



# Souhegan High School

## **Career and Technical Education (CTE) Supplement to the Program of Studies**

## Overview

Souhegan High School students have access to Career and Technical Education (CTE) courses at our regional CTE centers. These include the Milford Applied Technology Center, Nashua High School North, Nashua High School South, and the Wilbur H. Palmer Career and Technical Education Center at Alvirne High School (Hudson). With information regarding these programs spread across the corresponding districts, this document is intended to consolidate information about these programs to a central location in order to make it easier for Souhegan students and families to access.

Career and Technical Education programs are specialized programs that prepare students for work in a specific career path or continued education within that career field. Students must apply to and be accepted into these programs. Students earn high school credit just as they would for their coursework at Souhegan. The courses are scheduled as part of a student's typical school day. Due to the differences in schedules and travel time, the courses will take up two or more academic blocks. Most programs take two years to complete. Given the complexities of scheduling, careful planning is required with your school counselor to determine how a career and technical education program can best fit into a student's Four Year Gameplan.

**This information should be used as a guide only. Souhegan High School and the SAU #39 School Board do not govern these programs. Decisions about these programs are made by the local districts. Therefore, information contained in this document is subject to change, and we will make every effort to update the information as we receive information from the area centers.**

## Dual Enrollment & Industry Recognized Credentials

In addition to high school credit, various CTE programs have paths available for students to earn college credit - either via dual enrollment agreements or articulation agreements with partnering colleges. Dual enrollment credit refers to college credit that is earned immediately upon completion - students receive the credit on a transcript from their partnering college. These credits have the possibility of transferring to other institutions, if a student ultimately enrolls elsewhere. Students must complete the registration steps with the college/university to receive the credits. Articulation agreements refer to credit or advanced standard that a student may receive if they choose to attend the specific partnering institution.

Some courses also contain opportunities for students to earn a certification that is recognized within that industry. These industry recognized credentials help students qualify for jobs after graduation. For information regarding college credit opportunities and industry recognized credentials, view the chart for each center's programs.

# Alvirne - Wilbur H. Palmer CTE Center

Alvirne High School, Hudson NH

<b>Available College Credit + Industry Recognized Credentials</b>			
<b>Program</b>	<b>College Credit or Articulation Agreement</b>	<b>Partnering College</b>	<b>Industry Recognized Credential</b>
<b>Accounting</b>	Accounting I (3) Accounting II (3)	Nashua Community College	
<b>Air Force JROTC</b>	Completion of 3 Year Sequence	Articulation Agreement for students attending Southern NH University	Drone pilot certification
<b>Construction</b>			OSHA 10
<b>Culinary</b>	Culinary Arts II (6)	Nashua Community College	ServSafe
<b>Cyber Security</b>			Prepares students for AP exams
<b>Digital Media</b>			
<b>Engineering</b>	Engineering I (8) Engineering II (8)	NH Institute of Technology (NHTI)	Project Lead The Way certificate
<b>Health Science</b>	Health Science II (3)	Nashua Community College	CPR Certification; LNA Certification, Medical Assisting Certification, Dental Assisting Certification
<b>Heavy Duty Mechanics Technology</b>			OSHA 10 Certification
<b>Human Services</b>	Human Services I (3)	Nashua Community College	
<b>Marketing</b>	Marketing II(3)	Nashua Community College	
<b>Natural Resources</b>			

<b>Veterinary Science</b>	Veterinary Science II (2)	Great Bay College; Articulated credit for students attending SUNY-Cobleskill	
<b>Welding &amp; Fabrication</b>			OSHA 10

## Program and Course Descriptions

### Accounting

This program introduces students to the complete accounting cycle for a merchandising business. Students use a variety of computer software applications to master skills and apply financial concepts. Computerized Accounting projects are used to simulate real world applications and the Virtual Business software gives students an opportunity to build and manage their own business from the ground up. This program is strongly recommended for college-bound students planning to major in business.

[Link to Alvirne Accounting Program Fact Sheet](#)

[Link to Alvirne Accounting Video](#)

### Accounting I Honors

**Credits 2**

**Grades 10-12**

**Length: Full Year, Double Block**

**Prerequisite(s): Application to CTE Center**

In this project-based class, students will be introduced to the complete accounting cycle for sole proprietorships, partnerships, and corporations. Online accounting software will be used instead of the traditional paper and pencil method. Students will use simulations and projects to apply concepts and master skills. For all who plan a career in business, finance, management, marketing, banking, accounting, or plan to run their own business, this course is a must. Students can receive 3 college credits for this course.

### Accounting II Honors

**Credits 2**

**Grades 11-12**

**Length: Full Year, Double Block**

**Prerequisite(s): Completion of Accounting I**

Accounting II is for students who wish to pursue an accounting or business career and have completed Accounting I. Further competence in accounting skills is emphasized in this course which includes departmentalized, corporate, and cost accounting concepts. Online accounting software will be used instead of the traditional paper and pencil method. Students can receive 3 college credits for this course.

## **Air Force JROTC**

The mission of Air Force Junior ROTC is to develop citizens of character. As such, the focus is on citizenship and the courses are not considered a military recruiting effort. Students will be held to a high standard of behavior and personal conduct. *No student is under any obligation whatsoever to join the military if they enroll in Junior ROTC.* The Air Force Junior ROTC program is a 4-year program for high school students. Each year is divided into two broad fields of study: Aerospace Academics and Leadership Education. Aerospace Academics includes history, science, space, and global cultural studies. Leadership education include Air Force customs and courtesies, cadet group activities, study habits, time management, communication skills, life skills, leadership and management studies, and wellness and healthy lifestyles training. Students are required to wear military uniforms one day per week and participate in drill and ceremonies practice. The uniforms are provided by the Air Force, and students are only responsible for cleaning the uniform while it is in their possession. Upon graduation from high school, students who choose to enlist in any branch of the service and who have completed 2 years of Junior ROTC will be enlisted at a higher rank (E-2 versus E-1). Students who compete 3 years or more of Junior ROTC may enlist as an E-3 at the discretion of the military service. Students may also compete for scholarships to college through the services college-level ROTC programs or service academy appointments.

[Link to Air Force JROTC Program Fact Sheet](#)

[Link to Air Force JROTC Video](#)

### **Air Force JROTC I**

**Credits 2**

**Grades 10-12**

**Length: Full Year, Double**

**block**

**Prerequisite(s): Application to CTE Center**

This is the entry-level course for Junior ROTC, and first-time students are usually enrolled in this course regardless of their school status. Aerospace Academics focus on the science and history of aviation, covering topics such as basic aerodynamics, aviation physiology, meteorology, and navigation. Additionally, topics in space studies are covered to include the solar system and the development of the U.S. Space Program. The study of aviation pioneers and strong military leadership complements the history lessons. The Leadership Education is designed to improve student communication skills, and include speaking and writing assignments, study of individual and group behavior, and basic leadership concepts. Course lessons also include time management, fitness and wellness, flag etiquette, and customs and courtesies of the Air Force.

### **Air Force JROTC II**

**Credits 2**

**Grades 10-12**

**Length: Full Year, Double Block**

**Prerequisite(s): Completion of Air Force JROTC I**

Aerospace Academics for this course is focused on Global Studies. This is a customized course about the world's cultures. The course is specifically created for the US Army, Marine Corps, Navy, and Air Force Junior ROTC programs. It introduces students to the world's cultures through the study of world affairs, regional studies, and cultural awareness. The course delves into history, geography, religions, languages, culture, political systems, economics, social

issues, environmental concerns, and human rights. It looks at major events and significant figures that have shaped each region. Leadership academics are designed to study and improve student management skills, choosing a career path, how to apply for and fund college, skills inventory and resume writing.

Cadets in this class will be held to the highest academic and behavioral standards. Cadets in JROTC Leadership will be charged with the management and leadership of the Alvirne High School cadet organization. Returning JROTC students must have an excellent academic record of performance, an exemplary record of behavior and classroom conduct, not only in JROTC but in all high school classes. The leadership Education academics are all designed to study and improve student management skills. Students from JROTC classes may be assigned to supervise JROTC classes.

## **Cyber Security**

Learn the fundamental concepts and processes of computer science, focusing on cybersecurity, through fun learning experiences that include computational programming and ethical hacking. Students will learn and apply programming/ techniques utilizing multiple programming languages and tools to prepare them for a Computer Science major in college or entry-level jobs in computer programming and cyber security.

[Link to Alvirne Computer Science Program Fact Sheet](#)

[Link to Alvirne Computer Science Video](#)

### **Cyber Security I**

**Credits 2**

**Grades 10-12**

**Length: Full Year, Double Block**

**Prerequisite(s): Successful completion of Core Math 1; Application to CTE Center**

Cyber Security 1 is intended to be a great place for those new to programming and cybersecurity. Students will learn computer program development techniques, computational thinking, troubleshooting, algorithm development, data structures, and graphics using languages current to the industry. They will learn to develop software applications from requirements, design, and secure implementation. Students will learn about computer organization, how the Internet works, and basic cybersecurity.

### **Cyber Security II**

**Credits 2**

**Grades 11-12**

**Length: Full Year, Double Block**

**Prerequisite(s): Succession completion of Core Math 2 and Cyber Security I**

Students will learn the fundamentals of cybersecurity. Students will learn foundational cybersecurity topics including networking fundamentals, software security, system administration and the basics of cryptography and programming. This is not a coding intensive

course, but students will learn basic SQL and JavaScript, and will utilize basic HTML and JavaScript within specific contexts while being provided with support within those contexts. Students will modify existing code and run it in the browser, investigate cyber related topics and reflect on them and discuss them, create digital presentations, and engage in in-person collaborative exercises with classmates. Students will be able to modify text-based programs in HTML, JavaScript, SQL and simulate shell commands. Students will also participate in simulated cyber-attacks on safe sites in order to learn how to mitigate cyber-attacks. Students will be able to document their processes and discuss best practices for preventing cyber-attack. The course is highly visual, dynamic, and interactive, making it engaging for those new to computer science.

## **Construction**

Exciting careers in construction begin with the skills students learn as part of The Palmer Center's Construction Program. Students learn to estimate materials, and perform the layout and construction themselves. This two-year program includes site selection, surveying, excavation, design, foundation work, framing, insulation, plumbing, wiring, dry wall, painting, and finish trim work. Students leave Construction with skills that can put them way ahead of the competition for construction jobs. Students have the opportunity to participate in the OSHA 10 training and become certified.

[Link to Alvirne Construction Program Fact Sheet](#)

[Link to Alvirne Construction Video](#)

### **Construction I**

**Credits 2**

**Grades 10-11**

**Length: Full Year, Double Block**

**Prerequisite(s): Application to CTE Center**

In this course, students will practice their construction skills on small utility buildings or small houses. These future tradesmen will attend demonstrations, lectures, Skills USA and will also receive hands-on experience through building construction. All phases of the housing industry will be explored. Guest speakers will help students discover what employment opportunities await them after graduation. Students should leave this course with the ability to construct sheds and other small buildings, as well as perform basic household repairs. Upon teacher recommendation and successful completion of all competencies student can move on to Construction II.

### **Construction II**

**Credits 2**

**Grades 11-12**

**Length: Full Year, Double Block**

**Prerequisite(s): Successful Completion of Construction I**

In this course, students will be led through the different phases of construction. Students will learn about site preparation, footings and foundations, framing, roofing, and interior and exterior finish. Students will be introduced to basic topics in concrete work, masonry, electrical wiring, and plumbing. Upon successful completion of this course, students will have the entry-level skills necessary to begin a carpentry career or progress to a postsecondary institution.

Preparation: Construction I. Students will participate in OSHA 10 training and receive their OSHA 10 card upon successful completion of the program.

## **Culinary Arts**

The Culinary Arts program prepares students for an exciting career in the food service industry. Students learn cooking and baking techniques; creating a balanced menu; and executing customer service skills at The Palmer Center's brand new "Barnyard Cafe". In this two-year program, students learn about proper storage and sanitation procedures, nutrition, and basic knife skills. Students have the opportunity to become ServSafe certified while in high school. Students have the knowledge and confidence needed to succeed in the workplace or to further their education in Culinary Arts.

[Link to Alvirne Culinary Arts Program Fact Sheet](#)

[Link to Alvirne Culinary Arts Video](#)

### **Culinary Arts I**

**Credits 2**

**Grades 10-11**

**Length: Full Year, Double Block**

**Prerequisite(s): Application to CTE Center**

The Culinary Arts I program prepares a student for a career in the food service industry. Students train in the basics of planning, purchasing and preparing food in quantity. Students learn cooking techniques and preparation, selection and use of utensils and equipment and safety and sanitation techniques involved in food preparation. Provide students with entry-level career skills and basic knowledge of how professional kitchens are set up and managed. Demonstrating your skill, knowledge and professionalism in the food service industry gives you a competitive edge over other chefs.

### **Culinary Arts II Honors**

**Credits 2**

**Grades 11-12**

**Length: Full Year, Double Block**

**Prerequisite(s): Successful completion of Culinary Arts I**

Culinary Arts II students study kitchen design and layout, food costs, inventory management and cost controls. Students will further develop their understanding of skills and theories by applying what they learned in Culinary Arts 1. Instruction will include sanitation standards and procedures, baking, mother sauces, classical cuisine, and garde manger. They learn how to plan for and serve at banquets. They receive assistance during the year in making postsecondary plans and/or obtaining employment in the food service industry. This assistance will continue after graduation if needed. Students will have the opportunity to earn up to 6 college credits through Nashua Community College for Fundamentals of Baking and Food Safety & Sanitation as well as nationally recognized ServSafe certification.

## **Baking & Pastry**

**Credits 2**

**Grades 11-12**

**Length: Full Year, Double Block**

**Prerequisite(s): Successful completion of Culinary Arts I**

The Baking and Pastry class provides students with an understanding of the ingredients and methods used in creating items found in any bakery/pastry shop. Muffins, quick breads, coffee cakes, pie dough, puff pastry, Danish dough, Pies, tarts, cookies, and common bakery items will also be created. Students learn how dairy, fruits, flour and chocolate come into play with pastry and baking. The fundamentals of cake baking and decorating will be covered. This class also introduces students to the equipment and costs associated with running a pastry operation. Demos and guest speakers will provide real industry experience.

## **Digital Media**

In Alvirne's digital media program, students develop a good theoretical understanding of the systems and equipment used in the graphics and web technology design industry. Students work with a variety of programs used to create digital media including Photoshop; Illustrator; InDesign; Dreamweaver; Flash; HTML5; CSS33 and an introduction to digital music mixing and movie creation.

[Link to Alvirne Digital Media Program Fact Sheet](#)

[Link to Alvirne Digital Media Video](#)

## **Digital Media I**

**Credits 2**

**Grades 10-11**

**Length: Full Year, Double Block**

**Prerequisite(s): Application to CTE Center**

This year-long course introduces students to some of the basic graphic design techniques used by commercial, visual, print, web, online game and app designers. Digital Media 1 provides in-depth instruction in Adobe Photoshop and Illustrator. Students will learn how to use the fundamentals of layout, design, typography and composition in the digital realm. They will integrate a variety of drawing, painting, editing, and retouching tools with special emphasis on how to create/achieve sophisticated, real-world results including posters, programs, logos and brochure designs. It will encourage students to use flexibility and imagination in their growing repertoire of computer skills; providing better productivity, and therefore, employability. Real-world critical thinking and implementation are a hallmark of this course. As such, each student will be required to create both a physical as well as an electronic portfolio of accomplishments throughout this course.

## **Digital Media II**

**Credits 2**

**Grades 11-12**

**Length: Full Year, Double Block**

**Prerequisite(s): Successful completion of Digital Media I**

By completing this year-long capstone course students are preparing to continue their passion of becoming a user/developer of media technologies, for print and digital graphic design, illustration, and audio-visual production. DM2 provides students a chance to experience the day to day life of being a creative. Students will learn how to integrate the skills they have learned thus far in Photoshop, Illustrator, InDesign, Premier Pro, and many other cutting edge Adobe

Creative Suite programs to develop layout and design spaces for both print and web as well as visually engaging audio/visual creations. Students will continue to build on their image, illustration, audio/visual editing, and text skills to achieve professional design variations for multiple forms of digital media. Students will also explore communication with outside clients to create custom works. Students will explore advanced integration of multiple media technologies utilized in advertising and marketing agencies, production houses, and media-focused departments within larger corporations. Real-world critical thinking and implementation are a hallmark of this course. As such, each student will be required to continue to add to both a physical as well as an electronic portfolio of accomplishments that they started in DM1.

## **Engineering**

Project Lead The Way (PLTW), a national program where students understand the relevance of math and science by engaging in hands-on, real world projects. Students understand how the skills they are learning in the classroom can be applied in everyday life. Students develop many of the skills professionals need to succeed in today's economy. Some examples include problem solving, research and design, and data collection and analysis skills. It also provides study skills for time management as well as resource management. Students gain an understanding of the potential impact their ideas and products may have on society. It is a solid foundation for college study in Engineering.

[Link to Alvirne Engineering Program Fact Sheet](#)

[Link to Alvirne Engineering Video](#)

### **Engineering I Honors**

**Credits 2**

**Grades 10-11**

**Length: Full Year, Double Block**

**Prerequisite(s): Application to CTE Center**

This course is a combination of Introduction to Engineering and Design, and Principles of Engineering. In the first semester, students dig deep into the engineering design process, applying math, science, and engineering standards to hands-on projects. They work both individually and in teams to design solutions to a variety of problems using 3D modeling software, and use an engineering notebook to document their work. In the second semester students explore a broad range of engineering topics, including mechanisms, the strength of structures and materials, and automation, through problems that engage and challenge them. Students develop skills in problem solving, research, and design while learning strategies for design process documentation, collaboration, and presentation. The techniques learned and equipment used is state-of-the-art and currently being used by engineers throughout the US.

## **Engineering II Honors**

**Credits 2**

**Grades 11-12**

**Length: Full Year, Double Block**

**Prerequisite(s): Successful completion of Core Math 1 and Introduction to Engineering Design**

This course is a combination of Computer Integrated Manufacturing and Civil Engineering and Architecture. Manufactured items are part of everyday life, yet most students have not been introduced to the high-tech, innovative nature of modern manufacturing. This course illuminates the opportunities related to understanding manufacturing. At the same time, it teaches students about manufacturing processes, product design, robotics, and automation. In the second semester, students learn important aspects of building and site design and development. They apply math, science, and standard engineering practices to design both residential and commercial projects and document their work using 3D architecture design software

## **Health and Human Services**

The Health and Human Services programs require entering students to have strong math and science skills. Students can select from either the Health Science or Human Services pathways. The pathways are designed to introduce potential future health and human services professionals to theory and skills in preparation for careers in the fields. Throughout the Health Science pathway, students explore infection control, safety measures, health information technology, healthcare history, careers, legal and ethical issues, communication skills, anatomy, physiology, medical terminology, and pathophysiology. Throughout the Human Services pathway, students will explore career opportunities with direct service occupations in human services agencies, such as counselors, therapists and community liaisons.

[Link to Alvirne Health Science and Technology Program Fact Sheet](#)

[Link to Alvirne Health Science and Technology Video](#)

## **Health Science I Honors**

**Credits 2**

**Grade 11**

**Length: Full Year, Double Block**

**Prerequisite(s): Successful Completion of Living Systems Science with a grade of B or better; Application to CTE Center**

This course will introduce students to the wide range of career options within Health Science. Students will be introduced to topics such as the history of healthcare, healthcare delivery systems, technology trends, healthcare economics, safety practices, infection control, and significant medical terminology. Curriculum topics and skills prepare students for careers in areas such as nursing, physical and occupational therapy, dentistry, medicine, and other careers of interest. Students may be certified in CPR/AED during this year.

## **Health Science II Honors**

**Credits 2**

**Grade 12**

**Length: Full Year, Double Block**

**Prerequisite(s): Successful Completion of Health & Human Services Honors**

Health Science II Honors continues to expand knowledge and experience with significant anatomy, physiology, pathophysiology, medical terminology, and real-world clinical experiences. Medical terminology continues to be embedded in the program, and students may become eligible for college credit. Level II students may take one of two experiential tracts offered, LNA or General Clinical. Licensed Nursing Assistant Program completers may earn certification, become eligible to sit for the NH State Licensing written and practical exams prior to graduating, and become employment eligible immediately following graduation. General Clinical students may intern with healthcare professionals at local community healthcare facilities as positions become available relative to their paths of interest (not limited to physical therapy, sports medicine, exercise science, medical assisting, athletic training, dental hygiene, or nursing). Students may continue to practice their skills at the Gateways Adult Daycare Facility at the Palmer Career and Technical Center. CPR certification is through the American Red Cross

## **Human Services I Honors**

**Credits 2**

**Grade 10-12**

**Length: Full Year, Double**

**Block**

This course will introduce the background information and concepts necessary to understand the theory and practice of Human Services. The information will be drawn from disciplines including history, sociology, and psychology, as well as understanding the valuing of social roles, ethical behaviors and quality of life. Current influences on Human Services such as managed care may also be discussed. This pathway is geared towards students who are interested in pursuing a career as a Human Services professional.

## **Heavy Duty Mechanics**

Prepare to tackle countless mechanical challenges on the job and in everyday life. Learn useful skills in gas and arc welding, hydraulics, and engine overhaul. Using both hand and power tools, investigate the areas of engines, transmissions, power trains, cooling systems, ignition wiring, and fuel systems as students explore preventive maintenance, troubleshooting techniques, and equipment repair on gas and diesel equipment. In the second year of the program students troubleshoot diesel engines with a state of the art diagnostic computer. With a solid experience in mechanics, students are better prepared to continue their education or go right to work after graduation. Students have the opportunity to participate in the OSHA 10 training and become certified.

[Link to Alvirne Heavy Duty Mechanics Program Fact Sheet](#)

[Link to Alvirne Heavy Duty Mechanics Video](#)

## **Heavy Duty Mechanics I**

**Credits 2**

**Grades 11-12**

**Length: Full Year, Double Block**

**Prerequisite(s): Application to CTE Center**

This course is designed to give students an understanding of large diesel and gasoline engines, as related to construction and agricultural equipment. Subject areas include equipment operation and maintenance, theory of engine operation, engine overhaul, hydraulics, power train, operation, welding, diagnostics, and troubleshooting. Safety will be stressed in all aspects of the course. Students will apply what they learn by gaining practical experience in the heavy equipment shop. Students can apply what they learn to help them with careers in mechanics, agriculture, construction, or trucking.

## **Heavy Duty Mechanics II**

**Credits 2**

**Grade 12**

**Length: Full Year, Double Block**

**Prerequisite(s): Successful Completion of Heavy Duty Mechanics I**

This course allows students to apply and expand upon skills and knowledge gained in the first year of the program. Students will work on construction and agricultural equipment performing repair, overhaul, diagnostics, and troubleshooting. Students will become independent through projects requiring record keeping, disassembly, analysis, replacement of parts, and final reassembly to a working condition. Students will troubleshoot basic diesel engine malfunctions using the latest computer technology. This course will help prepare students for an entry level job in heavy equipment maintenance or a technical school program in mechanics. Students can earn their OSHA 10 Safety Certifications.

## **Marketing**

In Alvirne's Marketing program, students have the opportunity to apply marketing skills in both the classroom and in a variety of retail as well as commercial lab settings. Learn the basics of planning, promotion, financial management, economics, people skills, technology, inventory control, and buying and selling as students practice the real world skills of merchandising and marketing. Students are invited to join DECA, an organization of emerging leaders and entrepreneurs who are studying marketing, finance, hospitality, and management. This organization provides numerous leadership, networking, and professional development opportunities for student members.

[Link to Alvirne Marketing Program Fact Sheet](#)

[Link to Alvirne Marketing Video](#)

## **Marketing I**

**Credits 2**

**Grades 10-12**

**Length: Full Year, Double Block**

**Prerequisite(s): Application to CTE Center**

Students will start this course learning the important role that marketing and business plays in society and how it impacts their daily lives. Learn about the types of business ownership, principles of entrepreneurship, management theories, strategies to motivate employees, business ethics and corporate social responsibility. As a result of understanding the role that the economic, global, legal, financial environments have on business operations and profits,

students will then have opportunities to apply these concepts in various hands-on projects throughout the course. After learning the basics of business, students will then learn and apply the fundamentals of marketing. Students will learn all about the world of marketing, analyzing market opportunities, developing new products, distribution decisions, promotion and communication strategies, pricing objectives and the skills needed for a successful career in marketing.

## **Marketing II Honors**

**Credits 2**

**Grades 11-12**

**Length: Full Year, Double Block**

**Prerequisite(s): Successful Completion of Marketing I**

Students will further their development of marketing and business skills in this course. Students will expand their knowledge of marketing and business and continue to participate in numerous interactive business marketing projects. Students will learn not only how to develop but manage a global business plan, analyze consumer decision-making, devise B-to-B and nonprofit marketing plans, analyze supply-chain management and marketing channels, advertise, create sales promotions, price set, as well as strategize and implement social media marketing campaigns. Students will have increased opportunities to organize and lead real-world promotional campaigns along partner with businesses in the community to strengthen their marketing skills.

Students can earn 3 college credits for Marketing I at Nashua Community College.

## **Natural Resources**

If students choose to enter a career in the outdoors upon graduation, they are ready with an understanding of natural resource management and conservation, forest ecosystem processes, environmental law and economics, forest health issues, and forest and wildlife ecology. The program utilizes the 100 plus acres of Alvirne's registered tree farm as a laboratory for operating forest equipment, managing, and studying forest ecosystems. Alvirne's forest and wildlife management graduates are well prepared to gain entry level work in resource conservation or arboriculture, or to continue their education at the postsecondary level in forest and wildlife management, or environmental science and conservation.

[Link to Alvirne Natural Resources Program Fact Sheet](#)

[Link to Alvirne Natural Resources Video](#)

## **Natural Resources I**

**Grades 10-11**

**Length: Full Year, Double Block**

**Prerequisite(s): Application to CTE Center**

To conserve, manage, and protect the biodiversity of our planet is critical for human survival. The management of Earth's natural resources is essential to keeping our communities safe from need in the 21st century, ensuring we have water to drink, food to eat, air to breathe, and materials for shelter. Activities covered in this course include identification and classification of plants and animals, forest & wildlife ecology & management, invasive species, biodiversity & habitat loss, climate change, and alternative energies. Considerable class time will take place outdoors where students will be involved in hands-on learning in Alvirne's 126- acre registered

NH Tree Farm. Students will be introduced to a variety of tools and technologies used in natural resource management and conservation, including remote sensing with satellites and drones, computer-based mapping with Geographic Information Systems (GIS), and handheld Global Positioning Systems (GPS).

**Natural Resources II**                      **Grades 11-12**                      **Length: Full Year, Double Block**

**Prerequisite(s): Successful completion of Natural Resources I**

This course is a continuation of Natural Resources I with a strong focus on sustainability. In year two, students will have the opportunity to pursue interests in Fish & Game, aquaponics, greenhouse management and alternative energy. The Alvirne Tree Farm and greenhouse will continue to serve as the main laboratory spaces for the class, however student projects could take them to locations across the region. The course will continue the use of a variety of tools and technologies used in natural resource management and conservation, including remote sensing with satellites and drones, computer-based mapping with Geographic Information Systems (GIS), and handheld Global Positioning Systems (GPS)

**Veterinary Science**

The Veterinary Science program requires entering students to have strong math and science skills. Taught at the college level, this fast-paced and academically challenging program prepares students for further education or employment in the small and large animal health care field such as veterinary assisting, technology, and medicine. Students will gain knowledge in areas such as safety, the veterinary profession, medical terminology, animal behavior, patient/client relationships, and record keeping. More advanced topics include anatomy and physiology, animal health/disease, nutrition, and immunology. Hands-on experience is obtained in our small animal veterinary clinic as well as our school farm in areas such as handling/ restraint techniques, kennel management, dehorning, laboratory veterinary skills, and physical exams. Students will also acquire skills during our annual vaccine and spay/neuter clinics held in our veterinary clinic.

[Link to Alvirne Veterinary Science Program Fact Sheet](#)

[Link to Alvirne Veterinary Science Video](#)

**Veterinary Science I**

**Credits 2**

**Grades 10-11**

**Length: Full Year, Double Block**

**Prerequisite(s): Completion of Living Systems Science with a grade of B or better;**

**Application to CTE Center**

The first year of this advanced level, two-year program introduces students to the applied principles and practices used in small and large animal related business with a special emphasis on veterinary medicine. Students will explore concepts through hands-on experiences

working with kennel animals such as chinchillas, rabbits, guinea pigs, ferrets, rodents, and birds along with our large animal species including donkeys and dairy cattle. Topics will also include safety, animal behavior, breed and species identification, animal health, welfare and client relations. Through continuous exposure to animals on the school farm and small animal facility, students will develop hands on skills in handling, restraint, grooming, feeding, cleaning/ disinfection, training, and record keeping. Students will develop skills in professional telephone etiquette and customer service and research animal-related careers. Students will also be required to complete 12 hours of community service in an animal related service project. This course will provide students with skills and knowledge needed for employment in an entry-level job such as a veterinary assistant or kennel assistant, and/or preparation for post-secondary education..

### **Veterinary Science II Honors**

**Credits 2**

**Grades 11-12**

**Length: Full Year, Double Block**

**Prerequisite(s): Completion or concurrent enrollment in Chemistry; Application to CTE Center**

In the second year of the Veterinary Science program, students will continue to build on their knowledge and skills gained in the first year. Using the kennel's small animals and large animal species, advanced topics in veterinary science II will include nutrition and anatomy, health and disease and veterinary medical terminology and entrepreneurship. Hands-on skills will be developed in feed selection, laboratory procedures (i.e. fecal analysis, blood and urine analysis), animal health and disease prevention, such as vaccinations, deworming, grooming, physical exams, office skills, equipment identification and business management. Students will also be required to complete 12 hours of community service in an animal related service project. With the completion of this program, a student's potential for success in post-secondary education /an entry level job and/or in an animal science field is greatly enhanced.

### **Welding and Fabrication**

Students will learn to arc weld in the flat position, utilize an oxy-acetylene torch for cutting metal and learn basic MIG skills. Through various exercises students will select the proper welding materials and demonstrate appropriate techniques. This course is useful for any student planning a career in the fields of mechanics, engineering, agriculture, construction, machine trades, or civil technology.

[Link to Alvirne Welding Technology Program Fact Sheet](#)

[Link to Alvirne Welding Video](#)

### **Welding & Fabrication I**

**Credits 2**

**Grades 10-12**

**Length: Full Year, Double Block**

**Prerequisite(s): Application to CTE Center**

Students will learn to arc weld in the flat position, utilize an oxy-acetylene torch for cutting metal and learn basic MIG skills. Through various exercises students will select the proper welding

materials and demonstrate appropriate techniques. This course is useful for any student planning a career in the fields of mechanics, engineering, agriculture, construction, machine trades, or civil technology. Students MUST successfully complete all competencies to advance to Welding II. Grade 10 & 11 students will be given priority when scheduling.

### **Welding & Fabrication II**

**Credits 2**

**Grades 11-12**

**Length: Full Year, Double Block**

**Prerequisite(s): Successful completion of Welding & Fabrication I**

In year two of the welding program students will delve into advanced MIG, TIG, and stick welding skills. Using torch and plasma cutters students will develop their own self-directed projects to encourage growth of welding skills and to connect program contents to real life applications. Students will use oxy-fuel, shielded metal arc, metal inert gas, gas tungsten arc, gas metal arc, and plasma metal arc equipment to develop real-world skills in a controlled environment. Students will build partnerships with business and community members to help master skills. Students can earn their OSHA 10 Safety Certification.

### **Additional class offering:**

**Entrepreneurship**

**Grade 12**

**Length: Full Year, Double Block**

**Prerequisite(s): Successful completion of a two-year CTE program**

Entrepreneurship focuses on recognizing a business opportunity, and starting, operating, and maintaining a business. Students will turn the knowledge they gained in their CTE program into a fledgling enterprise and take their product or service to market. They will learn and apply accounting, marketing, and business management skills throughout the class and will learn how to develop and apply a business plan. This course includes an optional internship component as part of the curriculum where students can further hone their skills in the community. By choosing this option students will engage with the Career Development Coordinator to identify and apply for an industry-specific internship.



## Milford Applied Technology Center

<b>Available College Credit + Industry Recognized Credentials</b>			
<b>Program</b>	<b>College Credit or Articulation Agreement</b>	<b>Partnering College</b>	<b>Industry Recognized Credential</b>
<b><i>Business Pathways</i></b>	Accounting II (3) Accounting III (3)	Southern NH University (Articulation Agreement for students attending Keene State College)	Microsoft Office Specialist Quickbooks certification
<b><i>Computer Science</i></b>	Programming Fundamentals (3) Intro to Java (3)	Nashua Community College Community College (Early College)  Articulation Agreement for students attending Keene State College	Python & Java
<b><i>Carpentry</i></b>	Completion of Construction Technology Sequence	Articulation Agreement for students attending Keene State College	OSHA 10 Certification
<b><i>Culinary Arts</i></b>	Culinary Arts 1 (3) Culinary Arts 2 (3)	Nashua Community College (Early College)  Articulation Agreement for students attending Keene State College	ServSafe Certification
<b><i>Engineering Design</i></b>	Engineering Design I(7)  Engineering Design II (7)	Manchester Community College (Early College)  Articulation Agreement for students attending Keene State College	Solidworks
<b><i>Graphic Arts</i></b>	Graphics II (3)	Nashua Community College (Early College)  Articulation Agreement for students attending Keene State College	Adobe Certified Associate

<b>Health Occupations</b>	Health Occ I (3)	Nashua Community College (Early College)  Articulation Agreement for students attending Keene State College	First Aid/CPR Hipaa
<b>Precision Machining &amp; Welding</b>	PM I (3) PM II (6)	Nashua Community College (Early College)  Articulation Agreement for students attending Keene State College	OSHA 10
<b>Video Production</b>	VP I (3) VP II (3)	Great Bay Community College (Early College)  Articulation Agreement for students attending Keene State College	Adobe Premier Pro FAA Recreational Drone License

## Program and Course Descriptions

# Business Pathways



Business courses provide you with an opportunity to explore many aspects of business while earning college credits and building a strong foundation for further study. The CTE Business Pathway involves a core of business courses required by many college business major programs of study. A completer of the Milford CTE Business Pathway, must take Business & Marketing Fundamentals, Accounting, and 2 additional business courses. Students interested in

pursuing a career in business are also encouraged to do a semester-long internship in business.

Course	Grade	Credit	Length	Course #
Accounting	10-12	1 (EC)	S	1420
College Accounting	10-12	1 (EC)	S	1421
QuickBooks	11-12	1 (EC)	S	1418
Business & Marketing Fundamentals	10-12	1 (EC)	S	1761
Business Management & Entrepreneurship	11-12	1 (EC)	S	1482
Sports and Entertainment Marketing	11-12	1 (EC)	S	1492

### Accounting

**Credits 1**

**Grades 10-12**

**Length: Semester, Double Block**

**Prerequisite(s): Application to CTE Center**

Have you ever dreamed of owning your own business but didn't know where to start with managing finances? Or are you planning to pursue a business degree in college? Did you know that most business programs require two years of accounting? Why not get a head start right here in high school? **Accounting** is the foundation of every successful business, and this course will teach you the essential skills you need to succeed, whether you're planning to run your own company or work in the business world. You'll learn how to process daily financial transactions, manage a company's expenses, and explore the accounting systems used by real businesses. You will be able to understand how financial transactions flow through a business, learn both traditional methods and modern software tools to track finances, explore how accountants handle both service and merchandising businesses, and develop the knowledge to run a business smoothly, manage expenses, and keep track of revenue. This semester course is open to any student in grades 10-12 who is planning on a career in accounting, business management, finance, marketing, or plans to go into business on their own.

**College Credits:** Upon completion of Accounting 2 college credits for sophomores, juniors and seniors can be earned through Southern New Hampshire University (ACC 201 Financial Accounting)

### College Accounting

**Credits 1**

**Grades 10-12**

**Length: Semester, Double Block**

**Prerequisite(s): Successful completion of Accounting I with a C or better**

Did you know that you can earn college credits while still in high school? At MHS, Accounting 2

is your opportunity to dive deeper into the world of business finance and get one step closer to your career goals. Accounting 2 builds on the basics you learned in Accounting 1, giving you the chance to explore more advanced topics in the world of business. This course focuses on merchandising businesses and how corporations manage their finances, making it perfect for students interested in business ownership, finance, and corporate careers. Students will understand how large businesses operate and keep their book, learn how to analyze and interpret financial reports to make smart business decisions, dive into real-world topics like handling uncollectible accounts, managing inventory, and making accurate financial adjustments, learn how businesses acquire capital for expansion and development, and master the skills needed for closing the books and preparing for a new fiscal year.

**College Credits:** Accounting II can earn college credits for sophomores, juniors and seniors through Southern New Hampshire University (ACC 201 Financial Accounting)

### **Quickbooks**

**Credits 1**

**Grades 10-12**

**Length: Semester, Double Block**

**Prerequisite(s): Successful completion of Accounting 1 with C or better**

Ready to take your accounting skills to the next level? In this course, you'll build on everything you've learned in Accounting I and II, and gain hands-on experience with QuickBooks Online, the leading accounting software used by small businesses worldwide. This course will give you the opportunity to step into the exciting and fast-growing world of professional accounting, with real-world and simulated experiences to help you succeed. Students will learn how businesses process transactions and manage their finances using industry-standard accounting software, understand how accounting and technology come together to streamline business operations, use your critical thinking and analytical skills to understand the reasons behind financial transactions and explain their impact on a business, gain experience with Microsoft Applications and Google Applications, essential tools for any business professional, and apply what you've learned in real-life situations to help you make informed decisions in the business world. Students in this course take the QuickBooks Online certification exam, which will give them a tremendous head start in their career.

**College Credits:** Completion of Accounting III may be able to earn 3 college credits for Intermediate Accounting at Southern New Hampshire University's SNHU in the High School program. (ACC315 Accounting Information Systems).

### **Business & Marketing Fundamentals**

**1761**

**1 Credit**

**Grades 10-12**

In this course, students will gain hands-on experience by creating and operating a product-based business within the classroom and taking on the responsibility of managing the school store. With a focus on the Four Functions of Management (Planning, Organizing, Leading, and Controlling), students will learn to oversee operations, marketing, sales, finance, and decision-making in a collaborative business environment.

Students will also develop essential marketing skills, including purchasing, sales promotion, distribution, pricing, market research, and designing a comprehensive marketing plan. By managing the school store and engaging in real-world applications and hands-on projects, students will deepen their understanding of commerce's role in the economy while building critical decision-making and leadership skills. This integrated approach provides practical experience and prepares students for success in both business and marketing fields.

### **Business Management & Entrepreneurship**

**1484 College**

**1 Credit**

**Grades 10-12**

**Prerequisite: Satisfactory Completion of Business & Marketing Fundamentals with a C or better**

In this course, students will explore leadership and management theories, developing a personal leadership style to contribute effectively in diverse team environments. They will learn essential skills for leading in various business contexts while exploring industry trends and analyzing their impact on current world events. Students will apply these concepts to real-world scenarios, understanding the roles and responsibilities of leadership within teams and emphasizing core competencies and employability skills.

A unique feature of this class is the opportunity for students to operate the school store, allowing them to practice management and business operation skills firsthand. Through project-based learning, students will develop a business plan of their own. They will work with local business partners and industry leaders, bringing their proposals to life in an authentic work environment while gaining invaluable real-world experience.

### **Sports & Entertainment Marketing**

**1492**

**1 Credit**

**Grades 10-12**

**Prerequisite: Successful completion of Business & Marketing Fundamentals with a C or better**

The Sports & Entertainment Marketing course offers students an engaging exploration of marketing strategies within the dynamic worlds of sports, entertainment, and tourism. Students will learn how to create and implement promotional campaigns, develop brand identities, and analyze market trends that drive success in these industries. From exploring sponsorships and fan engagement in sports to examining celebrity endorsements and digital marketing strategies in entertainment, this course equips students with the tools to think critically and creatively in real-world marketing scenarios.

Through hands-on projects, students will create marketing plans, design brand identities, and analyze campaigns for major events and products in sports, music, film, and travel. The curriculum also emphasizes the importance of digital media and global influences, ensuring students understand the evolving nature of marketing in a connected world. By the end of the course, students will have practical skills and a deeper understanding of the unique challenges and opportunities in sports, entertainment, and tourism marketing.

## Computer Science

Computer Science is a competency-based Career & Technical Education program offered at Milford High School & Applied Technology Center. Are you ready to embark on an exhilarating adventure into the digital realm? Our Computer Science program is your gateway to a world where imagination meets innovation. With two exciting pathways, with dynamic courses - Software Engineering, and Networking and Cybersecurity - you're about to dive into the heart of the tech universe! Students are eligible to earn Industry-Recognized Certificates or Credentials by passing Third-Party Exams administered to Concentrators.

### Software Engineering

1042

1 Credit

Grades 10-12

**Prerequisite: Completion of Core Math 1 with a grade of "C" or better.**

Dive into the enthralling world of software development with our year long cutting-edge course. This course is a thrilling fusion of coding essentials and advanced techniques, guiding you through the realms of sophisticated algorithms, programming, data analysis, and beyond. You'll master the art of optimizing algorithms, harnessing big data, and developing comprehensive software solutions, all while wielding code management tools like GIT and Agile methodologies. More than just coding, this course sharpens your computational thinking and problem-solving prowess, preparing you to tackle real-world challenges and innovate. It's not just a course; it's a launchpad into the future of technology, a journey where you'll code, create, and collaborate, setting the stage for a vibrant career or advanced education in the ever-evolving field of software engineering. Get ready to transform your curiosity into expertise and make your mark in the digital world!

### Networking & Cybersecurity

1043

1 Credit

Grades 10-12

**Prerequisite: Completion of Core Math 1 with a grade of C or better**

Embark on an immersive year-long adventure with our "Networking and Cybersecurity" course, tailored for those intrigued by the digital world and eager to master its complexities. This program starts by grounding you in the essentials of internet and network communication, where you'll explore how computer networks function, delve into various networking models, and learn the key protocols for efficient data transfer. Seamlessly, it advances into the intricate world of cybersecurity, equipping you with skills to detect and prevent cyber threats, essential for protecting sensitive information. As the course progresses, your journey deepens into analyzing risks, performing digital investigations, and mastering data recovery. Merging advanced theoretical concepts with hands-on practice, the course provides a comprehensive learning experience in designing and securing sophisticated network systems. It's an all-encompassing program that not only educates but also prepares you for specialized roles in computer forensics or cybersecurity, setting you up for success in these dynamic fields.

## Carpentry

Carpentry is a competency-based Career & Technical Education program offered at Milford High School & Applied Technology Center. To earn "completer" status in this program, students must pass **Carpentry I and II** with a grade of "C" or better. Students

are eligible to earn Industry recognized Certificates or Credentials by passing the Third-Party assessments administered to program completers.

### **Carpentry I**

**1767**

**2 Credit**

**Grades 10-12**

**Prerequisite: NONE, Woodworking experience is not required, but is encouraged.**

The Carpentry I class is the introduction to basic residential construction and related trades. We build a solid foundation in the areas of: safe, appropriate use of hand and power tools; measuring and cutting; accuracy with rulers, levels, and squares. Students are introduced to fundamentals in framing, codes, plan reading, plumbing, drywall, home repair, construction and woodworking methods. Students will engage in a variety of modules to develop their understanding and implement these skills. Students are exposed to a variety of industry related experiences and guest speakers. Students will become OSHA-10 certified. Upon successful completion of this class (C+ or better), students are encouraged to continue on to the second year in Carpentry II.

### **Carpentry II**

**1768**

**2 Credit**

**Grades 10 -12**

**Prerequisite: Completion of Construction Technology 1 with a grade of “C+” or better and instructor approval.**

This course is the continuation of the Carpentry 1 Program. Emphasis of this course is refinement, application, and extension of skills from previous courses in hands-on projects. Students will engage in more advanced projects that teach skills including but not limited to metal stud framing, drywall, exterior roofing and siding, roof calculations, concrete, building codes, finish carpentry, and woodworking. These skills will be applied to larger, more complex and challenging operations and projects. Guest speakers from industry, job shadowing and company tours will be part of the experience. Students will become Hilti PAF certified. Advanced students who are ready to join the workforce will be assisted in pursuing paid work based learning opportunities.

**Articulation Agreement:** successful completion of 2 course sequence results in college credits at Keene State College (may only be used at KSC).

Program Assistantships or Independent Study opportunities may be available to selected students for credit. Interested students that have completed the core of the Carpentry program should discuss these possibilities with the program instructor.

### **Culinary Arts**

Culinary Arts is a competency-based Career & Technical Education program offered at Milford High School & Applied Technology Center. To become a completer in this program, students must pass both Culinary Arts I and Culinary Arts II with a grade of “C” or better. Students are eligible to earn Industry-Validated Certificates or Credentials by passing the Pro-Start exams administered to program completers.

**Culinary Arts I (Full Year)****1837****2 Credits****Grades 10-12\*****Length: Full Year****\*Enrollment preference given to 10th and 11th graders.**

Culinary Arts I is the first half of the Culinary Arts Program. Students learn to work in a professional kitchen with constant focus on sanitation and safety. In our industry standard food production setting, students learn techniques in hot and cold food preparation as well as baking. Students in Culinary Arts I will begin to develop food service management skills in the areas of customer service, cost control, communication, leadership, and problem solving. Students will gain knowledge in the areas of nutrition, organizational structure, and sustainability. Windows on West Street, our on-campus restaurant, affords students the opportunity to develop "front-of-the-house" skills. Students develop collaboration skills and learn how to function as a member of a team - highly desirable skills in the hospitality industry or any industry.

Note: All CA I Students are required to purchase program approved chef's coat and hat (approximately \$25.00).

**College Credits:** 3 Running Start College Credits are available through Nashua Community College

**Culinary Arts II****1838****2 Credits****Grades 11-12****Length: Full Year****Prerequisite: Completion of Culinary Arts I****Expectation: Quality Producer****Note: CA II students are responsible to purchase chef pants to complete their uniform.(approximately \$20.00)**

This program continues to follow the nationally recognized ProStart curriculum developed by the NRAEF. Culinary Arts II offers advanced students the opportunity to further enhance the food preparation and management skills learned in Culinary Arts I. They will learn food development and marketing, and will increase their knowledge of cost management through understanding of income statements, purchasing, inventory control, and menu analysis. Through the operation of Windows on West Street, students will gain experience in volume food production, live customer service, and restaurant management. Students will be expected to provide high quality food preparation and professional level table and counter service. They will develop a higher level of professionalism, teamwork, and leadership. Preparation for the Level II ProStart Certificate Exam is a priority. The work experience embedded in the ProStart curriculum will take on increased significance for advanced students as it is required for the NRAEF Certificate of Achievement (COA). This work experience is NOT a requirement for program completion, but students are strongly encouraged to participate.

**College Credits:** 3 Running Start College Credits are available through Nashua Community College.

## Engineering Design

Engineering Design is a competency-based Career & Technical Education program offered at Milford High School & Applied Technology Center. Students take **Engineering Design I & II** to be considered a program completer and program concentrator. Students are eligible to earn Industry Recognized Certifications or Credentials by passing third -party exams in addition to Running Start Credits (dual Credit) offered through Manchester Community College.

### Engineering Design I

1725

**2 Credits            Grades 10-12**

**Prerequisite: Algebra I**

Students in this class develop their design skills as the first step of engineering. These concepts begin with focus on using engineering graphics as the primary means of communication using a variety of CAD software (Solidworks & AutoDesk) packages. The software packages are the same products used by professionals in engineering disciplines such as; mechanical, architecture, civil, and manufacturing. Students will complete a series of individual and project based activities that involve career pathways discovery such as; Mechanical Engineer, Architect, Civil Engineer, CNC Machinist, Design Engineer, and Welder to name a few. These projects revolve around the engineering design process with emphasis on problem solving, brainstorming, criteria generation, decision-making, economics and project management. Projects will be fabricated using the latest rapid prototyping methods such as; 3D printing, Laser Cutting, and CNC Machining.

**Industry Recognized Credentials:** Solidworks Additive Manufacturing & Solidworks CSWA

**College Credits:** 7 Early College Credits are available through Manchester Community College for Sophomores, Juniors & Seniors

### Engineering Design II

1723

**2 Credits            Grades 11-12**

**Prerequisite: Completion of Engineering Design with a grade of “C” or better and instructor approval.**

This course is designed to provide high school students with a comprehensive understanding of engineering principles and practices, with a specific focus on creative robotics design, automated systems and the manufacturing processes. Through a combination of theoretical knowledge and hands-on experiences, students will explore various career pathways in engineering, including safety, robotics, CNC, quality control, quality assurance, LEAN manufacturing, and manufacturing processes. This class is a continuation of the learning and problem solving in Design & Engineering I. It is for students who have an interest or passion for creative problem solving with real-world applications. In class we work in teams with the latest VEX robotics, Dobot Magicians, Roland CNC Machine, and much more. Throughout this course students will be provided with experiential opportunities, these work-based opportunities will help students expand and apply their engineering skills. Opportunities that will also include job shadowing, field trips, professional conferences, and engineering societies to name a few. This

course also offers an industry alignment and ELO component for students that meet the requirements. Students will have a paid off campus experience as they rotate through a variety of companies during the Spring semester.

**College Credits:** 6 to 10 Running Start College Credits are available through Manchester Community College for grades 10 - 12.

**Engineering & Design II qualifies as the third credit in Science as required for MHS graduation.**

## Graphic Arts

Graphic Arts is a competency-based Career & Technical Education program offered at Milford High School & Applied Technology Center. To earn “completer” status in this program, students must pass **Graphic Design I, II & III** with a grade of “C” or better. Students are eligible to earn **Industry-Validated Certificates** or **Credentials** by passing Third-Party exams administered to program completers.

### Graphic Design I 1862

**1 Credit** **Grades 10-12**

Dive into the exciting world of Graphic Design, where you will embark on a journey to master industry-standard software like Adobe Photoshop and others of the Adobe Creative Suite. Imagine bringing your artistic visions to life with cutting-edge technology such as creating your own website, or mastering digital illustration. This course is not just about learning the tools; it's about discovering the endless possibilities technology offers in the artistic realm. Through engaging hands-on projects, students will acquire a solid foundation with the same software used by Graphic Designers, Web Designers, Photographers, User Interface (UX) Designers, Animators, Digital Illustrators, Publicists, and more.

### Graphic Design II 1852

**1 Credit** **Grades 10-12**

**Prerequisite: Completion of Graphic Design I with a grade of C or better**

Students dive deeper into their digital artistry by expanding their proficiency with industry standard software (Adobe Creative Suite). This course will not only enhance software skills, but provides a comprehensive exploration of future career pathways within the Graphic Design landscape. Students will apply their skills to various hands-on applications such as creating tangible items (digital screen printing, print production,) while mastering the art of digital applications (digital photography, animations, digital illustrations,) Graphic Design II is not just about honing technical abilities but also about navigating the exciting career pathways while gaining hands-on experience for your portfolio and producing real world creative outputs.

**College Credits:** Early college credit is available through Nashua Community College

### Graphic Design III 1853

**1 Credit** **Grades 11-12**

**Prerequisite: Completion of Graphic Design II with a grade of C or better**

Take the final leap into the captivating world of Graphic Design III where you'll shape your unique digital identity and explore exciting career possibilities. This course is all about building your own professional portfolio with the help of the professional industry by delving into diverse digital media projects in real world scenarios. Discover your true passion and build a portfolio truly fit for entering the industry right after high school. Collaborate with peers on community projects, enhance your teamwork skills, and prepare for your future with advanced concepts- all while gearing up for the Adobe Certification exam, a boost for your resume that will truly impress the industry.

**Industry Recognized Credential:** Adobe Certification Exam, Photoshop

**College Credits:** Early college credit is available through Manchester Community College

## Health Science Occupations

Health Science is a competency-based Career & Technical Education program offered at Milford High School & Applied Technology Center. To earn "completer" status in this program, students must pass **Health Science I & II** with a grade of "C" or better. Students are eligible to earn **Industry Recognized Credentials** or **Certification** by passing Third-Party exams administered to program completers.

### **Health Science Occupations I** **1822**

**2 Credits Full-Year** **Grades 10-12**

**Prerequisite:** Successful completion of Algebra I and 9th grade English with a "C" or better.

Health Science I is a year-long Career Technical Education course that provides students with the basic foundational information that every health care worker must know to be successful in the healthcare field. This course provides the student with an overview of the many different career opportunities available in the healthcare industry, such as nursing, physical therapy, and emergency medicine. Students will complete an extensive career search, which will give them information regarding educational requirements, job descriptions, wages, benefits and employment outlook for various healthcare employment opportunities. Students will learn basic health care skills such as taking vital signs, and blood pressures. Students will also have the opportunity to get CPR, AED and First Aid certified. Other topics covered in this course include basic medical terminology, infection control, universal precautions, HIPAA, interpersonal relationships, and human body structure and function, nutrition, and employability skills.

**College Credits:** 3 units for Medical Terminology can be earned through Nashua Community College

### **Health Science Occupations II** **1823**

**2 Credits Full-Year** **Grades 11-12**

**Prerequisite:** Successful completion of Health Science I and instructor approval.

Students in Health Science II will continue working on advancing the basic skills learned in Health Science I. Students successfully completing Health Science I will demonstrate competencies in accordance with National Health Care Skills Standards. This course aims to build on foundational health science concepts introduced in the first year. Students will deepen their understanding of the requirements of workers in this field as well as learn the ethical, legal, safety and HIPAA protocols of these professionals. This course teaches students how to assess normal body system functions and vital signs, including how to identify communicable and non-communicable health threats. Additionally, students learn transmission-based precautions and disease across lifespan. Students learn how to prevent and manage such threats through extensive research, projects and service-based learning. Other areas emphasized in this course are medical terminology, promotion of safety, and technology in health care. Emphasis on the second year will be work-based learning opportunities for students.

**Industry Recognized Credentials:** Students will become certified in CPR for the Professional Rescuer, First Aid & Automated External Defibrillation. These certifications will be invaluable for those who are interested in a career in the healthcare field such as physician, nurse, physical therapist, dental hygienist, veterinarian, or pharmacist.

**College Credits:** Pending approval through Nashua Community College and other institutions.

## **Precision Machining & Welding**

Precision Machining is a competency-based Career & Technical Education program offered at Milford High School/Applied Technology Center. To earn completer status in this program, students must pass **Precision Machining I & II** with a grade of “C” or better. Students are eligible to earn **Industry-Validated Certificates** or **Credentials** by passing Third-Party exams administered to all completers.

**Precision Machining & Welding I** **1777**  
**2 Credits** **Grades 10-11**

**Prerequisite:** One credit in math with a grade of “C” or better.

Precision Machining runs the full academic year (two semesters.) During the first semester students enrolled in this first class will learn basic blueprint reading & measuring techniques. They will be introduced to basic hand tools and a variety of state of the art machines used in modern manufacturing. The safe and proper way to employ all tools and machines is an important component of this course. Students will have the opportunity to become OSHA-10 certified. Basic TIG welding safety and skills will be used, along with machining to create solutions to problems in a collaborative environment.

During the second semester students will further build upon their skills and apply them to more complex and challenging operations. Material properties and machine speeds and feeds will be emphasized. Students will develop spatial intelligence, problem solving and Conversational Computer Numeric Control (NC/CNC) programming skills. Throughout the course, emphasis should be placed on safety, precision, and adherence to industry standards. Guest speakers

from the precision machining and welding industries could be invited to provide real-world insights. Additionally, field trips to local machining facilities may enhance students' understanding of the industry.

**College Credits:** Early College credits available through Nashua Community College

### **Advanced Precision Machining & Welding II**

**1778**

**2 Credits                      Grades 10-12**

**Prerequisite: Precision Machining I with a grade of “C” or better and instructor approval.**

Advanced Precision Machining also runs the full academic year (two semesters.) This is an introductory college level course in machine tool processes and theory. This course provides more in-depth instruction and practice on all of the basic machine tools and introduces the cutting edge technologies that enable manufacturing to create the products our technology-driven society demands. CNC programming and operations will be expanded to include complex projects and Computer Aided Machining (CAM.) The LEAN concepts that drive the modern advanced manufacturing environment will be woven into the course.

**College Credits:** Early College credits available through Nashua Community College

Program Assistantships or Independent Study opportunities may be available to selected students for credit. Students that completed the Precision Machining Program should discuss these possibilities with the instructor.

### **Video Production**

Video Production is a competency-based Career & Technical Education program offered at Milford High School & Applied Technology Center. To earn “Program Completer” status in this program, students must pass **Video Production I & II** with a grade of “C” or better. Students are eligible to earn **Industry Recognized Credentials** or **Certification** by passing Third-Party exams administered to program completers.

### **Video Production I (Std.)**

**1846**

**2 Credits                      Grades 10-12**

Students in this class will develop basic skills and competencies relating to narrative filmmaking, live broadcast production, and corporate, educational, and social-media based production. The curriculum is taught through a largely, project-centered methodology, which combines “hands-on”, practical, and theory based instruction - with the emphasis on developing usable and transferable workplace skills and competencies. Specific areas of study include such things as camera operation, visual composition, audio recording, 3-point lighting, non-linear (computer-based) editing, camera movement, writing, copyright law, and more. Students will use a variety of industry-standard, professional style production equipment and software – providing an authentic experience. They will advance their general computer technology skills using one of the 20 high-end, PC’s located within the multi-room studio. Students should also anticipate using (and learning more about) their smartphones in class, which they will employ to take photos and videos as part of their project work. Equally important in the students' training will be learning more about – and building - career-based, professional skills.

**Video Production II** 1847

**2 Credits** Grades 11-12

**Prerequisite:** Completion of Milford's Video Production I with a grade of "C" or better.

Students wishing to explore further into the world of Video Production will continue by diving deeper into more advanced levels of those skills studied in Video Production I - with greater emphasis placed on areas of the workflow and production that most closely adhere to industry workplace requirements. Pre-production work will expand to include things such as scripts and storyboards, and additional production elements such as color-grading, audio mixing, Foley sound effects, special visual effects, and remote/field broadcasting. Other professional production and post-production software programs will be introduced, such as Adobe Premiere Pro, Lightroom Classic, and Audition. Also introduced will be more advanced, live-broadcast production elements. Students will be expected to perform well individually and in teams, and meet strict deadlines for their project work. Developing strong and consistent "Professional Skills" will be a priority, along with an expanded exploration of industry-based jobs and other employment topics.

**College Credits:** For those who register for the "Early College at High School" program, and complete both Video Production I & II with a "C" or better, three college credits will be obtained. Great Bay Community College in Portsmouth, NH has made this available to 10th-12th graders.

**Articulation Agreement** - successful completion of Video I & II results in college credits at Keene State College (may only be used at KSC).

# Nashua Technology Center

Program Locations		
Programs Available at Nashua North	Programs Available at Nashua South	Programs Available at both locations
-Automotive Technology -Biotechnology & Biomedical Sciences -Culinary Arts -Cosmetology -Design & Visual Communication	-Advanced Manufacturing -CADD -Careers in Education -Computer Networking -Cybersecurity -Construction Technology -Electrical Technology -Health Sciences -HVACR -Engineering Pathways -Video Production & Broadcasting	-Business Pathway <ul style="list-style-type: none"> <li>• Business Finance</li> <li>• Global Finance</li> <li>• College Accounting</li> <li>• Marketing for Retail and Fashion</li> <li>• Marketing for Sports and Entertainment</li> <li>• Small Business Management</li> <li>• Marketing for Social Media</li> </ul> -Cybersecurity 1

Available College Credit + Industry Recognized Credentials		
Program	College Credit or Articulation Agreement	Industry Recognized Credential/Certification
<b>Business Pathway</b>	Up to 9 dual enrollment credits	Everfi, Stukent
<b>Advanced Manufacturing</b>	Up to 3 dual enrollment credits	Osha 10
<b>Automotive</b>	Up to 3 dual enrollment credits	Automotive Service Excellence (ASE) certification
<b>Biotechnology &amp; Biomedical Science</b>	Up to 8 dual enrollment credits available	YouScience
<b>Careers in Education</b>	Up to 9 dual enrollment credits available	CPR
<b>Computer Aided Drafting/Design</b>	Up to 10 dual enrollment credits available	Solidworks
<b>Computer Networking &amp; Cybersecurity</b>	Up to 11 dual enrollment credits available	CISCO

<b>Construction Technology</b>	Up to 8 credits with Keene State College	OSHA 10
<b>Cosmetology</b>	NA	Up to 360 Hours toward state cosmetology licensure
<b>Culinary Arts</b>	Up to 9 credits available	American Culinary Federation certified curriculum
<b>Design &amp; Visual Communication</b>	Up to 3 credits available	Adobe
<b>Electrical Technology</b>	Dual enrollment credits are available	OSHA 10 and up to 600 classroom/work hours toward NH Journeyman Electrician requirements
<b>Engineering</b>	Up to 12 dual enrollment credits	Project Lead The Way recognized curriculum
<b>Health Sciences</b>	Up to 6 dual enrollment credits	LNA Licensure
<b>Heating, Ventilation, Air Conditioning &amp; Refrigeration (HVACR)</b>	Up to 3 dual enrollment credits available	OSHA 10
<b>Video Production &amp; Broadcasting</b>	Up to 3 dual enrollment credits	NOCTI

## Program Descriptions and Courses

### Advanced Manufacturing (Nashua South)

Our Advanced Manufacturing ay program prepares you for a high-skill manufacturing careers by giving you the knowledge and skills to machine and transform raw materials into specialized industry parts and tooling. In this two-year program, you will learn about measurement, layout and inspection, CNC programing, CAD, automation, robotics, 3D printing and CAM (computer aided manufacturing). You will also be exposed to welding, manual lathes and milling machines, injection molding, and customer communication. Second year students can more fully explore their career pathway by engaging in an extended, work-based learning opportunity, working with industry professionals to take a deeper dive into the realities of the job and worksite. College credits offered.

#### Advanced Manufacturing 1

**Credits 2**

**Grades 10-11**

**Full Year**

Note: Meets Math Experience or Science Experience requirement

#### Advanced Manufacturing 2

**Credits 2**

**Grades 11-12**

**Full Year**

Note: Meets Math Experience or Science Experience requirement.

**Prerequisite: Advanced Manufacturing 1**

### **Automotive (Nashua North)**

As an Automotive technology student, you will learn how to troubleshoot, repair and maintain vehicles using professional-grade equipment and working on school-owned trucks and automobiles. This two-year program gives you both classroom knowledge and hands-on experience working in our modern shop on engine, drivetrain, fuel, electrical, brake, suspension, and steering systems. The program also provides you with work-based learning experiences that connect you with potential employers. The Automotive Technology program follows National Automotive Technician Education Foundation (NATEF) standards, and prepares you to attain your Automotive Service Excellence (ASE) certification. College credits offered.

#### **Automotive Technology 1**

**2 credits**

**Grade 11**

**Full year**

Note: Students must supply their own instructor-approved safety shoes. Lab coats will be provided for lab work. Meets ICT and Math Experience requirement.

**Prerequisite: Core Math 1 and 9th or 10th grade science**

#### **Automotive Technology 2**

**2 Credits**

**Grade 12**

**Full Year**

Note: Students must supply their own instructor-approved safety shoes to be worn to class and on the job site.

**Prerequisite: Automotive Technology 1 and NTC Director approval.**

### **Biotechnology & Biomedical Science (Nashua North)**

When you join our Biotechnology & Biomedical Science program, you will learn to use research tools from both chemistry and biology to study or solve problems in the medical, agricultural and pharmaceutical industries. You will also study microbiology, cellular biology, and molecular biology, and you will master the most in-demand lab techniques used in today's biotechnology and life science laboratories. Specific units of study include genetics, cancer biology, stem cells, and proteins. Students in the second year program have the opportunity to do an independent research project of their choice. This invaluable experience helps students to learn critical STEM skills and develop confidence in experimental design, data analysis, and presentation skills. By the conclusion of the two-year program you will have built a college and career-ready portfolio and earned up to 8 dual enrollment college credits. College credits offered.

#### **Biotechnology & Biomedical Sciences 1**

**2 credits**

**Grades 10, 11**

**Full year**

Note: This course satisfies the Life Science/Biology graduation requirement. Meets Math Experience requirement or Science Experience requirement.

**Prerequisite: Core Math 1 and 9th or 10th grade science**

## **Biotechnology & Biomedical Science 2**

**2 Credits**

**Grades 11-12**

**Full Year**

Note: Meets ICT and Math Experience requirement..Prerequisite: Biotechnology & Biomedical Science 1, NTC Director approval

## **Business Pathway Courses (Nashua North or Nashua South)**

As a Business student, you will have the opportunity to explore the worlds of Accounting, Business Ethics, Entrepreneurship, Finance, Management, and Marketing and Sales. This pathway provides the flexibility to explore multiple business fields while still allowing for the opportunity to concentrate in specialized areas. You will develop skills using industry recognized software and project-based learning. College credits offered.

## **Business Finance**

**1 credit**

**Grades 10, 11, 12**

**Semester**

Explore the principles and practices for the financial industry of the United States. Develop a strong foundation in banking, credit, investments, and insurance from the perspective of both consumer and industry specialists. Students understand and develop a good personal financial plan. This course, on its own or coupled with Global Finance, strengthens student understanding of domestic financing opportunities.

Note: Meets ITC or Math Experience requirements C

## **Global Finance**

**1 credit**

**Grades 10, 11, 12**

**Semester**

To provide a conceptual understanding of global financial strategies, and interest rates differentials: the institutional framework of foreign exchange markets and to enhance the topics of Business Finance to a global platform. This course, on its own or coupled with Business Finance will serve students well – to strengthen their understanding of global financing opportunities.

Note: Meets ICT or Math Experience requirement

## **Accounting Fundamentals**

**1 credit**

**Grades 9, 10, 11, 12**

**Semester**

Does your future include owning your own business? This course teaches students the process of accurate recordkeeping for the preparation of business financial statements and the determination of the value of a business.

Note: Meets ICT or Math Experience requirement. This course is a foundation course.

### **College Accounting 1**

**1 credit**

**Grades 9, 10, 11, 12**

**Semester**

Accounting is the language of business. Students utilize spreadsheet software to keep financial records, summarize data, and analyze information to aid management for decision-making. This course is essential for any student considering a major in accounting, management, marketing or finance.

Note: Meets ICT and Math Experience requirements. This is an honors level accounting paced course.

### **College Accounting 2**

**1 credit**

**Grades 10, 11, 12**

**Semester**

**Prerequisite: College Accounting 1 NTC Director approval**

This college level course uses computerized accounting systems to expand on the foundations of previous accounting courses with a focus on corporate accounting. This course is highly recommended for students who plan to major in accounting, finance, marketing, or business management.

Note: Meets ICT and Math Experience requirements.

### **Marketing for Retail and Fashion**

**1 credit**

**Grades 10, 11, 12**

**Semester**

This introductory course helps students develop an extensive understanding of marketing concepts and theories that apply to retail and fashion business. Areas covered in this course include: the basics of marketing, target marketing and segmentation, retailing, merchandising, and related industries, promotion and marketing plans.

Note: Meets ICT or Math experience requirement.

### **Marketing for Sports and Entertainment**

**1 credit**

**Grades 10, 11, 12**

**Semester**

This introductory course helps students develop an extensive understanding of marketing concepts and theories that apply to sports, entertainment, and business. Areas covered in this course include: the basics of marketing, target marketing and segmentation, public image, the entertainment industry, entertainment marketing, and legal issues for sports and entertainment.

Note: Meets ICT or Math Experience requirement.

### **Marketing for Social Media**

**2 credits**

**Grades 11, 12**

**Full Year**

**Prerequisite: Marketing for Retail and Fashion or Marketing for Sports and Entertainment, NTC Director Approval**

This course provides the foundation of social media and digital marketing. Students will learn what social media marketing entails, including the history and the different social media channels that exist. You'll learn how to select social media or digital channels that fit your needs, set goals and success metrics, and determine who your target audience is. In addition, this course will familiarize students with the principles of sales and marketing in a business to consumer space through operation of the school-based enterprise. This course will provide an understanding of sales function in the retail environment, with topics including sales training, consumer service, merchandising, and the effective use of CRMs. The course will also provide students with an overview of managing retail businesses, with a focus on Product/Service Management, Distribution, Pricing and Selling.

Note: Meets ICT or Math Experience requirement.

### **Small Business Management**

**1 Credit**

**Grades 10, 11, 12**

**Semester**

Learn what it takes to run a small business! Students develop skills and knowhow needed to successfully operate and manage a small business. This course builds skills and knowledge of business ownership, legal issues, market analysis, business finance/start-up costs, business trends, marketing, and pricing strategies through the development of a business plan on the student's business of choice.

Note: Meets ICT requirement.

### **Careers in Education**

As a student in our Careers in Education program, you will learn about and have the opportunity to positively impact the lives of children through helping them to grow in their knowledge and understanding. Whether you want a career as a classroom teacher, school counselor, occupational therapist, or child life specialist, this two-year program has a lot to offer you. Students gain both a foundational understanding of modern teaching theory and techniques, as well as opportunities to apply that knowledge working with professional mentors in both the Purple Panther Preschool—a fully-functional preschool at Nashua High School South, and in K-5 classrooms at Nashua School District elementary schools. College credits offered.

#### **Careers in Education 1**

**2 credits**

**Grades 10, 11**

**Full year**

#### **Careers in Education 2**

**2 Credits**

**Grades 11-12**

**Full Year**

Note: Consistent attendance is required for students to successfully complete this program.

**Prerequisite: Careers in Education 1, NTC Director approval.**

## **Computer Aided Drafting & Design (Nashua South)**

As a student in our CADD program, you will use state-of-the-art drafting and drawing software to design your own industry standard building or product. This course provides you with the knowledge and practice required to produce and analyze multi-view architectural and mechanical drawings, blueprints and design plans. You will have the opportunity to choose one of two self-paced tracks: Architectural Drafting or Mechanical Drafting. This program is a great way to both explore your interest in Computer Aided Drafting and Design and take that next step toward a career in architectural or mechanical/ manufacturing engineering. College credits offered.

### **Computer Aided Drafting/Design 1 (CADD)**

**2 credits**

**Grades 10, 11**

**Full year**

Note: Meets ICT or Math Experience requirement or Science Experience requirement.

### **Computer Aided Drafting/Design 2 (CADD)**

**2 Credits**

**Grades 11 - 12**

**Full Year**

Note: Meets ICT or Math Experience requirement or Science Experience

**Prerequisite: CADD 1, NTC Director approval.**

## **Computer Networking & Cybersecurity (Nashua South or North for Cyber 1)**

As a Computer Networking & Cybersecurity student, you will learn about the tools and technologies that enable and enhance electronic communication between billions of devices worldwide. This fast-paced, hands-on program teaches you how to design, develop, support and manage electronic communications and networking systems that impact the way we live, work and play. You will learn about the strengths and weaknesses of different types of networks, and the protocols that govern network operation. This program utilizes Cisco Academy, a course of study that is recognized worldwide in preparing students to become Level 2 Network Engineers. College credits offered.

### **Computer Design System**

**1 Credit**

**Grades 9, 10, 11, 12**

**Semester**

To introduce students to computer technology and how computer systems operate and the theory behind their technology. This course will cover Binary number systems, hexadecimal systems, CompTIA A+ certification material and will introduce networking and internet concepts along with beginning Cyber Security concepts.

Note: Meets ICT requirement

### **Computer Networking 1**

**1 credit**

**Grades 10, 11, 12**

**Full year**

This course explores a computer network design by learning about the OSI model and current industry standards. Students study network topologies and IP addressing along with router configurations and required networking components. Program approved as CISCO Academy.

Note: Meets ICT requirement.

## **Computer Networking 2**

**2 Credits**

**Grades 11-12**

**Full Year**

**Prerequisite: Computer Networking & Cyber Security 1, NTC Director approval.**

This class builds on the knowledge from Computer Networking 1 by studying advanced router configuration, LAN switching theory, VLANs and VLAN trunking protocol, classless routing such as CIDR and VLSM, WAN theory, design and technology including PPP DDR ISDN and Frame Relay. Explores network administration and management, learning optical network fundamentals, understanding the theory and practice of virtual private networks (VPNs) and building strategies for network security, study wireless LANs and investigate alternate operating systems. Program approved as CISCO Academy.

## **Cybersecurity 1 (Nashua North and South)**

**1 Credit**

**Grades, 10, 11, 12**

**Semester**

Learn about cybersecurity threats, cyber ethics, computing fundamentals, networking, cryptology, Linux, risk identification and system administration. Expect an engaging hands-on learning environment with simulations and authentic cybersecurity applications. Participate in cybersecurity competitions.

Note: Meets ICT requirement

## **Cybersecurity 2 (Nashua South)**

**1 Credit**

**Grades, 10, 11, 12**

**Semester**

**Prerequisite: Cybersecurity 1, NTC Director approval**

Students continue their cybersecurity journey by focusing on social engineering, LINUX/Windows system administration, networking basics, SQL databases, malware and computer system vulnerabilities while exploring the cybercrime underworld. Further, students will work more in depth with simulation software along with The National Cyber League where students will compete with other students through the nation in rankings and possible scholarship awards. Students will have the opportunity to complete certificates with IBM Skills Building-Cyber Security Programs, Cyber.org, and Paradigm Systems.

Note: Meets ICT requirement.

## **Cybersecurity 3 (Nashua South)**

**1 Credit**

**Grades 11, 12**

**Semester**

**Prerequisite: Cybersecurity 2, NTC Director approval**

This course is designed as a capstone for the program. Students will focus on a specific area of cybersecurity and determine this area of focus through the coaching of industry mentors and the classroom teacher. These topics include: Ethical Hacking, Cyber Forensics, Pen Testing, Cloud Security, and many other options. There is the opportunity for job shadowing, internships, and other outside-of-school industry experiences.

Note: Meets ICT requirement.

### **Construction Technology (Nashua South)**

As a student in our Construction Technology program, you will develop a foundation of skill and knowledge for a wide range of careers in the building industry, whether in the trades, project management, or construction design and planning fields. Construction has been one of the state's fastest growing industries, according to NH Employment Security. In our Construction Technology program you will gain expertise in using hand and power tools, and learn how to read blueprints and understand construction math principles. Your new skills in carpentry, siding, and roofing will prepare you for apprenticeship positions and entry level jobs in all phases of the Construction industry. The Construction Technology program is committed to giving students career-ready skills, the opportunity to network within the industry, and the chance to participate in community construction projects. All students leave the program with an OSHA 10 Safety Certification. Articulation agreement with Keene State College.

#### **Construction Technology 1**

**2 credits**

**Grades 10, 11,**

**Full year**

#### **Construction Technology 2 (Nashua South)**

**2 Credits**

**Grade 11, 12**

**Full Year**

**Prerequisite: Construction Technology 1, NTC Director Approval**

### **Cosmetology (Nashua North)**

As a Cosmetology student, you will learn how to apply the art and science of Cosmetology in all aspects of the industry, including hair, skin and nail care. Students in the program are trained in the craft of cutting, styling and waving hair, as well as scalp maintenance, manicures and advanced nail techniques. Successful completion of the program means you will earn up to 360 hours toward your New Hampshire Cosmetology license education and training. Guest speakers, competitions, and field trips provide students with hands-on experiences, as well as great networking opportunities.

#### **Cosmetology 1**

**2 credits**

**Grade 11**

**Full year**

Note: You are able to gain hours toward State cosmetology certification if you meet the competencies in this course. Fees for this course will cover a mannequin head, and uniform. The total cost is approximately \$100.00.

**Pre-requisites: Core Math 1 and 9th or 10th Grade Science**

#### **Cosmetology 2**

**2 Credits**

**Grade 12**

**Full Year**

Note: Students must pass a written test on safety practices before you are permitted to use the products and chemicals the coursework requires.

**Prerequisite: Cosmetology 1, NTC Director Approval**

### **Culinary Arts (Nashua North)**

As a Culinary student, you will be using restaurant grade equipment while working as part of a high performance team in our commercial kitchen. You will also develop a working knowledge of the process and safety concerns of selecting, purchasing, storing and preparing high quality food products. This program uses the same commercial equipment used by today's leading chefs, and helps you to establish the skills, work habits and confidence needed to succeed in respected culinary postsecondary schools and excel in the industry. Our program is certified through the American Culinary Federation Educational Foundation. College credits offered.

#### **Culinary Arts 1**

**2 credits**

**Grades 10, 11**

**Full year**

Note: Meets Math Experience requirement.

#### **Culinary Arts 2**

**2 credits**

**Grades 11-12**

**Full Year**

Note: Students are also required to pass the Servsafe exam. Prerequisite: Culinary Arts 1, NTC Director approval.

### **Design and Visual Communications (Nashua North)**

As a student in our Design & Visual Communications program, you will develop skills in graphic design and related fields of study. You will explore visual perception and communication in a state-of-the-art Mac lab and will gain expertise using Adobe Creative Cloud, the industry standard software used by top professional designers worldwide. In year one of the program students learn color theory, critical thinking, problem solving, copyright laws, and a team approach to the final product. Students explore this field through project-based activities that include digital illustration, print design, photo manipulation and layout design. In year two students continue their study of graphic design with instruction focused on web design, animation, package design and print production. College credits offered.

#### **Design & Visual Communication 1**

**2 credits**

**Grades 10, 11**

**Full year**

Note: Meets ICT requirement.

#### **Design & Visual Communication 2**

**2 credits**

**Grades 11, 12**

**Full year**

Note: Meets ICT requirement.

**Prerequisite: Design & Visual Communications 1, NTC Director approval.**

### **Electrical Technology (Nashua South)**

If you enjoy seeing science in action, then the Electrical Technology program is ideal. In this program, you will learn how to manage a project from conception to completion while working in

the shop workstations. You also take part in simulated worksite experiences, where you will learn to apply electrical theory and the appropriate Electrical Codes. Students are trained on modern electrical devices and equipment used in residential, commercial, and industrial applications. Upon completion of the Electrical Technology program, you will receive 600 hours of classroom and work credit towards the state of New Hampshire's requirements to become a journeyman electrician. Students have the opportunity to receive 450 hours towards required work experience plus receive their OSHA 10 hour card for safety. College credits offered.

### **Electrical Technology 1**

**2 credits**

**Grades 10, 11**

**Full year**

Note: Meets Math Experience requirement.

### **Electrical Technology 2**

**2 credits**

**Grade 11-12**

**Full Year**

Note: Meets Math Experience requirement.

**Prerequisite: Electrical Technology 1**

## **Engineering Pathway (Nashua South)**

The Engineering Pathway program is uniquely designed to allow you to combine your natural curiosity, design talents, and problem-solving ability with in-demand technical skills as you explore the creative world of engineers, architects, manufacturers, and design technicians. You will be introduced to the engineering design process, applying math, science, and engineering standards to identify and design solutions to real problems. Your final capstone project, you will identify a real-world challenge, and then research, design, and test a solution, ultimately presenting your unique solution to a panel of engineers. This program utilizes curriculum developed by Project Lead the Way, a nationally recognized program that applies hands-on learning to connect students to science, technology, math and engineering. College credits offered.

### **Introduction to Engineering Design\***

**1 credit**

**Grades 9, 10, 11, 12**

**Semester**

Note: Meets ICT or Math Experience or Science Experience requirement.

**Prerequisite: Core Math 1**

### **Principles of Engineering**

**1 credit**

**Grades 10, 11, 12**

**Semester**

Note: Meets ICT or Math Experience or Science Experience requirement. This class is offered in the first semester.

**Prerequisite: Introduction to Engineering Design**

### **Engineering Design & Development**

**1 credit**

**Grades 10, 11, 12**

**Semester**

Note: Meets Math Experience requirement. This class is offered second semester.

## **Prerequisite -Introduction to Engineering and Principles of Engineering**

### **Health Sciences (Nashua South)**

As a student in our Health Sciences program, you will build a strong foundation of knowledge and experience that will help you to better target your interest and build your career as a healthcare professional. This program offers hands-on, work-based learning opportunities, both on-site in our updated facilities and in the field through internships and job shadows with our community partners. Second year students can prepare for Nurse Assistant Licensure (LNA). The U.S. Department of Labor has named the healthcare industry as one of the nation's strongest job markets. College credits offered.

#### **Health Sciences 1**

**2 credits**

**Grade 11**

**Full year**

**Prerequisite: Biology and a Physical Science course**

Note: Students will be required to purchase lab coats, a t-shirt, name tag pins, CPR certification cards that cost approximately \$40.00. Students who have financial hardship should contact their guidance counselor so that assistance can be provided. Meets Science Experience requirement. To continue to Health Sciences 2, students are required to have full vaccinations or tests including but not limited to COVID 19, Flu Shot, TB (lab test two step).

#### **Health Sciences 2**

**3 credits**

**Grade 11**

**Full year**

**Prerequisite: Health Sciences 1, NTC Director approval and CPR & First Aid Certification.**

Note. The Health Sciences 2 students work in medical facilities in Nashua that require full vaccinations or tests including, but not limited to COVID 19, Flu Shot, TB (lab test of two step). These requirements must be met in order to participate in the class.

Meets Science Experience requirement

### **Heating, Ventilation, Air Conditioning & Refrigeration (Nashua South)**

As a student in our HVACR program, you will learn the basics of Heating, Ventilation, Air Conditioning, and Refrigeration systems that provide climate control to our homes, production environments, and work and indoor public spaces. You will engage in project-based learning activities that focus on heating, cooling, and refrigeration systems, pipefitting, ventilation and ductwork. Students are introduced to basic safety practices, hand and power tool identification and usage (including state-of-the-art press technology), piping and plumbing basics, and the fundamentals of electricity. Students can earn their OSHA-10 certification. College credits offered.

#### **Heating, Ventilation, Air Conditioning & Refrigeration (HVACR) 1**

**2 credits**

**Grades 10, 11**

**Full year**

Note: Meets Math Experience requirement.

## **Heating, Ventilation, Air Conditioning & Refrigeration (HVACR) 2 (Nashua South)**

**2 credits**

**Grades 11-12**

**Full year**

**Prerequisite: HVACR 1 and NTC Director approval.**

Note: Meets Math Experience requirement.

## **Video Production & Broadcasting (Nashua South)**

As a student in our Video Production & Broadcasting program, you will be learning the skills that will lay a solid foundation for a career in the Corporate, Broadcasting, and Entertainment Media industries. Working in our High Definition, state-of-the-art video and broadcast facility, you will practice your skills on industry standard video and broadcasting equipment. You will also learn how to produce live and live-to-tape television studio and field productions. College credits offered.

### **Video Production & Broadcasting 1**

**2 credits**

**Grades 10, 11**

**Full year**

Video production and Broadcasting introduce students to all aspects of the media industry. Students learn through hands-on projects how to use our state-of-the-art high definition broadcast facility and Mac computer lab, and learn on industry-standard equipment. Students learn about the art and technology of modern communication while producing award winning projects for the class, the school district and the community. They increase their self-confidence and organizational abilities by learning how to plan and execute projects on their own and in groups. Video production and broadcasting lays a foundation of skills, both technical and career readiness that properly prepares students for the next step of their career in the media industry.

Note: Meets ICT or Math Experience requirement.

**Note: Video Production 2 has been retired as a full year course and is now being split into two different semester-based courses. Students can sign up for both courses or one if they only want to focus on either cinema or broadcast pathway.**

### **Advanced Digital Media (Nashua South)**

**1 Credit**

**Grades 11, 12**

**Semester**

Advanced Digital & Media Production will build on students' foundational skills. The course will cover more complex media techniques and projects with a focus on editing, multi-camera productions, advanced lighting, motion graphics, and web-based media production. Students will work on complex, multi-stage projects that mimic real-world workflows.

### **Advanced Cinema Production (Nashua South)**

**1 Credit**

**Grades 11, 12**

**Semester**

Advanced cinema production offers students an intensive, project-based experience to develop their filmmaking skills at a higher level. Students will learn all stages of film production,

traditional and emerging forms of documentary and narrative filmmaking, advanced production techniques and strategies, plus project management skills for producing films.