# VOCATIONAL AND CAREER EDUCATION DEPARTMENT (VCE)

| COURSE | TITLE | YEAR | TERM | CREDITS |
|--------|-------|------|------|---------|
| **BUSINESS AND CONSUMER EDUCATION** | | | | |
| 620 | Introduction to Business | 9,10,11,12 | Semester | 1.5 |
| 646 | Principles of Finance | 10,11,12 | Semester | 1.5 |
| 606 | Finance Analytics | 11,12 | Semester | 3.0 |
| 675 | Banking Training | 12 | Semester | 3.0 |
| 677 | Banking Internship | 12 | Semester | 3.0 |
| 601 | Principles of Marketing | 10, 11, 12 | Semester | 3.0 |
| 604 | Marketing Analytics | 11, 12 | Semester | 3.0 |
| 650 | DECA:  Business Capstone | 12 | Full Year | 6.0 |
| 664 | Automated Accounting I | 11, 12 | Semester | 3.0 |
| 665 | Automated Accounting II | 11, 12 | Semester | 3.0 |
| 6607 | Business Management:  Capstone | 11,12 | Semester | 3.0 |
| 608 | Principles of Management | 11, 12 | Semester | 3.0 |
| **COMMUNICATION DESIGN** | | | | |
| 707 | Graphic Design Experience | 9, 10, 11 | Semester | 1.5 |
| 666 | Web Design I | 10, 11 | Semester | 1.5 |
| 613 | Web Design II | 10, 11 | Semester | 1.5 |
| 6611 | Web Design III: Capstone | 12 | Semester | 3.0 |
| 663 | Digital Publishing I | 10, 11 | Semester | 1.5 |
| 662A | Digital Publishing II | 11, 12 | Semester | 1.5 |
| 6662 | Digital Publishing III: Capstone (Yearbook) | 12 | Full Year | 6.0 |
| **INFORMATION TECHNOLOGY** | | | | |
| 7770 | CISCO Academy I | 9, 10 | Full Year | 6.0 |
| 7771 | CISCO Academy II | 10, 11 | Full Year | 6.0 |
| 682 | A+ Software: CISCO Networking Academy | 11, 12 | Semester | 3.0 |
| 771 | A+ Hardware: CISCO Networking Academy | 11, 12 | Semester | 3.0 |
| **AUTOMATION** | | | | |
| 7710 | Auto CAD (Computer Aided Design) | 10, 11, 12 | Semester | 3.0 |
| 7712 | 3-D Modeling I | 11, 12 | Semester | 3.0 |
| 7713 | 3-D Modeling II | 11, 12 | Semester | 3.0 |
| 7714 | Architectural Design and BIM | 11, 12 | Semester | 3.0 |
| **COMPUTER SCIENCE** | | | | |
| 661 | Intro to Programming | 10, 11, 12 | Semester | 1.5 |
| 7715 | Code Lab | 10, 11, 12 | Semester | 1.5 |
| 6671PLTW | Computer Science Essentials (PLTW) | 9 | Full Year | 6.0 |

| ENGINEERING TECHNOLOGIES | | | | |
|---|---|---|---|---|
| 7716 | Engineering Lab I | 9, 10 | Semester | 1.5 |
| 780PLTW | Introduction to Engineering Design (PLTW) | 9 | Full Year | 6.0 |
| 7718 | Introduction to Electronic Technology | 10, 11, 12 | Semester | 1.5 |
| 7719 | Electronic Engineering Systems | 11, 12 | Full Year | 6.0 |
| 7720 | Electrical Engineering Principles | 11, 12 | Full Year | 3.0 |
| 7721 | Engineering Blueprint Reading (MACWIC) | 9, 10, 11, 12 | Semester | 3.0 |
| 7728T | Engineering and Manufacturing (MACWIC) | 10, 11, 12 | Semester | 3.0 |
| 77717 | Engineering Lab II: Engineering Capstone | 12 | Semester | 3.0 |
| 723 | Auto Care and Maintenance | 11, 12 | Semester | 1.5 |
| 7730 | Launching into Aviation (Fall) | 9 | Semester | 3.0 |
| 7731 | Exploring Aviation and Aerospace (Spring) | 9 | Semester | 3.0 |
| OFFICE TECHNOLOGIES | | | | |
| 690 | 21ST Century Computer Applications | 9 | Semester | 1.5 |
| 688 | MOS Word | 11, 12 | Semester | 3.0 |
| 689 | MOS Excel | 11, 12 | Semester | 3.0 |
| HEALTHCARE PATHWAYS | | | | |
| 766 | Health Assisting I | 9, 10 | Semester | 1.5 |
| 767 | Health Assisting II | 10, 11 | Semester | 1.5 |
| 7768 | Health Assisting III:  Nurse Assistant Training | 12 | Semester | 3.0 |
| 749 | Health Assistant Externship | 11, 12 | Semester | 1.5 |
| 5508IP, 5508IPH | Innovation Pathways:  Healthcare Biotech I | 9 | Full Year | 6.0 |
| 521IP, 521IPH | Innovation Pathways:  Healthcare Biotech II | 10 | Full Year | 6.0 |
| HOSPITALITY AND RESTAURANT FOOD PRODUCTION | | | | |
| 880 | Food and Nutrition Lab. | 9, 10 | Semester | 1.5 |
| 734 | Hospitality and Restaurant Food Production I | 11 | Semester | 6.0 |
| 735 | Hospital and Restaurant Food Production II | 12 | Semester | 12 |
| VOCATIONAL EDUCATION | | | | |
| 700 | Exploratory Program | 9 | Semester | 1.5 |
| 713T | CTE-CCED- College and Career Education I | 9 | Semester | 1.5 |
| 714T | CTE-CCED- College and Career Education II | 10 | Semester | 1.5 |
| 715T | CTE-CCED- College and Career Education III | 11 | Semester | 1.5 |
| 716T | CTE-CCED- College and Career Education IV | 12 | Semester | 1.5 |
| 701 | Automotive Technology I | 10 | Full Year | 6.0 |
| 702 | Automotive Technology II | 11 | 2 x SEM | 6.0 |
| 702T | Automotive Technology III | 12 | 2 x SEM | 6.0 |
| 703 | Construction Technology I | 10 | Full Year | 6.0 |
| 704 | Construction Technology II | 11 | 2 x SEM | 6.0 |
| 704T | Construction Technology III | 12 | 2 x SEM | 6.0 |
| 710 | Graphic Communications I | 10 | Full Year | 6.0 |
| 711 | Graphic Communications II | 11 | Full Year | 6.0 |
| 711T | Graphic Communications III | 12 | Full Year | 6.0 |
| 7700 | SOAR:  Exploratory | 9 | Full Year | 6.0 |
| 7701 | SOAR:  Computer and Electronic Engineering | 10 | Full Year | 6.0 |
| 7702 | SOAR:  Culinary Arts | 10 | Full Year | 6.0 |
| 7703 | SOAR:  Cosmetology | 10 | Full Year | 6.0 |

The following charts are designed to assist parents and students in selecting courses that align with specific careers. Students do not need ALL THE COURSES as the chart represents suggested courses.

Students are encouraged to take dual enrollment courses while in high school to further advance their education and/or their career exploration. Between junior and senior year dual enrollment courses can help students earn up to 12 college credits in addition to high school credits. These opportunities are offered at various colleges, including our local community college. In some instances, courses are offered on-site at BHS. Ask your counselor.

## Business and Consumer Education

| Career Interest | Marketing | Finance | Accounting | Management Business Administration |
|---|---|---|---|---|
| Recommended Courses | Intro to Business Principles of Marketing Marketing Analytics DECA | Intro to Business Principles of Finance Financial Analytics DECA Banking Training Banking Internship | Intro to Business Automated Accounting I Automated Accounting II (**) | Intro to Business Principles of Management Business Management (Capstone) |
| Useful courses | 21st Century Computer Applications | 21st Century Computer Applications Automated Accounting | 21st Century Computer Applications | 21st Century Computer Applications |

(**) Interested Students can pursue a Tax Preparer Certification through Massasoit Community College

**Introduction to Business 620:** This course helps students learn about the many branches of business education, such as accounting, finance, marketing, and management. The course will cover some aspects of financial literacy and consumer education. This course has been aligned following NCTM Standards, NBEA Computation Standards, National Education Technology Standards (NETS), and the Massachusetts Curriculum Framework Standards. N**OTE: This course is required to pursue additional Business courses.**

**Principles of Finance 646:** Students will become familiar with banking services, consumer credit, student loans, and savings and checking accounts. They will also learn the basics of borrowing money, renting, and homeownership. This course is aligned to NCTM Standards, NBEA Computation Standards, National Education Technology Standards (NETS), and the Massachusetts Curriculum Framework Standards. The course can be taken with Intro to Business. **Pre-requisite:** Successful completion of the 10th-grade MCAS Math test.

**Finance Analytics 606:** Using modern marketing analysis techniques, including statistical analysis and digital tools, students will learn to analyze financial market trends. Students will practice with day to day real data to make predictions (forecast and predictive financial analysis) and make informed decisions about investments. This course will introduce students to Finance Theory and the concepts of stocks and portfolios. **Pre-requisite:** B or better in Principles of Finance, Auto Accounting, or Algebra II. Successful completion of the 10th-grade MCAS Math test.

**Banking Training 675**

**Banking Internship 677**
These two one-semester courses are designed to prepare students for employment as bank tellers or entry-level positions within the banking or finance industry. Students will learn skills and tasks which are relevant to handling banking and personal finance transactions and work in the HarborOne branch at BHS. This course is aligned to NCTM Standards, NBEA Computation Standards, and the Massachusetts Curriculum Framework Standards. Students must take BOTH courses to participate in the program. Ask your counselor for an application.

    **Prerequisites: * seniors only**
1. Personal Finance approved with at least a B
2. Proficient in grade 10th MCAS Math
3. Excellent attendance

    Personal interview and instructor's approval.

**Principles of Marketing 601:** This one-semester course introduces students to entrepreneurship and marketing. This course allows students to evaluate service, retail, and manufacturing businesses and to develop a business plan. **Pre-requisite:** C or better in Introduction to Business

**Marketing Analytics 604:** In this one-semester course students learn practical methods used to measure, manage and analyze consumer information to maximize marketing performance effectiveness and optimize return on investment (ROI). Students will explore web (internet-based) marketing analyzing tools such as Google Analytics. Through project-based learning, students will develop skills around modern marketing practices. **Pre-requisite:** B or better in Principles of Marketing. Algebra II (C or better) highly suggested.

**DECA:  Business Capstone 650:** DECA Education is a full-year course for seniors designed to provide students with an opportunity to explore the management process of planning, organizing, promoting and controlling a school-based enterprise (SBE). Students accept full responsibilities for this operation, using a team-based approach. Students also agree to affiliate with DECA, a national organization for high school students enrolled in Marketing, Finance, Hospitality and Management courses, and to attend the DECA conferences held throughout the school year. Students are required to submit a research project structured by National DECA or to create a business plan based on their SBE. This course is aligned to NCTM Standards, NBEA Computation Standards, and Massachusetts Curriculum Framework Standards. **Prerequisite:**  At least two courses with B or better in Business and Consumer Education: Marketing, Finance, Hospitality and or Business Management, plus teacher recommendation. An interview with the DECA advisor is required.

**Automated Accounting I 664:** The course teaches basic accounting practices to students to record and analyze business transactions and to prepare financial statements for businesses organized as proprietorships, partnerships, or corporations. Students learn to do accounting manually and then enter data electronically via the computer using Excel and Peachtree™ accounting software. This course is aligned to NCTM Standards, NBEA Computation Standards, and the Massachusetts Curriculum Framework Standards.

**Automated Accounting II 665:** The course teaches basic accounting practices to students to record and analyze business transactions and to prepare financial statements for businesses organized as proprietorships, partnerships, or corporations. Students learn to do accounting manually and then enter data electronically via the computer using Excel and Peachtree™ accounting software. This course is aligned to NCTM Standards, NBEA Computation Standards, and the Massachusetts Curriculum Framework Standards. **Prerequisite:** B or better in Automated Accounting I or teacher recommendation.

**Business Management: Capstone 6607**: Students will learn about Systems Theory as it applies to the concept of Operation Systems in Business Administration. Students will learn the impact that decision making has at every step of the production chain. Students will become familiar with the various components of a chain supply. They will learn various strategies from control charts to business applications and digital tools to illustrate operations. *Intro to Business highly recommended.*

**Principles of Management 608**: Students will learn the difference between People Management in Business Administration and Human Resources Management. Students will identify their strengths as well as those aspects that require significant personal development and growth for a potential manager position in the future. Students will gain a deeper understanding of this role by developing critical and reflective skills. *Intro to Business highly recommended.*

**Graphic Design Experience 707:** This course is designed to provide students with an introduction to graphics theory and design using computer software. Using Photoshop and other graphics tools, students will be challenged to create mock advertisements for magazines, packaging, books and other graphics projects.  Students will also learn to cooperate in a team setting.

**Web Design I 666:** Students will be introduced to the basic HTML and CSS languages, as well as basic tools to design a website. Students will learn how to develop a website brand from both visual (artistic) and messaging perspectives (content). Students will be introduced to both: web design software and authoring tools such as Adobe Photoshop, Illustrator, Notepad, Dreamweaver and more. Students should enroll in Code Lab for additional practice. Front end tools: Adobe Photoshop, Adobe Illustrator and Dreamweaver. **Prerequisite**: C or Better in Graphic Design Experience or Digital Imaging


**Web Design II 613:** This course will focus on the front-end aesthetic and usability of Web Design. Students will continue developing their skills in the construction of a website brand from both visual (artistic) and messaging perspectives (content). The following web design software and authoring tools will be covered: Adobe Photoshop, Illustrator, and Dreamweaver. Students should enroll in Code Lab for additional practice. Front end tools: covered: Adobe Photoshop and Dreamweaver. **Prerequisite:** B or better in Web Design I

**Web Design III:  Capstone 6611:** In this project-based seminar students will develop skills learned in Web Design and/or Web Development. With the support and guidance of their instructors, students will work in production teams to design and develop a website from concept to creation. This is an intense course that may require that students also enroll in Code Lab to further develop their digital language skills. Participants will learn first-hand the various roles and responsibilities in a production team. The goal is to generate a final capstone and explore specifics careers in web design and web development. **Prerequisite**: B or better in Web Design II; B or better in Code Lab or instructor recommendation. Written Statement indicating interest, instructor interview, and approval. Students will have to sign an Independent Study Contract.

| Career Interest | WEB DESIGN | WEB DEVELOPMENT | DIGITAL MEDIA PUBLISHING |
|---|---|---|---|
| Recommended courses | Graphic Design Experience<br>Web Design I<br>Web Design II<br>Code Lab<br>Web Design III: Capstone | Graphic Design Experience<br>Code Lab<br>Web Design III: Capstone | Graphic Design Experience<br>Digital Publishing I<br>Digital Publishing II<br>Digital Publishing III (YEARBOOK) |
| Useful courses | 21st Century Computer Applications<br>Digital Imaging<br>Code Lab | 21st Century Computer Applications<br>Intro to Programing<br>Code Lab | 21st Century Computer Applications<br>Graphic Design Experience<br>Digital Photography<br>Digital Imaging |

**Digital Publishing I 663:** This course is designed to teach Desktop Publishing through Microsoft Publisher, Adobe Illustrator, and Adobe InDesign. Students will learn about typesetting to produce published documents such as brochures, newspapers, business cards, flyers, magazines, catalogs, newsletters, and web page content. This course has been aligned following the NCTM Standards, NBEA Computation Standards, and the Massachusetts Standards. **Pre-requisite:** C or Better in Graphic Design Experience

**Digital Publishing II 662A:** This is the second out of two courses designed to teach Desktop Publishing through Microsoft Publisher, Adobe Illustrator, and Adobe InDesign. Students will learn about typesetting to produce published documents such as brochures, newspapers, business cards, flyers, magazines, catalogs, newsletters, and web page content. This course is aligned to NCTM Standards, NBEA Computation Standards, and the Massachusetts Standards. **Pre-requisite:** B or better in Digital Publishing I

**Digital Publishing III: Capstone (Yearbook) 6662** Throughout this full-year capstone course, students who passed a minimum of two courses in the Media Communications Pathway with a B or better will have the opportunity to work as a team in the production of the graduating class yearbook. Students will use the software and assume several roles and responsibilities to produce the yearbook. **Prerequisite:** Application Statement and approval from the instructor. B or better in Digital Publishing II

## Automation (CAD/CAM), Computer Science and Information Technology

We are proud to have been awarded a **"Project Lead the Way" (PLTW)** grant that will allow our students to progress through a high-quality curriculum in Computer Science. Future PLTW courses that may be offered are Computer Science Principles, Computer Science A and Cyber Security. These courses require a strong commitment as students are held to high standards and cannot be dropped. A final exam is required. Final exam scores may grant students college credits at participant schools such as and U. Mass Lowell and Worcester Institute of Technology.

| Career Interest | INFORMATION TECHNOLOGY CISCO Networking Academy | COMPUTER SCIENCE | COMPUTER-AIDED DESIGN (CAD) | COMPUTER-AIDED MANUFACTURING (CAM) MACWIC |
|---|---|---|---|---|
| Recommended courses | CISCO Academy I CISCO Academy II Software A+ Hardware A+ Cyber Security | Project Lead The Way Computer Science Essentials<br><br>Intro to Programing CODE LAB | Auto CAD 3-D Modeling I 3-D Modeling II Architectural Design and BIM | Engineering and Manufacturing Engineering Drawing (Blueprint Reading) Auto CAD |
| Useful courses | 21st Century Computer Applications Electronics Intro to Programing Code Lab | 21st Century Computer Applications | 21st Century Computer Applications | 21st Century Computer Applications Intro to Programing Engineering and Manufacturing |

We are a proud **MACWIC Partner School**: This allows BHS to offer its students a high-quality curriculum, the same used by **MassMEP** across the state for training employees in Advanced Manufacturing Technologies. Students can obtain industry credentials when passing their final exams with 80 or better.

**CISCO Academy I 7770:**  This is designed for freshman and sophomore students interested in Information Technology.  Students will complete CISCO courses, "Introduction to Internet of Things", "Mobility Fundamentals" and "Entrepreneur".  **Prerequisite**: Application, interview and instructor approval.

**CISCO Academy II 7771:**  This is designed for sophomore and junior students that have completed CISCO Academy I.  This course will focus on the use of CISCO courses "IT Essentials", Introduction to Cybersecurity", and "Cybersecurity Essentials".  **Prerequisite**: CISCO Academy I and instructor approval.

**A+ Software 682 (CISCO):** This is an intensive junior and senior course designed to take students from the user level to understanding customizing, optimizing and troubleshooting a Windows Operating System and the most common software applications.  Students will learn all the differences between Windows, Unix, Linux, and the Mac OS, understanding the boot process, supporting and installing Windows, managing memory, printers and I/O devices, and the responsibilities of a PC technician. **Students will be required to complete approximately 30 additional hours of training in addition to the regular class to prepare for the certification test (A+ Core Software Exam). Prerequisite**: CISCO Academy I and II and instructor approval.

**A+ Hardware 771 (CISCO):** This intensive course for juniors and seniors is designed to take students from the just-a-user level to the I-can-fix-it level for most common PC hardware issues. Students will learn all aspects of computer hardware including identifying components, electricity and power supplies, motherboards, memory, hard drives, supporting I/O devices, modems and networks, laptops and PDA's, printers, building a PC, troubleshooting, and the responsibilities of a PC technician. **Students will be required to complete approximately 30 additional hours of training in addition to the regular class to prepare for the certification test (A+ Core Hardware Exam). Prerequisite**: CISCO Academy I and II and instructor approval. **Note:** Students MUST also take course 682 (A+ Software)

**Auto CAD 7701:** AutoCAD or Automated Computer-Aided Design is the gateway course for students who would like to pursue engineering in the future. AutoCAD introduces students to computer drawing skills that will be the basis for the understanding of more complex 3-D modeling programs. This course focuses on the concept of visualization- commonly called Engineering Graphics. **Prerequisite:** Interest in CAD and 3-D Modeling

**3-D Modeling I 7712:** In this course, students will explore 3-D modeling software and learn the essential skills needed to design multi-part consumer products. Typical projects will include toy and jewelry design, timepieces and historical mold designs. This course will allow students to generate digital portfolios by using image rendering, animations, and 3-D PDF files. 3-D printing will be also introduced. **Prerequisite**: C or Better in Auto CAD

**3-D Modeling II 7713:** Students will focus on designing multi-parts-mechanical devices, using gears and differentials. Advanced functions such as 3-D sketching, freeform sculpting, and derived parts will be studied. Students will also be introduced to virtual material testing (loads, pressure, moment, and eco-materials) and 3-D printing, including troubleshooting, will be studied in more detail at this level. **Prerequisite:** C or Better in Auto CAD and 3-D Modeling I

**Architectural Design and BIM 7714:** The course will focus on the forms of residential architecture in the United States. The following topics will be supported using the online curriculum: architectural styles, basic house designs, preparing for a career in architecture and residential architectural design. Designs for health, safety, and sustainability using BIM for house design, and plan development. **Prerequisite**: C or Better in Auto CAD.

**Intro to Programming 661:** This is an introductory course that will help students with no prior experience in programming learn about what programming is all about. The course will cover the following topics: The benefits of learning code, how coding works, common coding languages, classifications, applications, and benefits. The course will teach students the difference between low-level and high-level languages. Through concrete examples, students will become familiar with important concepts such as algorithms, machine language, assembly language, and binary code. Students will go over simple tutorials that will allow them to see how these concepts work. This course is intended to motivate students to further explore languages that apply to their career interests. Whether their interest or future career is in communication design (web design and development), interactive media (game design, animation, etc.), business, medical, education, scientific research, data/information management, etc. Learning to code will help students develop critical thinking and problem-solving skills and be ready for the career demands of the 21st Century.

**Code Lab 7715:** This is a course for the student who has and can demonstrate some familiarity with coding and who is interested in further develop his/her skills. In this semester course, each student will be able to practice only one code/language. The Code Lab teacher and the student will establish personalized goals and identify the best plan of action for the further development of the student's coding skills. Students will work independently using tutorials and online lessons and move at their own pace. The Code Lab teacher will monitor the student's progress. Students can enroll in this lab multiple times throughout high school. Thus, having the opportunity to either continue improving their skills in a particular code or to explore various codes. **Pre-requisite**: To re-enroll in Code Lab students should have demonstrated effective progress in their previous lab by obtaining at least a C in the previous code lab.

**Computer Science Essentials (Project Lead the Way) 6671PLTW:** This course exposes students to computational thinking concepts. Students will use visual and block-based programming using Python. They will apply computational thinking practices, build vocabulary, and collaborate as computing professionals to create products that address topics and problems.

<p style="text-align: center; color: red;">Engineering Technologies Pathway</p>

| Career Interest | Manufacturing Engineering | Electronics/Electrical Engineering | Mechanical Engineering | Architecture and Civil Engineering |
|---|---|---|---|---|
| Recommended courses | Engineering Lab I<br>Engineering & Manufacturing Engineering Drawing (Blue Print Reading)<br>Engineering Lab II: Capstone | Engineering Lab I<br>Intro. to Electronics<br>Electronic Engineering Concepts<br>Electrical Engineering Principles<br>Engineering Lab II Capstone | Engineering & Manufacturing Engineering Drawing<br>Intro to Electronics<br>Electrical Engineering Principles<br>Engineering Lab II: Capstone<br>Aviation | AutoCAD<br>3-D Modeling I<br>3-D Modeling II<br>Architectural Design & BIM<br>Engineering Lab II: Capstone |
| Useful courses | 21st Century Computer Applications<br>AutoCAD<br>3-D Modeling I<br>3-D Modeling II | 21st Century Computer Applications<br>AutoCAD<br>3-D Modeling I<br>3-D Modeling II | 21st Century Computer Applications<br>AutoCAD<br>3-D Modeling I<br>3-D Modeling II | 21st Century Computer Applications<br>AutoCAD<br>3-D Modeling I<br>3-D Modeling II |

**Engineering Lab I 7716:** Project-based introductory engineering course in which students will explore the diverse pathways in engineering through the application of the Engineering Design Process. Students are challenged to solve real-life, day to day, world problems and are encouraged to apply critical thinking and problem-solving skills to reach solutions. This course is a requirement for students seeking to take additional engineering courses.

**Introduction to Engineering Design (Project Lead the Way) 780PLTW:** Students will learn in-depth about the engineering design process, applying math, science, and engineering standards. They will work both, individually and in teams designing solutions for a variety of problems using 3D modeling software and documenting their work daily in a notebook. This is an honors course for the highly committed student. **Prerequisite**: Proficient in MCAS ELA and Math grade 8th. B or better in Algebra I.

**Engineering Lab II: Capstone 77717:** Engineering Lab II is a higher-level project-based engineering course in which higher-level engineering students work independently as engineering teams. Students will be presented with complex challenges. They will be expected to be ready to apply mathematical concepts and engineering principles learned either in manufacturing, electronics or any of their engineering design courses. Students are expected to apply higher-level critical thinking skills and work independently. **Pre-requisite:** Engineering teacher recommendation. Successfully passed an engineering course with a B or better. Successful completion of Engineering Lab I, and Engineering Drawing or Engineering Manufacturing. Teacher recommendation.

**Introduction to Electronic Technology 7718:** This is an exploratory course with a lab component that introduces students to the basic concepts of electronics and electronic devices including diodes, transistors, transistor biasing, rectifiers, and amplifiers. Skills covered involve electric soldering, basic repair, and maintenance of electronic equipment, reading schematics, identifying components and building breadboard circuits. The course will also include an examination of career opportunities in electrical engineering as well as electronic technologies. Students will participate in individual and group projects. **NOTE**: This course is highly recommended for students planning to pursue a career in electrical engineering, electronics or as an electrician license in the future.

**Electronics Engineering Systems 7719:** This is a full year higher-level course for students interested in advancing knowledge in the field of electronics and electronic engineering. During the first semester, students will learn about the use of electronic components in fields of communication, automation and control, computer, and space technology. During the second semester, students continue delving into theory, terminology, equipment, and practical experience to develop the skills needed for careers in electronic engineering. Students will work in engineering teams to construct robotic arms and compete. Students enrolled in this course should also enroll in Engineering Lab 2. **Prerequisite:** Students should have successfully passed Algebra II/Mathematics III with a B or better (Pre-Calculus a plus) and have obtained a B or better in Introduction to Electronic Technology. Instructor approval is required.

**Electrical Engineering Principles 7720:** This course is an exploratory course aimed to help students understand the basic electrical theory and the concepts and applications associated with electrical engineering. Students will learn basic electrical principles applicable to various fields and explore the many applications of an electrical engineering degree. This course is recommended for those students planning to major in electrical engineering. **Pre-requisite:** C or better in Introduction to Electronic Technology.

**Engineering Blueprint Reading (MACWIC) 7721:** This course is designed for students who want to develop the basic skills needed to become architects, civil, mechanical or manufacturing engineers or machinist. The ability to portray accurate images of an object enables it to be created or manufactured. Students will be challenged to visualize three dimensions and to execute drawings with freehand perspectives using accurate measurements and scales. This course will teach students about drawing three-dimensional objects with the appropriate coordinates and perspective. Isometric and trimetric drawings will also be discussed. Basic concepts in technical blueprint reading will also be covered. Shop Math and Lean Concepts are an integral part of the course.

**Engineering and Manufacturing (MACWIC) 7728T:** This is a competency-based, standardized engineering and manufacturing curriculum developed by Worcester Polytechnic Institute (WPI). It includes Principles of Lean Manufacturing and Metrology among other concepts. Students completing this course will be able to test their knowledge at the end of the course by taking the level one MAC (MA-Manufacturing Advanced Center) exam. Acceptable scores will confer students a level 1 Manufacturing Certification. **Pre-requisites:** Required to complete Advanced Manufacturing courses.

**Automobile Care and Maintenance 723:** This course will provide students with a basic understanding of how an automobile operates, how to select and purchase a quality automobile, how to care for it, and how to research and purchase quality repairs. Instruction will include safety, proper use of automotive tools and equipment, and so-called 'Do-it-Yourself' repairs. Auto Care and Maintenance students may participate in demonstrations on live vehicles must provide for themselves a pair of an instructor approved shoes with leather uppers and oil resistant soles before working on any vehicles.

**Launching into Aviation 7730:** The ninth-grade course will provide the foundation for advanced exploration in the areas of flying, aerospace engineering, and unmanned aircraft systems. Students will learn about engineering practices, problem-solving, and the innovations and technological developments that have made today's aviation and aerospace industries possible. Students will look at the problem-solving practices and innovative leaps that transformed space exploration from the unimaginable to the common in a single generation. Students will also gain a historical perspective, starting from the earliest flying machines and leading to a wide variety of modern aircraft and the integral role they play in making today's world work. **Pre-requisites:** Incoming 9th Graders with Interest in Aviation and Aerospace.

**Exploring Aviation and Aerospace 7731:** This core aerospace and aviation course provides the foundation for both pathways. It is designed to give students a clear understanding of career opportunities in aviation and aerospace and the critical issues affecting the aviation system. Students will also begin to drill down into the various sectors of aviation and the elements that make up the aviation and aerospace ecosystem. They will discover how advances in aviation created a need for regulation and will learn about the promulgation of civil aviation oversight. Students will explore modern innovations and develop their innovative ideas to address real-world challenges facing the aviation industry. They will be exposed to a variety of career options in aviation and aerospace and take an in-depth look at the opportunities available. For schools offering multiple pathways, this course will allow students to begin to define their interests. **Pre-requisites:** C or Better in Launching into Aviation.

<h1 style="color:red; text-align:center">Office Technologies</h1>

| Career Interest | Computer Applications | MS Word | MS Excel |
|---|---|---|---|
| Recommended courses | 21 Century Computer Applications<br>MS Word***<br>MS Excel*** | MS Word *** | MS Excel *** |
| Useful courses | | 21st Century Computer Applications | 21st Century Computer Applications<br>Intro to Business<br>Auto Accounting 1 |

***Students interested in obtaining certifications as Microsoft Office Specialist (MOS) in either application (Word or Excel) must register independently for the certification test (there is an associated fee for each test) and must have transportation arranged for the day of the test to and from the test location.

**21st Century Computer Applications 690:** This course introduces students to keyboarding and Microsoft® (MS) Office using automated technologies. Students will reinforce keyboarding skills using correct finger positioning to gain speed and accuracy. Following successful completion of the touch-type method; students will learn how to format business and personal documents preparing them for professional life. Additionally, students will receive an introduction to the various MS Office applications [Word, Excel, Publisher, PowerPoint, Access and Office 365]. Students will gain an understanding of Acceptable Use Policies via a Digital Literacy overview. This course has been aligned to NCTM standards, NBEA computation standards, and the Massachusetts Technology Literacy Standards.

**Microsoft Office Specialist (MOS) Word 688:** This course will introduce all aspects of Word included in the Microsoft Specialist exam. For the Word 2016 exam students must be able to create and manage documents, format texts, paragraphs, and sections, create tables and lists, create and manage references, insert and format graphic elements. **Prerequisite:** C or better in 21st Century Computer Applications.

**MOS (Microsoft Office Specialist) Excel 689:** This course will introduce all aspects of Excel included in the Microsoft Specialist exam. For the Excel 2016 exam, students create and manage worksheets and books, manage data cells and ranges, create tables, perform operations with formulas and functions, and create charts and objects. **Prerequisite:** C or better in 21st Century Computer Applications

## Healthcare Pathways

**Health Assisting I 766:** An introductory course that will help students understand the skills, attitudes, and behaviors needed in health assisting and related professions. In health and medical assisting professions, students must have a good understanding of clinical terms, human physiology, pathological diseases, procedures, and protocols.

**Health Assisting II 767:** This course explores health assisting and its related tasks as it walks students through the study of body systems and their common diseases and disorders. The students will gain an understanding of the specific health assisting skills associated with these conditions. **Prerequisite:** C+ or better in 766 Health Assisting I.

**Health Assisting III:  Nurse Assistant Training 7768:** Students will explore diseases, disorders, and connected with select body systems with an emphasis on the specialized nursing assistant.  Students will learn procedures and skills to pass the ***Home Health Aide*** test with ***CPR & First Aid*** and enable them to become eligible to take the CNA test. Prepares students to test for the Massachusetts Department of Public Health Certification exam for Nursing Assistants and gain a Certified Nursing Assistant (CNA) Certificate.

To become eligible for the ***CNA practicum*** students must achieve a 100% level of care rating in each of the nursing competencies by demonstrating approved methods of patient care and delivery procedures, passing the course requirements with no less than an 80% (B-) for a final grade, and have a recent tuberculosis test with negative results. This practicum will be offered off-site during non- school hours. This course is registered by the Department of Public Health and must comply with regulations including limiting enrollment to ten students per instructor. Seniors will be given priority status. Students will be selected by the highest grade point average earned in course 767 in case of a tie. Students who take this course commit to clinical training (practicum).

Expenses related to acquiring the CNA Certification such as clinical apparel, examination fee, tuberculosis test, and any additional practicum fees (i.e., transportation) are the responsibility of the student.

**Prerequisite**: B (80%) or better in 767 Health Assisting II.  Application and Instructor approval required.  Given the intense nature of this training and its related clinical practicum students cannot have an F in deportment and must have good attendance.

**\*\*This course can be used to satisfy health graduation requirements.**

**Heath Assistant Externship 749:** The goal of this course is to provide an opportunity for Junior/Senior students who have completed courses 767 and 768 to become teaching assistants in either 766 or 767.   Assistants will serve as an extension of the classroom teacher.  The extern will be responsible for the preparation and demonstration of procedures. Students will also provide feedback and support to students for individual student-procedure demonstrations under the supervision of the teacher. **Prerequisite:** To have completed **767** and **768** and instructor approval**.**

**Innovation Pathways: Healthcare Biotech I 508IP, 508IPH:** This introduction to the world of biotechnology is the first course in the Innovation Pathways: Healthcare track. Students will be introduced to the four major fields of biotechnology: forensics, energy, health, and agriculture. Students will learn using modern laboratory techniques and debate from diverse positions. Students will complete career exploration activities that relate to various careers in the Healthcare industry. Students are required to develop and present a 9th Grade Science Expo project. **Note:** Students must complete an application to be eligible to participate in the program.

**Innovation Pathways: Healthcare Biotech II 521IP, 521IPH:** The Second course in the Innovation Pathways: Healthcare program focusing on the biotechnological applications of biochemistry, cell structure and function, photosynthesis, cellular respiration, reproduction, evolution, genetics, and the human body systems. Students will gain a better understanding of themselves and the basic life processes participating in laboratory experiments, multimedia, hands-on learning activities, and projects. Students will take the Biology MCAS at the end of this course. Students are required to develop and present a science fair project. Students will complete career exploration activities that relate to various careers in the Healthcare industry. By the end of the course, they will have chosen a specific career to explore for their Junior and Senior years. **Prerequisite:** Innovation Pathways: Healthcare Biotech I

## Hospitality and Restaurant Food Production

**Food & Nutrition Lab 880:** Introduces students to basic skills in food handling and preparation while applying nutrition education concepts. Students will learn fundamental cooking principles for maintaining a healthy lifestyle. While preparing a variety of food products, students apply the knowledge of mathematics, science, health and language arts. **NOTE**: This course is a pre-requisite to be considered for Restaurant and Food Production Training. Interested students MUST take this course between freshman and sophomore year.

**Hospitality and Restaurant Food Production I 734:** Students enrolled in Food Production I will experience various aspects of the foodservice industry, as part of the National Restaurant Association ProStart Program. The goal is to learn both culinary essentials and basic food service management, preparing students to fill the need for skilled managers. Students will operate the Fine Arts Café. The students will use hand tools, learn knife skills and operate larger food preparation equipment. Safety and Sanitation will be the most important aspect of this program. Students must take the year-end NRAEF ProStart exam. **Pre-requisite:** Foods & Nutrition Lab (or similar courses) and instructor approval.

**Hospitality and Restaurant Food Production II 735:** Students will experience various aspects of the foodservice industry, as part of the National Restaurant Association ProStart Program. The goal is to learn culinary essentials and basic foodservice management, preparing students to fill the need of skilled managers. Students will participate in the operation of the Fine Arts Café student-operated restaurant. Students will be required to complete a 400-hour paid internship within the hospitality industry to gain ProStart Certification. Students must take the year-end NRAEF ProStart exam. **Prerequisite:** Food Production I must be completed with a final grade of 80% or better before Food Production II may be taken.

# VOCATIONAL EDUCATION

| Major | Graphic Communications | Construction Technology | Automotive Technology |
|---|---|---|---|
| Required courses | Freshman Exploratory<br>Graphic Communications I<br>Graphic Communications II<br>Graphic Communications III | Freshman Exploratory<br>Construction Technology I<br>Construction Technology II<br>Construction Technology III | Freshman Exploratory<br>Automotive Technology I<br>Automotive Technology II<br>Automotive Technology III |
| Highly Recommended courses | 21st Century Computer Applications<br>Intro to Business<br>Principles Finance<br>Principles of Marketing<br>Drawing and Painting<br>Illustration<br>Digital Imaging<br>Digital Photography<br>Web Design<br>Digital Publishing | 21st Century Computer Applications<br>Intro to Business<br>Principles of Finance<br>Principles of Marketing<br>Auto CAD<br>Architectural Design & BIM | 21st Century Computer Applications<br>Intro to Business<br>Principles Finance<br>Principles of Marketing<br>Intro to Electronic Technology |

The Vocational Program is designed to prepare students for profitable employment or further education through a four-year program of vocational training, plus related and academic activities aligned with the student's vocational objectives.

Any student in 9th, 10th, or 11th grade is eligible to apply for fall admission or admission during the school year subject to the availability of openings to the Vocational programs. Transfer students will be evaluated using the selection criteria contained in the Admission Policy.

Training in all selected areas will consist of structured time schedules each day during the second, third and fourth year of the program for in-depth vocational training. Each area is planned to teach the fundamental skills required for a specific area and its related fields of work, which will provide the students with skills necessary for job entry.

As in all vocational programs, the major part of the school day will be involved in shop practice, while the remainder of the school day will comprise of related subject areas and the academic subjects.

**Freshman Vocational Exploratory 700:** Freshmen who participate in the Exploratory Program will receive instruction in the three majors offered in our vocational program: Automotive, Carpentry and Graphics. Students will be exposed to three rotations of thirty (30) days each in which they will experience increased duties and project difficulty as the rotation progresses. Career exploration activities will help students learn more about their interests, personalities, skills/values and how these relate to potentials careers. Students can make an informed decision about continuing in the Career and Technical program and receive training for sophomore, junior and senior years.

**CTE - College and Career Education (713T, 714T, 715T, 716T)**: This is a college and career education course that runs along with the vocational program courses. It is aimed to provide students with career literacy. Students will complete activities for career exploration and post-secondary options and planning. Students will take a battery of tests including interest, personality, skills and values inventories to explore careers that match their profiles. Students will generate academic, personal and career goals and evaluate them as they move through high school. Students will learn how to find jobs, create a resume, a cover letter, have a successful interview, and complete applications. The courses will be supported by MEFA Pathways and MASSCIS. Students will be trained in OSHA 10 to obtain certification. This is a mandatory course for students in the Vocational Program.

**Automotive Technology I 701:** Sophomores will be introduced to automotive repair technology. They will be exposed to five different areas of instruction including engine mechanical, suspension, brakes, electrical, and engine performance. **Prerequisite:** Successful completion of Exploratory. Students must fill out an application.

**Automotive Technology II 702:** Juniors will receive additional instruction in automotive repair technology include engine mechanics, suspension, brakes, electrical, and engine performance. **Prerequisite:** Successful completion of Automotive Technology I.

**Automotive Technology III 702T:** Seniors will receive in-depth instruction in automotive repair technology with hands-on experience. Students will apply the knowledge acquired in the five different areas of instruction including engine mechanical, suspension, brakes, electrical, and engine performance. Upon completion of this course, students can seek entry-level employment, however, we recommend students pursue an Automotive Technology Certificate, Associate or Bachelor Program. Articulation agreements with post-secondary institutions to allow credit for successful completion of all courses in this program with a passing grade of B or better. **Prerequisite:** Successful completion of Automotive Technology II.

**Construction Technology I 703:** Sophomores who participate in the Construction Technology I program will gain awareness of the woodworking industry and career opportunities. Students will use hand tools, small power tools, and power woodworking equipment with support from the instructor. Students will undertake individual and group community projects. It is believed by the instructor that SAFETY is the most important aspect of the shop experience and will be stressed. **Pre-requisite:** Successful completion of Exploratory. Students must fill out an application.

**Construction Technology II 704:** Juniors who participate in the Construction Technology II program will continue to experience a greater awareness of the woodworking industry and career opportunities. Students will use hand tools, small power tools, and power woodworking equipment with only occasional support from the instructor. The student will undertake individual and group community projects that are more complicated and maybe student-designed. SAFETY is the most important aspect of the shop experience and will be stressed at all times. **Prerequisite**: Successful completion of Construction Technology I.

**Construction Technology III 704T:** Seniors who participate in the Construction Technology III program will experience work conditions relating to the carpentry trade in the shop as well as school and community. The instructor will assign individual or group woodworking projects. SAFETY is the most important aspect of the shop experience and will be stressed at all times. **Prerequisite**: Successful completion of Construction Technology II.

**Graphic Communications I 710:** Sophomores will be introduced to employable skills in the graphics/publishing field. Students will learn computer skills on both PCs and iMacs. Desktop publishing programs will be taught. Plate making techniques will be explored along with Risograph digital printing. Bindery operations is an entry-level job in printing facilities. Students will learn how to use the folding machine, automatic stitcher, collator binding equipment, laminator, shrink wrapper and packaging and wrapping skills. Entrepreneurship, customer relations, and SHOP SAFETY will be stressed. **Prerequisite**: Successful completion of Exploratory and fill out an application.

**Graphic Communications II 711:** Juniors will continue with and more extensive study of skills in the graphics/publishing field. Students will continue to fine-tune their computer skills on both PCs and iMacs. Desktop publishing programs will be taught. Plate making techniques will be explored along with Risograph digital printing. Students will learn how to use the folding machine, automatic stitcher, collator binding equipment, laminator, shrink wrapper packaging and wrapping skills. Entrepreneurship, customer relations, and SHOP SAFETY will be stressed. **Prerequisite**: Successful completion of Graphic Design/Printing I

**Graphic Communications III 711T:** Seniors who have completed Graphics Design II will continue to develop into skilled craftsmen in Graphic Design III. Major emphasis will be placed on multi-color printing jobs. Students will continue to refine their trade using Pc's and iMacs to work with industry-standard graphic design software Adobe Creative Suite. Color scanning and advanced bindery techniques will be taught. Multicolor printing will be done on the Heidelberg Printmaster. **Prerequisite:** Successful completion of Graphic Design/Printing II

**SOAR:** Incoming 9th grade students will apply to participate in the program, will take academic courses at BHS during the school day and then take vocational courses at Southeastern Regional Vocational Technical High School in the afternoon/evening.

**SOAR: Exploratory 7700:** Students will participate in an Exploratory program during their first year. They will then select a "major" and participate in that specific program for their Sophomore, Junior, and Senior years.

Current SOAR Vocational offerings are:

**SOAR: Computer and Electronic Engineering 7701:** Invent, design, and produce solutions to complex engineering challenges from concept to completion. Learn the fundamentals of cybersecurity and networking.

**SOAR: Culinary Arts 7702:** Create and present delicious gourmet masterpieces while working in a full-service restaurant.

**SOAR: Cosmetology 7703:** Express your creativity by providing a wide range of artistic hair, nail, and skincare services.

# VCE ADVANCED OPPORTUNITIES

**Independent Study 686:** Students who have completed (B or better) at least two or more courses in a career pathway and desire to further advance their knowledge can request permission to conduct an Independent Study. The student must identify a teacher willing to mentor and together complete an Independent Study Agreement stipulating the following: Course Objectives, Methods of Study, Methods of Evaluation, Resources, Frequency and place of meetings, and the signatures of the student, the parent/guardian, and the teacher. Students must be self-motivated, demonstrate responsibility, and can work independently. **Prerequisite:** Completed Independent Study Proposal Form (signed by the student, parent, and teacher). Interview and approval by the Department Chair are required.

**Work Experience 7724:** Juniors and seniors in VCE programs, who have completed at least two courses in a given career concentration or pathway can obtain 3 credits for work experience provided:

1. Secures a position (paid or unpaid) related to career concentration.
2. Completes 100 hours of work experience.
3. Attends workshops/seminars in Resume/Cover Letter Building, Job interview Do's and Don'ts, Important Legal Topics for Teen Workers.
4. Updates Career and Academic Plan.
5. The employer will certify the student's employment status and is working with a school designated work experience coordinator to evaluate the Massachusetts Work-Based Learning Plan.

NOTE: Work experience credits will be granted only once throughout the student's high school career.