Computer-aided design (CAD) drafters utilize software to create technical drawings for building construction and product manufacturing. Students will expand their knowledge through assignments that include, pictorial drawing, orthographic projection, dimensioning, sketching, measurement, blueprint reading, assembly, and working drawings. These courses are the fundamentals of the drafting industry; students will be instructed with the latest software available to the architectural/mechanical drafter and designer. Instruction includes demonstrations, hands-on applications, math, reading/writing assignments, and quizzes/tests to determine competency levels of the students.

SOPHOMORE PROGRAM

This course is designed to further develop the skills and knowledge needed for success in the drafting field. The curriculum focuses on both architectural and mechanical drafting which now moves into the intermediate level. Mechanical topics include orthographic projection, isometrics, section views, auxiliary views, hand sketching, tolerances, and 3D modelling (rapid prototyping.) Skills are reinforced using the latest versions of 2D AutoCAD and 3D SolidWorks.

Software instruction includes solid part modeling and assembly modeling. This course will continue the architectural drafting curriculum featuring the latest version of 2D AutoCAD. Topics include floor plans, sections, elevations, details and their application. Instruction includes demonstrations, and hands-on applications; math, and reading/writing assignments, quizzes and tests will be used to determine competency levels. Students are encouraged to attend after school help sessions if they are behind in their assignments and feel they need extra help.

JUNIOR PROGRAM

The curriculum features Level 300 Architectural Drafting and 3D BIM modeling using AutoCAD and Chief Architect. This course is designed to give students the opportunity to advance their knowledge and technical skills in the architecture drafting discipline. The Architectural Drafting student will use their knowledge of building and construction to create very accurately scaled drawings, elevations, sections, construction details, and presentation drawings. They will learn structural principles such as how and why of building stands, as well as the how and why of interior design principles. Students will learn model making techniques through hands-on experiences. Students will also receive specialized training and application concerning the overall architectural design processes, construction process, and construction trade math. The Architectural Drafting program is nationally certified by the American Design Drafting Association (ADDA).

JUNIOR RELATED THEORY COURSES

Structures I

The Junior **Structures I** curriculum is based on the 2014 Vocational Technical Education Drafting Frameworks written by the Massachusetts Department of Elementary and Secondary Education and incorporates all six strands. It provides the students with the basic knowledge and understanding of how to apply the basic trade math to the design and construction of a building. The student will develop basic trade math skills using the principles of construction and structural design. Students are taught structural calculations using measurement, geometry, and algebra. These are the skills that they would encounter in the everyday work force and beyond. Students will:

- Demonstrate mastery in basic geometry (Perimeter, Area, Volume as it relates to solving for foundation/footing/patios)

- Demonstrate mastery in basic algebra (Using word problems, fractions, percentages as it relates to construction math)
- Demonstrate mastery in Reading Tools of Measurements (as it applies to drafting and designing)
- Demonstrate mastery in Personal Finances (as it relates to owning a business, budgets, pricing and income)
- Demonstrate mastery in Practical Math (as it relates to measurements metric standards in construction and conversion).
- Demonstrates mastery in Pythagorean theory as it relates to roof design

Architecture & Engineering Design I

This curriculum is based on the 2014 Vocational Technical Education Drafting Frameworks written by the Massachusetts Department of Elementary and Secondary Education and incorporates all six strands. It provides the students with the basic knowledge and understanding of how to apply the principles of construction to a design, to develop an understanding of basic structural design and to apply design theory to a building. The student will develop basic (manual) drafting and visualization skills, and solve spatial problems, develop interpersonal, written and communicative skills that they would encounter in the everyday work force. Students will:

- Demonstrate mastery in the understanding of the principle of construction.
- Demonstrate mastery in drawing elevations
- Demonstrate mastery in foundation design.
- Demonstrate mastery drawing wall framing systems.
- Demonstrate mastery drawing floor framing plans.
- Demonstrate mastery drawing roof framing plans.
- Demonstrate knowledge in Interior/building codes
- Demonstrate mastery in interior design, including room, stairs and fireplace design.

SENIOR PROGRAM

The curriculum features Level 400 Architectural Drafting and 3D BIM modeling using AutoCAD, Revit and Chief Architect. This course is designed to provide students with the opportunity to continue proficiently in their technical skills and comprehension level in the drafting discipline of architecture. The Architectural Drafting student will use their knowledge

of building and construction, design including floor plans, elevations, sections, construction details, and presentation drawings to create working construction drawings. Students work on a variety of "Live Jobs" both outside and within the school campus. Live jobs are projects done for actual clients. Live jobs have consisted of; new residential construction, kitchen design, theater set designs, and a variety of non-profit organizations. The Architectural Drafting program is nationally certified by the American Design Drafting Association (ADDA).

SENIOR RELATED THEORY COURSES

Architecture & Engineering Design II: Senior Related Theory

The Senior **Architecture & Engineering Design II** curriculum is based on the 2014 Vocational Technical Education Drafting Frameworks written by the Massachusetts Department of Elementary and Secondary Education and incorporates all six strands. It provides the students with the basic knowledge and understanding of how to prepare construction documents, architectural office practices and assemble a set of working drawings. The student will solve special problems, and develop basic visualization, interpersonal written and communicative skills that they would encounter in the everyday work force. Students will:

- Demonstrate basic knowledge in drawing management
- Demonstrate basic knowledge in site planning and plot plan design.
- Demonstrate basic knowledge of environmental design factors of a site and disaster prevention.
- Demonstrate basic knowledge in writing schedules & specifications.
- Demonstrate basic knowledge in building codes & financial planning.
- Demonstrate basic knowledge strengths of materials in concrete/masonry.
- Demonstrate basic knowledge strengths of steel.
- Demonstrate mastery in developing and drawing electrical plans
- Demonstrate mastery in drawing plumbing plans.
- Demonstrate basic knowledge of heating, ventilation and air conditioning units

Structures II

The Senior Structures II curriculum is based on the 2014 Vocational Technical Education Drafting Frameworks written by the Massachusetts Department of Elementary and Secondary

Education and incorporates all six strands. It provides the students with the basic knowledge and understanding of how to maintain personal financial documents, calculate profit, estimate materials and prepare a cost estimate for a small job. The student will develop basic mathematical skills, interpersonal, written and communicative skills that they would encounter in the everyday work force. Students will:

- Demonstrate basic knowledge in personal finances
- Demonstrate basic knowledge in percent, interest and discount.
- Demonstrate basic knowledge of estimating quantity of material for a small structure.
- Demonstrate basic knowledge of estimating cost for the material.

CERTIFICATIONS:

- Occupational Safety and Health Administration (OSHA)
- The ADDA Drafter Certification Examination (optional)
- The Autodesk® Certified User exam – 2D AutoCAD

Upon completion of this Technical Program students will be better prepared for postsecondary education (college) in the following courses of study:

Two year Option – Associate of Science Degree

- **Architectural drafters** – create diagram features of buildings, both structural and architectural, used in construction jobs.
- **Electrical drafters -** create diagrams that lay out wiring setups. These diagrams are used by professionals who repair and install electrical equipment and wiring.
- **Mechanical drafters** - prepare detailed assembly drafts for use with mechanical devices and machines. These drawings include methods of fastening, dimensions and other specifications.
- **Civil drafters -** create topography and relief maps for use in civil engineering projects. These projects include bridges, water and sewage systems, highways and flood control setups.
- **Electronics drafters -** diagram schematics for assembling circuit boards and wiring for use in electronic device manufacturing and repair.

Four Year Option plus option- Bachelor of Science, Master's Degree

- **Architect**- plans, designs, and reviews the construction of buildings for the principal purpose of human occupancy or use.
- **Civil Engineer-**deals with the design, construction, and maintenance of the physical and naturally built environment, including works like roads, bridges, canals, dams, and buildings.
- **Construction Managers**- oversee the planning, design, and construction of a project, from its beginning to its end.

- **Electromechanical Engineer-** Evaluates electrical systems and products components
- **Interior Designer-** makes interior spaces functional, safe, and beautiful.
- **Industrial Designer-**develop concepts and designs for manufactured products or housewares.
- **Landscape Architect-** oversees site analysis, site inventory, land planning, planting design, grading, storm water management, sustainable design.
- **Mechanical Engineer** - applies the principles of engineering, physics, and materials science for the design, analysis, manufacturing, and maintenance of mechanical systems.

MECHANICAL DRAFTING

FRESHMAN EXPLORATORY

The **Mechanical Drafting** Exploratory program introduces the student to basic Architectural and Mechanical Drafting techniques using the latest version of AutoCAD, a 2D software, used for architectural and mechanical drafting and Chief Architect, a 3D BIM (Building Information Modeling) software. The AutoCAD assignments include an assortment of 2 dimensional objects, floor plans and a multitude of mechanical parts. A Chief Architect assignment includes designing a penthouse apartment. During each project the student will be introduced to more advanced commands and applications. Students will also learn the various career paths available to graduates from this program. All students are assessed on each assignment and results are compiled using the school wide exploratory rubric grading template.

FRESHMAN PROGRAM

Permanent CAD Drafting students entering the 9th grade are provided with the basic knowledge and skills necessary for success in the Drafting profession. The Basic Level course will be in AutoCAD and Chief Architect. Computer-aided design (CAD) drafters utilize software to create technical drawings for building construction and product manufacturing. Students will expand their knowledge through assignments that include; pictorial drawing, orthographic projection, dimensioning, sketching, measurement, blueprint reading, assembly and working drawings. These courses are the fundamentals of the drafting industry, and students will be instructed with the latest software available to the architectural/mechanical drafter and designer. Instruction includes demonstrations, hands-on applications; math, reading/writing assignments, and quizzes/tests will determine competency levels of the students.

SOPHOMORE PROGRAM

This course is designed to further develop the skills and knowledge needed for success in the drafting field. The curriculum focuses on both architectural and mechanical drafting which now moves into the intermediate level. Mechanical topics include orthographic projection, isometrics, section views, auxiliary views, hand sketching, tolerances, and 3D modelling. Skills

are reinforced using the latest versions of 2D AutoCAD, and 3D Solidworks software. Software instruction includes solid part modeling and assembly modeling. This course will continue the architectural drafting curriculum featuring 2D AutoCAD; topics include floor plans, sections, elevations, details and their application. Instruction includes demonstrations, hands-on application; math, reading/writing assignments, quizzes and tests will be used to determine competency levels. Students are encouraged to attend after school help sessions if they are behind in their assignments and feel they need extra help.

SOPHOMORE RELATED THEORY COURSES

Drafting Technology Sophomore Related Math

This course is based on *the Vocational Technical Education Frameworks written by the Massachusetts Department of Elementary and Secondary Education (June 2014).* The student is taught various aspects of drafting technology in practical and realistic mathematical problems that the student will encounter in everyday work situations. This course provides the students with the technical skills required to succeed in the field of drafting technology and is a prerequisite for entrance into both the Architectural Drafting and Mechanical Drafting Shop programs. Students will:

- Demonstrate mastery in basic math operations such as basic addition, subtraction, multiplication and division of whole numbers, and fractions.
- Demonstrate mastery of reading a scale.
- Demonstrate mastery of converting feet and inches into decimals.
- Demonstrate mastery in finding areas of: circles, squares and rectangles.
- Demonstrate mastery of finding volume of a cube and rectangle and unit conversions.
- Demonstrate knowledge in finding angles in a triangle.
- Demonstrate knowledge in simple trigonometry functions.

Mechanical Drafting

- Orthographic (Multiview) Projection
- Dimensioning different styles
- Section View types
- Hatch patterns
- Isometric Projections
- Perspective Projection (for architectural)
- Working Drawings for different industries
- Auxiliary Projections
- Basic Dimension Tolerances and how they affect the work.
- Basic screw threads
- Occupations in drafting

JUNIOR PROGRAM

This course is designed to give students the opportunity to advance their knowledge and technical skills in the field of drafting. The curriculum features mechanical drafting and solid modeling projects using the latest versions of SolidWorks and AutoCAD. Students will learn SolidWorks 3D CAD, while reinforcing earlier concepts such as manufacturing processes, fasteners, tolerances, working and assembly drawings. New related theory topics include geometric dimensioning and tolerancing (GDT), sheet metal (bending and transitions), and mechanical components. The third trimester of the junior year will focus on advanced Solid modeling using Solidworks and review of AutoCAD. The primary focus in the junior year is to prepare students for cooperative employment outside of the school. Students are encouraged to attend after school help sessions if they are behind in their assignments and feel they need extra help.

JUNIOR RELATED THEORY COURSES

Mechanical Drafting - Course 61C3 Related Science

Each student will develop a basic related theory notebook of all lessons from their first two years, to build on as seniors in Mechanical Drafting

- Understanding of Precision and tolerances and their importance in making parts interchangeable.
- Use of Geometric Tolerances (ISO) in combination with nominal tolerances
- Understanding of Fastening devices and their uses (screws, nuts, rivets, snap rings, keys, etc.)
- Use of Springs in drafting
- Surface specifications and Finishes
- Welding symbols and their use in a drawing
- Piping symbols and their use in a drawing
- Cams and timing diagrams
- Pattern Development
- Right angle trigonometry for drafting design

A course will specialize only in the electro-mechanical area of drafting. Covering symbols and drafting styles for electronic drafting

- Job types / responsibility
- Types of diagrams
- Components and symbols
- Schematic drawings
- Wiring methods
- Printed circuits/circuit board
- Enclosure drawings (pattern development)
-

SENIOR PROGRAM

This course is designed to provide students with the opportunity to continue proficiency in their technical skills and comprehension level in the drafting program. The major focus for this year is 3D modelling and translation of 3D to 2D drawings. Students will demonstrate their proficiency in hand sketching, CAD drawing creation, presentation skills and physical model building. Live jobs are a major concentration in the course, where students work on various projects for both inside and outside customers, requiring the use of various software products, and a wide range of technical skills. Students are encouraged to attend after school help sessions if they are behind in their assignments and feel they need extra help.

SENIOR RELATED THEORY COURSES

Electro/Mechanical Drafting

Students learn basic skills as outlined in the description area in a classroom environment, allowing them to further develop those skills in an office setting in the drafting shop areas. Each student will have developed a basic related theory notebook of all lessons from their past year, to build on as seniors in Electro/Mechanical.
Subjects covered senior year includes:

- Jigs & Fixtures-design and uses
- Dies- types and uses
- H.V.A.C. rules for development
- Fluid power
- Steel types
- Development of Spur, Bevel and worm gears.
- Speed ratios for gear trains
- Instrumentation and control

Students receive training in design areas that include:

- Types of Manufacturing Materials and their uses.
- Types of Forming Processes and materials made from
- Strength of Materials in industry
- Use of Design Concepts to correctly design for best results and lowest cost.
- Use of Belts & Chains for drive applications
- Use of Bearings & Seals in drive applications
- Use of Linkages & Actuators
- Structural Drafting

CERTIFICATIONS:

- Career Safe Certification, recognized by the Occupational Safety and Health Administration (OSHA)
- Certified Solidworks Associate Exam 3D modelling
- The Autodesk® Certified User exam – 2D AutoCAD
- The ADDA Drafter Certification Examination-Certified Mechanical Drafter

CAREER OPPORTUNITIES:

- Detail Draftsperson
- Engineering Assistant
- CAD Detailer
- Mechanical Drafter
- Mechanical Designer
- Civil Drafter
- Electrical Drafter

Upon completion of this Technical Program, students will be better prepared for postsecondary education (college) in the following courses of study:

Two or four year options in:

- Manufacturing Technology
- Electro-mechanical Technology
- Industrial Engineering Technology
- Mechanical Engineering Technology
- Industrial Design

ENGINEERING & ROBOTICS

(PROJECT LEAD THE WAY)

FRESHMAN EXPLORATORY

During this 3-day introduction the 9th Grade students are provided with an overview of the Engineering Technology program. Each student is introduced to general shop safety, equipment, tools and testing instruments used in the field. Each student will complete group shop projects consisting of a hands-on, project-based approach to learning that introduces students to the scope, rigor, and discipline of engineering prior to entering college. Students who demonstrate an interest in and the potential for an engineering career may select to participate in this program.

At the conclusion of this exploratory session students are given an assessment in the form of an in-shop competition that assesses their mechanical ability and their general knowledge of the program.

FRESHMAN PROGRAM
Fundamentals of Engineering

The exploration of various technology systems and manufacturing processes helps students learn how engineers and technicians use math, science and technology in an engineering, problem solving process to benefit people. Students design and test digital electronic circuitry, learn problem-solving skills using a design and development process, model and analyze product solutions using solid modeling computer design software, and apply the principles of robotics, automation, and CNC equipment to produce actual models of their three-dimensional designs. In their senior year students apply these skills to solve a real engineering problem; working in teams, students research, design and construct a solution to an open-ended engineering problem.

SOPHOMORE PROGRAM

INTRODUCTION TO ENGINEERING DESIGN (IED)

Introduction to Engineering Design is a course that develops students' problem solving skills, with emphasis on the development of three-dimensional solid models. Using computer modeling software, students learn design process; they solve design problems as they develop, and create and analyze product models. Techniques learned and equipment used, is state-of-the-art, and is currently being used by engineers throughout the United States.

DIGITAL ELECTRONICS (DE)

Digital electronics is the foundation of all modern electronic devices such as cellular phones, MP3 players, laptop computers, digital cameras, high definition televisions, etc. Students learn the digital circuit design process to create circuits and present solutions that can improve people's lives. Students learn how advancements in foundational electronic components and digital circuit design processes have transformed the world around us. Digital electronics is the study of electronic circuits that are used to process and control digital signals; this is in contrast to analog electronics, where information is represented by a continuously varying voltage, and digital signals are represented by two discrete voltages or logic levels. This distinction allows for greater signal speed and storage capabilities and has revolutionized the world of electronics.

SOPHOMORE RELATED THEORY COURSES

Introduction to Engineering Mathematics

Engineering mathematics for Grade 10 is composed of a combination of algebra and trigonometry. This course provides students with the mathematical foundation for success in the Engineering Technology Program. In the normal academic curriculum, advanced algebra and trigonometry courses are not provided until the junior year. A minimum proficiency in both of these skills is required to successfully complete the Engineering Technology modules taught in the junior and senior years. The mathematical skills are taught in the context of solving practical engineering problems using existing formulas.

JUNIOR PROGRAM

COMPUTER INTEGRATED MANUFACTURING (CIM)

The exploration of various technology systems and manufacturing processes helps students learn how engineers and technicians use math, science and technology in an engineering problem solving process to benefit people. Students design and test digital electronic circuitry, learn problem-solving skills using a design and development process, model and analyze product solutions using solid modeling computer design software, and apply the principles of robotics, automation, and CNC equipment to produce actual models of their three-dimensional designs. In their senior year students apply these skills to solve a real engineering problem; working in teams, students research, design and construct a solution to an open-ended engineering problem. PLTW certification provides students an opportunity to earn college credits for work completed in this program at the following colleges and universities, University of Colorado at Colorado Springs, DeVry University, Duke University, New Hampshire Technical Institute, Purdue University, Rochester Institute of Technology, University of Maryland-Baltimore County, University of New Haven, University of South Carolina, and Weber State

University. The Engineering Technology program prepares students for success in pursuing careers in the areas of civil, electrical and mechanical engineering.

INTRODUCTION TO ENGINEERING DESIGN (IED)

Introduction to Engineering Design is a course that develops students' problem solving skills, with emphasis on the development of three-dimensional solid models. Using computer modeling software, students learn design process; they solve design problems as they develop, create, and analyze product models. Techniques learned, and equipment used, is state-of-the-art and is currently being used by engineers throughout the United States.

JUNIOR RELATED THEORY COURSES

PRINCIPLES OF ENGINEERING (POE 1, 2, and 3)

This course exposes students to major concepts they'll encounter in a postsecondary engineering course of study, and helps them understand the field of engineering/engineering technology. Students explore technology systems and engineering processes to find out how math, science, and technology help people. Topics include mechanisms, energy, statics, materials, and kinematics. They develop problem-solving skills and apply their knowledge of research and design to create solutions to various challenges, document their work, and communicate solutions.

SENIOR PROGRAM

ENGINEERING DESIGN AND DEVELOPMENT (EDD)

In this capstone course, students work in teams to design and develop an original solution to a valid open-ended technical problem by applying the engineering design process. Students perform research to choose, validate, and justify a technical problem. After carefully defining the problem, teams design, build, and test their solutions while working closely with industry professionals who provide mentoring opportunities. Finally, student teams present and defend their original solution to an outside panel.

CIVIL ENGINEERING AND ARCHITECTURE (CEA)

This course provides an overview of the fields of Civil Engineering and Architecture, while emphasizing the interrelationship and dependence of both fields on each other. Students use state-of-the-art software to solve real world problems and communicate solutions to hands-on projects and activities. This course covers topics such as, the roles of civil engineers and architects, project planning, site planning, building design, project documentation and presentation.

SENIOR RELATED THEORY COURSES

Engineering Design & Development

In this capstone course, students work in teams to design and develop an original solution to a valid open-ended technical problem by applying the engineering design process. Students perform research to choose, validate, and justify a technical problem. After carefully defining the problem, teams design, build, and test their solutions while working closely with industry professionals who provide mentoring opportunities. Finally, student teams present and defend their original solution to an outside panel.

Career Portfolio and Entrepreneurship

This course provides senior students with the Massachusetts Frameworks – Strand 5 – Management and Entrepreneurship knowledge and skills. Topics include starting a business, managing a business, and marketing a business. Students are also tasked with completing their career portfolio - a compilation of four years of student work. The objective of the career portfolio is to showcase the individual as a motivated and skilled graduate of his or her technical area who is ready to continue on in the world of higher education or to enter the workforce.

Engineering Math

Engineering mathematics for grade 12 is composed of a combination of advanced algebra, statistics, and applied trigonometry. Topics include systems of measurement, tolerances, numerical languages, tables, graphs, charts and other displays to extend students' individual proficiency in mathematics and how to apply these skills to technical and/or industrial situations or problems.

MACHINE TECHNOLOGY

EXPLORATORY PROGRAM

Machine Technology exploratory is geared towards exposing students to the many career opportunities and college options that are available from the skills that are gained in this program. The student is introduced to shop safety, manual machining, computer numerical controls for CNC manufacturing, computer aided design and manufacturing (CAD/CAM) as well as mechanical systems and 3D rapid prototyping technologies. Students will have hands-on training using industry software such as MasterCam (www.mastercam.com) and SolidWorks (www.solidworks.com) and will produce projects using industry standard equipment.

FRESHMAN PROGRAM

Grade 9 shop and related lab theory classes build solid fundamental practices essential to the duties of a machinist. Students continue to explore the career options in the manufacturing and engineering fields. Students learn industry based software and the use of basic hand tools, measuring tools and manual machine tools. Students begin with blueprint interpretation and design using SolidWorks software and shop projects. Students are trained on the five most commonly used machine tools, milling machines, lathes, saws, grinders and drilling machines. Instruction includes related lab theory, shop demonstrations, hands-on practice, quizzes and tests to determine competency levels.

Shop safety, math, quality control and manufacturing processes are taught through related theory and shop projects. Students will manufacture hand tools that are commonly used in the trade, such as punches and a milling cutter holder. Students are also put to the task of engineering and manufacturing components to complete shop specific challenges and projects.

SOPHOMORE PROGRAM

Grade 10 students will build upon the foundation of freshman year and expand their knowledge of machine setup, operation and engineering design and manufacturing. Related theory will also include metallurgy, work holding, blueprint reading, tool geometry, shop math, tap and drill calculations, work ethic and Computer Numerical Control (CNC) fundamentals. Students will learn teamwork and machining practices though selected challenges to construct group projects. As a sophomore, students will design using SolidWorks software and will work from their own blueprints to manufacture the components necessary to complete these challenges. Students will be given the opportunity to compete in nationally recognized competitions, such as SkillsUSA.

Students produce projects that will expose them to different types of materials such as plastics, polycarbonates, stainless steels, tool steels, aluminum, etc. Projects will progress toward being produced in CNC machines where students will be introduced to CNC programming and MasterCam software fundamentals. Instruction includes related lab theory, shop demonstrations, hand-on practice; quizzes and tests will determine competency levels.

JUNIOR PROGRAM

Grade 11 will focus on developing CNC skills and expand their Computer Aided Design and Computer Aided Manufacturing (CADCAM) skills using MasterCam and SolidWorks software. Shop projects will also teach CNC operations & G-Code programming, CNC machine set-up procedures, inspection procedures, blueprint interpretation, geometric dimensioning and tolerancing (GD&T), advanced manual machining practices and set-ups for proficiency of job ready skills as a machinist. Modules on engineering of machine design, electro-mechanical and automated systems, will also be a component of related theory. Students are instructed and encouraged to collect and produce an electronic portfolio and research career and college options available upon graduation. Juniors will have the option to compete in SkillsUSA competitions.

Shop projects will provide hands-on practice and include engineering, designing, manufacturing and the assembly. Students will also build an air engine and other projects to reinforce classroom theory lessons and acquire necessary trade skills. Instruction includes related lab theory, shop demonstrations, hands-on practice, quizzes and tests to determine competency levels.

SENIOR PROGRAM

Grade 12 shop and related lab theory work will emphasize proficient practices using MasterCam Milling, SolidWorks, CNC set-up & G-Code programming, geometric dimensioning and tolerancing (GD&T), inspection procedures, blueprint interpretation as well as MasterCam Turning fundamentals. Senior project requirements will be reviewed and a study guide will be provided. Students are instructed and encouraged to collect and produce an electronic portfolio to submit with college applications or present during job interviews.

Shop projects will involve engineering, design, manufacturing and the assembly practices. Seniors will have the option to compete in SkillsUSA competitions. Seniors have an option of an approved independent study as a major project that is based from their personal interest and the project meets the criteria for advanced skills achievement. Students will use CNC Machining practices, proper inspection techniques and advanced manual machining practices. Instruction will include demonstrations, hands-on practice; quizzes and tests will determine skill and theory proficiency.

This Technical Program offers the following certification opportunities for students:

- *Career Safe Certification*, recognized by the Occupational Safety and Health Administration (OSHA)
- Certified SolidWorks Associate
- Manufacturing Advancement Center Workforce Innovation Collaborative (MACWIC)
    - MACWIC Level 1
    - MACWIC Level 2
    - NIMS

Career Opportunities upon completion of this Technical Program include but are not limited to:

- Machinist
- Quality Control & Inspection
- CNC Operator
- Mold Maker
- CNC Programmer
- CNC Set-up Technician
- Machine Repair Technician
- Research and Development
- Jig & Fixture Maker
- Tool and Die Maker
- Entrepreneur/Inventor

Upon completion of this Technical Program, students will be better prepared for post-secondary education in the following courses of study:

College Opportunities

Two Year Option	Four Year Option
Manufacturing Technology	Mechanical Engineer
Electromechanical Technology	Electromechanical Engineer
Industrial Engineering Technology	Industrial Engineer
Mechanical Engineering Technology	Metallurgy
	Robotics Engineer
	Industrial Design

Apprenticeship: State Certificate:

Manufacturing Advancement Center Workforce Innovation Collaboration statewide apprentice agreement.

WELDING TECHNOLOGY

FRESHMAN EXPLORATORY

This course provides the 9th grade student with an overview of the metal fabrication program. The students are introduced to metal fabrication, welding, and safety. Students develop fundamental skills and how to safely make use of metal working equipment. In addition, by completing this one week course, students gain a clear understanding of several types of careers available to metal fabrication and welding students. The skills discussed include, brazing, oxy/fuel welding, basic metallurgy science, flat metal layout, problem solving, creative designs, metal shaping, safety, metal cutting, and the heating and bending of metals.

FRESHMAN PROGRAM

Students entering the 9th grade shop are provided with basic knowledge and skills necessary for success in the metal fabrication and welding industries. Students receive hands-on instruction on developing a technical notebook, shop safety, career options, basic blueprint reading, shop math, welding, and both light and heavy gauge sheet metal fabrication with oxy/fuel cutting, heating, brazing and soldering. Electric arc welding is also taught at a basic level and students are introduced to fundamental material science such as metallurgy. Practical work will include basic forming and welding of sheet metal, for example, fittings of heating and ventilating ductwork. Also included is instruction in hand-held plasma arc cutting and machine safety set up.

Related classroom theory is an integral part of the program. Grade 9 theoretical studies includes technical instructions such as blueprint reading, basic shop math, basic metallurgy, sheet metal heating and ventilation operating systems safety, the science behind welding, and metal identification. Students also research career options in the metalworking industry and begin setting goals for their future. In addition, students are quizzed weekly, and are given group classroom projects and homework to determine competency levels.

SOPHOMORE PROGRAM

Sophomore Metal Fabrication and Joining Technologies is part of a four-year program and is a 90-day course. Students are introduced to the theory and skills required to function in the role of a metal fabricator. Instruction is offered in reading shop drawings and the fabrication of sheet metal and structural steel products. Students will be instructed in perpendicular line layout including the fabrication techniques of these layout types. During the course students will be instructed in proper tool and equipment use. Instruction is also given in Shielded Metal Arc Welding, Gas Metal Arc Welding, Cutting processes instructed include manual Oxy/fuel cutting and Plasma Arc cutting.

SOPHOMORE RELATED THEORY COURSES

Related theory instruction is an integral component of Grade 10 instruction. This component is designed to further develop the comprehension of metal fabrication and welding theory. Specifically, students receive instruction that includes demonstrations, hands-on practice, writing and reading assignments, reports, quizzes, and tests to determine competency levels.

JUNIOR PROGRAM

Junior Metal Fabrication and Joining Technologies is part of a four-year program; students develop their knowledge of theory and skills required to function in the role of a metal fabricator. Instruction is offered in reading shop drawings and the fabrication of sheet metal and structural steel products. Students will be instructed in parallel line, radial line, and triangulation development layout, including the fabrication techniques of these layout types. Instruction is given in Shielded Metal Arc Welding, Gas Metal Arc Welding, Gas Tungsten Arc Welding, cutting processes instructed include manual Oxy/fuel cutting and Plasma Arc cutting. Metal Fabrication equipment operation and set-up is instructed, including the operation of CNC Press Brake and CNC Plasma Cutting System.

JUNIOR RELATED THEORY COURSES

Related theory classroom instruction includes demonstrations, hands-on practice, writing and reading assignments; reports, quizzes, and tests will determine competency levels.

SENIOR PROGRAM

Senior Metal Fabrication and Joining Technologies is part of a four-year program; students advance their knowledge of theory and skills required to function in the role of a metal fabricator. Instruction is offered in reading shop drawings and the fabrication of sheet metal and structural steel products. Students will be instructed in advanced parallel line, radial line, and triangulation development layout including the fabrication techniques of these layout types. Instruction is given in Shielded Metal Arc Welding, Gas Metal Arc Welding, Gas Tungsten Arc Welding; cutting processes instructed include manual Oxy/fuel cutting and Plasma Arc cutting. Instruction is given in metal fabrication equipment operation and set-up, including the operation of CNC Press Brake and CNC Plasma Cutting System. Upon completing this four-year course students would qualify for an entry-level metal fabrication position, with an AWS D9.1 1/4” 2F and AWS D1.1 3/4” 1G weld qualification.

Related theory instruction is an integral component of this course. Students will increase knowledge of science in metals, metal shop safety, welding of both ferrous and nonferrous metals, the ability to design and lay out a sheet metal ventilation systems. In addition, they will have passed several national welding certification and professional licenses. Grade 12 theory is designed to prepare students for the professional workplace. Students will receive instruction on the business of metal fabrication and welding, seeking employment, preparing for and

selecting colleges, resume writing, portfolio development, managing money, financial planning, and entrepreneurship. Students will be familiar with many different aspects of the industry. Technical focus will be on the metal fabrication of welding repairs, small business ownership, and production processes.

CAREER OPPORTUNITIES:

- Structural steel ironworker
- Boilermaker
- Sheet metal worker
- Mobile welding business owner
- Machine shop specialty welder
- Pipe fitter/welder
- Ornamental Ironworker/Blacksmith
- Metal shop welder/fabricator
- Automatic plasma machine operator
- Heavy equipment repair welder
- Welding supply sales
- Metallurgist
- Mechanical and structural engineer
- Welding inspector
- Metal artists

Upon completion of Metal Fabrication and Joining Technologies Program, students will be better prepared for post-secondary education in the follow courses of study:

- Formal metalworking apprenticeship programs such as; sheet metal, structural, mechanical, and metallurgical engineering degree programs
- Armed forces construction metal working specialties schools/required skills
- Art Colleges with concentrations in architectural metal designs and metal art construction and sculpture
- Tradition metalworking college studies

MEDIA TECHNOLOGY

FRESHMAN EXPLORATORY

The purpose of this course is to introduce freshman students at Greater New Bedford's Exploratory Program to Media Technology. During the three days (half a six-day cycle), students will participate in hands-on projects in Adobe Photoshop, 2D animation, and 3D animation.

FRESHMAN PROGRAM

The purpose of this course is to introduce students to the Media Technology program as well as basic introductions to design, desktop publishing, animation, public speaking, theory, and video. Throughout this course, students will participate in hands-on production-oriented activities and projects; they will also engage in research and use industry specific terminology. Wherever possible, students will be learning concepts, vocabulary, and skills within the context of their projects and the scope of those projects. The course will encourage students to work both individually and together in the various aspects of media.

SOPHOMORE PROGRAM

The sophomore course is designed to expand the students' knowledge of LightWave 3D, Adobe Photoshop and Adobe Illustrator. The course is project based and will focus on the creation and distribution of real world simulations and fictional stories in the form of short movies, still renders and various print projects. Students are required to develop numerous projects, the largest of which will be a 3D animation involving a character, which they have developed. Students will be trained in project management and workplace communication as they cooperate as an animation firm. Students will be required to develop a professional portfolio of their work along with a demo reel to be created using their creations from LightWave 3D, Photoshop and Illustrator and compiled in iMovie.

SOPHOMORE RELARED THEORY COURSES

Media Writing I

Media Writing I is a sophomore related course that incorporates pre-production work for 3D animation as well as technical writing exercises to improve students' writing skills. This course will cover the importance of elements and principles of design in regard to media. The course is designed to have students work on the pre-production aspect of 3D modeling. Thumbnail

sketches and storyboards will be developed in class. There will be class discussions where students will be graded on their participation. A portion of class will be devoted to Career Cruising and GNBVT student portfolios. Due to the fact that media writing is a primarily analytical course that relies heavily on critiquing and writing, other assessments such as class discussions, sketching, storyboarding and presentations will be used.

JUNIOR PROGRAM
Video Production

The purpose of this course is to introduce students to the complexities, both technologically and organizationally, that are involved in television productions.

- Develop an awareness of the three stages of television production.
- Develop an awareness of current industry practice at each of the three production stages.
- Understand legal and ethical issues associated with television production, and become familiar with the process of obtaining copyright permission.
- Develop knowledge of basic video editing concepts, equipment, and processes.
- Develop knowledge of basic audio production concepts, equipment, and processes.
- Demonstrate basic understanding of television production through the development of projects.
- Demonstrate effective pre-production practices.
- Demonstrate effective production practices.
- Demonstrate effective post-production practices.
- Discuss the fundamentals of television technologies.
- Produce digital video projects such as a public service announcement, commercial, short film, documentary, music video and movie trailer.
- Demonstrate a high level of critical and creative thinking regarding decision-making and the application of techniques and practices recommended within the industry, in projects.

Throughout the course, students will participate in hands-on production-oriented activities and projects. Students will also engage in research and use industry specific terminology. The course will encourage students to work as a contributing member of a production team, engaged in processes commonly used within the communication production industry.

JUNIOR PROGRAM
Website Design

Students will learn the fundamentals in Web Design of content creation and visual communication by using a free online tool, WordPress, to blog and customize a website with responsive, mobile-ready design and themes. After learning free online options for web design, students will focus on graphic design and capturing by using Adobe Muse and Adobe Photoshop to create photojournalism websites on student-driven themes. Students will explore the history and current industry trends in social media and marketing. Finally, students will be introduced to web jargon and graphic design techniques used in web design to learn the fundamental coding language of HTML and CSS.

JUNIOR RELATED THEORY COURSES

Introduction to Digital Photography

The digital photography course introduces students to the basics of digital photography and Adobe Photoshop. Students will be introduced to the basic principles used in photography as well as the elements and principles of design. Works from professional photographers and artists will be presented to class and used as exemplars for various assignments. Students will critique professional news photography to understand how elements and principles are implemented into photographs. Students learn in ways that are identifiably distinctive. In the digital photography course, students will be assessed on photography assignments, written assignments and Adobe Photoshop assignments.

Film Study

The Film Study course is designed to introduce students to the art of film and to think of it as more than just a means of entertainment. Students will discuss various ways of how film can be categorized and discover complex aspects of film. By the end of the course students will sharpen their observation and critical thinking skills when viewing films. Students in this course will be viewing one film per cycle and discussing various topics (i.e. cinematography, lighting, sound, and thematic element.) Students will have daily assignments related to the films viewed and will be assessed on written work as well as class participation. Due to the fact that film study is a primarily analytical course that relies heavily on critiquing and writing, other assessments such as class discussion, director reports and visual references will be used.

Advanced Website Design & Research

The Advanced Web Design and Research curriculum integrates research skills needed in print journalism along with technical, expository, and persuasive writing to create intriguing content for websites on various personal, social, and media-based topics. Students will produce original artwork suitable for a front-end designer on topics such as media job searches, a student electronic portfolio, student driven-interests, collaboration with other career majors, podcasting, and current global topics that affect society. Students will expand their understanding modern languages of code with the Adobe Dream Weaver application, while producing graphic art, original logos, headers, feature images, and data driven artwork, such as infographics on Adobe Illustrator or Adobe Photoshop. Also, students will design and create their own original mobile application.

Students will gain confidence by collaborating on interdisciplinary projects along with participating informal and formal presentations. The curriculum will encourage students to work as both an individual along with a contributing member of a production team, in the shop, school, and community. Students will be engaged in processes commonly used within the communication production industry.

SENIOR PROGRAM
Advanced Video Production

The purpose of this course is to have students acquire an understanding of the elements involved in producing Electronic News Gatherings (ENG) and Electronic Field Productions (EFP).

- Understand the role and influence of broadcast news production in today's world.
- Discuss the fundamentals of broadcasting technologies.
- Demonstrate an understanding of broadcast news through the development of producing news segments for a newscast.
- Continue to develop an awareness of the three stages of video production.
- Continue to develop knowledge of advanced video editing concepts, equipment, and processes.
- Continue to develop knowledge of advanced audio production concepts, equipment, and processes.
- Continue to demonstrate advanced effective pre-production practices.
- Continue to demonstrate advanced effective production practices.
- Continue to demonstrate advanced effective post-production practices.
- Produce 3-5 minute segments for the VTTV Magazine show.
- Produce 1–2 minute highlight videos for each career major at GNB Voc-Tech.

Throughout the course, students will continue to participate in hands-on production oriented activities and projects. Students will also engage in research and use industry specific terminology. Wherever possible, students will continue to learn concepts, vocabulary, and skills within the context of an actual broadcast news production experience.

The course will encourage students to work as a contributing member of a production team, engaged in processes commonly used within the communication production industry.

SENIOR RELATED THEORY COURSES

Media Writing III

Media Writing III is a course that will inform students about writing for various types of media. Students will research, plan and organize topics for news segments that will be produced in shop. Pre-production work such as emailing local businesses, interview questions and preliminary scripts will be completed in this course. Students learn in ways that are identifiably distinctive. In order to ensure that all students are learning classroom material, various forms of assessment will be employed. Due to the fact that media writing is a primarily analytical course that relies heavily on critiquing and writing, other assessments such as class discussion, Adobe Photoshop assignments and presentations will be used.

Media Technology – Grade 12 Related Theory 2 – Advanced Photography

The Advanced Digital Photography course is a continuation of Digital Photography in the Media Technology program. Students will become proficient in implementing the elements and principles of design into their photographic work through the use of Adobe Photoshop software. Students will develop the knowledge and skills to be able to produce, direct and edit their own video production. In the Advanced Digital Photography course students will use digital cameras and computer software to create original works of art. Students will be introduced to digital imaging technology, cameras and editing software such as Photoshop, and proper composition and lighting techniques. Artists' works will be used as inspiration for many of the assignments. Artists as well as art movements will be discussed in class. Principles and elements of design will also be discussed and incorporated into projects. Students learn in ways that are identifiably distinctive. In order to ensure that all students are learning classroom material, various forms of assessment must be employed. Advanced digital photography assignments will consist of photographic assignments, Adobe Photoshop projects, written assignments on various photographers and artists, self-critiquing and formal presentation of works.

CAREER OPPORTUNITIES:

- Director
- Camera Operator
- Editor
- Audio Technician
- Broadcast Technician
- Announcer
- On-Air Talent
- Vocational Teacher
- Communication Teacher
- Academic Teacher
- Desktop Publisher
- Journalist
- Photographer
- Comic Book Writer/Artist
- 2D Animator
- 3D Animator
- Character Modeler
- Environment Artist
- Texture Artist
- Game Developer
- Character Rigger
- Web Designer
- Commercial & Industrial Designer

Upon completion of this Technical Program, students will be better prepared for post-secondary education in then following courses of study:

- Photography
- Animation
- Web Design
- Communications
- Marketing/Advertising
- Social Media Marketing
- Illustration

STATIONARY ENGINEERING

FRESHMAN EXPLORATORY

The Stationary Engineering Freshman Exploratory course is an introduction to electrical power generation, and product manufacturing using steam as a conveyor of heat. Students learn about electrical generation, and the associated auxiliary equipment needed for safe and efficient electrical production. Students will engage in learning activities associated with thermal, mechanical, chemical, and electrical projects, in association to industry accepted standards.

Students will construct pipe and tubing projects according to diagrams provided by the instructor. The mechanical projects will include necessary valves, fittings, and pressure gauges, used to connect different materials used in the power generation field. Students will be instructed in all phases of mechanical piping support systems, and the various valves needed to stop, start, and control flow of fluids used in Stationary Engineering.

Students will learn about power plant pay scales, benefits packages, working schedules, and areas of advancement. They will explore the different avenues of study in accordance to the particular student interest, such as; mechanical engineering, operations, equipment installation and repair, chemical water treatment, or electrical engineering.

FRESHMAN PROGRAM

The students learn theory and skills required to perform maintenance procedures in a power plant setting. This course provides students with knowledge of safe working procedures such as proper use of hand and power tools; they will be able to identify valves and fittings, measure and cut gaskets, ream, cut, and file, copper tubing, black iron pipe, and PVC pipe. Students will learn to construct piping projects, with valves and fittings, and to leak check for effectiveness of assembly. An overall written description of the procedures learned in this course will be kept in

a notebook. Work samples will be kept in a portfolio, which will be added to each year and used to as an aid to seek employment.

SOPHOMORE PROGRAM

The Sophomore Stationary Engineering Maintenance is a 90-day course, where students learn the theory and skills required to safely perform maintenance procedures in a power plant setting. The course provides the student with knowledge of how to install and maintain valves, pressure gauges, pumps, pressure regulators, and auxiliary equipment needed in a power plant. Students construct various piping projects with components necessary to simulate the systems of a power plant. Individual components such as pumps, pressure regulators, and steam traps, are disassembled, rebuilt and assembled back to working order. An overall written description of the function of all associated steam plant equipment is given and maintained in a portfolio and notebook. This course provides the student with the skills necessary to be able to function in a safe efficient manner in a live steam power plant in junior year.

SOPHOMORE RELATED THEORY COURSES

The Stationary Engineering Boiler Technology course offers a solid introduction to the field of stationary engineering and plant maintenance. The course is designed for use as an introduction to stationary engineering; proper boiler operation and boiler components are covered.

JUNIOR PROGRAM

Junior Stationary Engineering Course trains junior students in basic principles pertaining to how to safely and efficiently operate boilers and auxiliaries in a live boiler plant. Students will obtain basic knowledge and skills to help them acquire their Massachusetts 2nd class fireman's license. An increase in population requires more power plants to meet the electrical needs; this results in a growing demand for highly skilled boiler operators.

The Steam Engineering junior's course provides instruction on how to safely and efficiently operate boilers and auxiliary equipment. This course is designed to introduce students to various types of valves, pressure gauges, steam traps, pumps and boilers; it is taught using a live running boiler plant that provides the hot water, heating and air conditioning throughout the school. Students will learn the basics of thermodynamics, thermo-hydraulic and pneumatic controls; they are instructed on how to do basic system schematic drawings of boiler room systems as well as trade related drawings. This course is intended to give the students the basic

skills and knowledge to help them obtain their Massachusetts 2nd class Firemen's license; it is a full year course that covers approximately 540 hours of instruction.

JUNIOR RELATED THEORY COURSES

The Stationary Engineering Steam Plant Operation Junior Year course is intended to more thoroughly cover topics already touched on, in the student's sophomore year. This course is designed to prepare students for the state issued 2nd class fireman's license to be taken in their senior year.

SENIOR PROGRAM

Senior Stationary Engineering Course is a 90-day course which consists of 10-9-day cycles. This course will instruct seniors to develop sound operating and technical skills in a live running boiler plant. Students will obtain advanced training and hands on skills to help them obtain their Massachusetts 2nd Class Firemen's License. An increase in population requires more power plants to meet the electrical needs, this will result in a growing demand for highly skilled boiler operators.

The Stationary Engineering senior's course provides instruction on all facets of steam boiler operation, maintenance, and troubleshooting. Common boiler auxiliaries and operating techniques are covered in detail, and safety and efficiency of operation are stressed. Information about modern boiler water treatment techniques, construction and repair methods, waste heat recovery, controls, fuels, and draft will also be covered. Mathematical formulas used in boiler plant operation will be given with examples that show step-by-step procedures to follow.

SENIOR RELATED THEORY COURSES

The Stationary Engineering License Preparation course is designed to prepare students for the Massachusetts 2nd Class fireman's license issued by the district inspector. The primary function of this course is to review and reinforce information found on this exam.

DESIGN AND VISUAL COMMUNICATIONS

FRESHMAN EXPLORATORY

During the three-day exploratory course, students are introduced to an overview of visual design and participate in hands-on learning activities such as basic drawing, color theory, design, illustration and image editing.

FRESHMAN PROGRAM

Students entering 9th grade will build basic skills in drawing, illustration, typography, color theory, and Adobe® Creative Suite software. Throughout the course, students will focus on work ethics, problem solving and most importantly critical thinking.

SOPHOMORE PROGRAM

Grade 10 students will continue to develop skills in drawing, illustration, typography, color theory, basic photography and Adobe® Creative Suite software. Students will be introduced to photography composition and camera operation. Students will apply a systematic approach to the design process in all studio projects. Research and presentation skills are developed through in-class presentations.

Throughout the course, students will develop the ability to design and develop ideas for new products, spaces and/or interfaces that may not have existed before, focus on work ethics, problem solving and most importantly critical thinking. Students will participate in hands-on activities and projects including page layout, conducting research and creating finished portfolio pieces that documents their creative work over the entire school and/or Visual Design program. Students also will gain an understanding of creating promotional messages across many media venues, based on a concrete and consistent creative product and message. Class critiques are part of the creative process.

SOPHOMORE RELATED THEORY COURSES

Related curriculum for Grade 10 reinforces foundation concepts of graphic design including: color theory, elements of design, principles of design, and concept development. Students will

continue to explore tools and processes of Adobe® Creative Suite Software. Students will also engage in research and use industry specific terminology. Students will be introduced to typography and commercial design types. Students will learn safety, professionalism, and presentation skills.

JUNIOR PROGRAM

Students will continue to develop software skills using Adobe® Creative Suite® for design, publishing and interactive/rich media. Students will build their first live website using Adobe Muse, and Photoshop, and Adobe Dreamweaver. The primary objective is to create a living portfolio document display that will be used to gain admission into a two or four year college, and for future job applications.

Students will become increasingly proficient in all Adobe products while continuing to create design work, including brand identity, posters, flyers, web sites, consumer products, and brochures. Students will also demonstrate proficiency in the use of relevant design technology in the problem-solving and creative process. Photography study will advance into lighting for portraiture and landscape using natural and supplemental light. Students will explore advanced photography and video based Adobe® Creative Suite Software.

Students will learn the best practices when choosing typefaces for communication projects in both printed form and for screen viewing. Students will demonstrate proficiency in creative process techniques using various materials/media including drawing and sketching techniques.

Students will be introduced to storyboarding 2D and 3D design methodologies.

JUNIOR RELATED THEORY COURSES

The related curriculum for the eleventh grade brings concepts of design and program knowledge to an intermediate level. Students will advance their learning of effects, terminology and processes of Adobe® Creative Suite Software. They will become proficient in the technical and theoretical knowledge of creating marketing materials, scientific illustration, photography, web design, animation & video. Students will study art history to get a full understanding of methods and themes and how it relates to current design styles.

To prepare students for work and/or college, students will learn how to create a physical & digital professional art portfolio. Entrepreneurship, ethics and interview procedures will be explored.

SENIOR PROGRAM

Students will demonstrate proficiency in creative process techniques using various materials and media, including drawing and sketching techniques; they will create original images, artwork, and consumer brand identity using these methods and mediums. Curriculum will emphasize content creation skills and career portfolio development (physical and electronic web platform portfolio) with accountability in job search/application, and college preparation/application.

Students will participate in Senior Project preparation/presentation, which focuses on portfolio, entrepreneurship and job readiness skills. Students will work on jobs for clients and gain confidence in meeting with and presenting to customers.

Photography study will advance into lighting for portfolio image duplication. Students will participate in fine art photography, prints and sculpture with exposure in development, printing, archival mounting and exhibition opportunities. 2D and 3D design methodologies with Adobe® Creative Suite® skills will expand upon student-driven interests and competencies in the creative field.

SENIOR RELATED THEORY COURSES

The related curriculum for grade twelve brings concepts of design to an advanced level. Students will increase their knowledge of using and understanding the effects and processes of Adobe® Creative Suite Software. They will extend their technical and theoretical knowledge of commercial marketing materials, scientific illustration, photography, web design, animation & video. Students will study past and present artists to get a full understanding of methods and themes and how it relates to current design styles and supports concepts.

To prepare students for work and college, students will finalize their physical & digital professional art portfolios. Entrepreneurship, ethics and interview procedures will be explored.

CAREER OPPORTUNITIES:

- Graphic Design
- Production Artist
- Photographer
- Type Designer
- Brand Identity Designer
- Packaging Designer
- Advertising Designer
- Interactive Marketing and Advertising Designer
- Corporate Communications Designer
- Marketing/Social Media Designer
- Entrepreneurship
- Web Designer/User Interactive Designer
- Digital Video Editor
- Motion Designer
- Video Producer
- Mobile Designer
- Desktop Publisher
- Digital Marketing Strategist
- Fine Artist
- Illustrator
- Art Educator

Senior Portfolio Requirements

Career Portfolio is both a promotion and graduation requirement.

Seniors must submit a passing Career Portfolio in order to be eligible for a GNB Voc-Tech High School diploma. All portfolio requirements must be in the portfolio and can be found on the portfolio guidelines found on the school's website at gnbvt.edu.

The career portfolio is a compilation of four years of student work requiring teamwork between the student and the vocational and academic instructors. The student is responsible for the contents, and all instructors are responsible for guiding, encouraging, reviewing, and supporting the development of the portfolio. The four-year cumulative portfolio is refined during the senior year and presented for scoring as part of the school graduation requirements.

To facilitate the creation of student portfolios, student work that demonstrates advanced or superior technical skills will be recognized by instructors and recommended for inclusion in the portfolio. Students are often unsure as to what qualifies for inclusion. Outstanding projects or skill sets should be photographed or documented and reported in the form of a 350 to 500-word narrative.

Community service projects in which students demonstrate high-level technical skills make good entries. The projects chosen for inclusion in the portfolio should demonstrate the student's attainment of several high-level vocational competencies and life skills. Evidence provided to accompany these projects should be detailed, clearly labeled, include technical terminology, and be accompanied by one or more digital images or drawings that enhance the narrative.

Participation in special programs such as Tech Prep should be documented and included in the collection. Remember that the object of the portfolio is to showcase the individual as a motivated and skilled graduate of his or her technical area who is ready to continue on in the world of higher education or to enter the workforce.

In addition, the career portfolio is an integral part of the Certificate of Occupational Proficiency assessment process. Students competing for the C.O.P. will be required to submit a portfolio that adheres to the guidelines in this handbook. The portfolio will constitute 1/3 of the qualifying requirements for the COP. The remainder of the COP assessment will be the written test and the hands

on demonstration of technical skills. The portfolio addresses additional areas of competency not addressed by the written test or the hands on demonstration of technical skills including literacy. It is intended to be a professional document with a serious tone and purpose demonstrating the student's readiness for higher education and the workplace.

The Career Portfolio should be divided into 3 sections: Employability, Credentials, and Work Samples.

Employability

- Goals Essay
- CTE Competency List (student vocational instructors maintain this list and give to the senior for incorporation into the portfolio)

Credentials

- Resume
- A minimum of 3 letters of recommendation (from teachers, counselors, employers)
- Licenses and certificates
- Awards and Honors
- Attendance Record / Transcript (optional)

Work Samples

A minimum of 7 work samples (350-500 words in length that demonstrate an advanced level of technical skills), with at least 2 from senior year and 2 from junior year

- **For more information please visit our website at www.gnbvt.edu. Senior Portfolio information and required forms can be found under the Student Services Tab.**