



“Innovation Pathways are designed to give students coursework and experience in a specific high-demand industry, such as information technology, engineering, healthcare, life sciences and advanced manufacturing.

Innovation Pathways are designed to create strong partnerships with employers in order to expose students to career options and help them develop knowledge and skills related to their chosen field of study before they graduate high school.”

- *The Massachusetts Department of Elementary and Secondary Education*

The Healthcare Innovation Pathway (HCIP) Program at Brockton High School was launched in September 2019 after the district received an official designation from the Baker-Polito Administration.

ENROLLMENT

The HCIP will offer free college-level healthcare courses to up to 193 students through Massasoit Community College, Bay State College and Bridgewater State University. Each incoming class will have up to 50 spaces available. The inaugural class presently includes 45 students.

Enrollment is based on a lottery system in which qualifying students are chosen at random until all available seats are filled.

COURSE OF STUDY

Beginning in grade 9, the HCIP engages interested students in a career exploration process to discover how their interests, skills, values and personalities, among other factors, potentially match sought-after occupations in the Healthcare Industry.

After participating in the exploratory process during freshman and sophomore year, students will enroll in a minimum of two technical courses within a chosen associated pathway (see offerings on the following pages). During junior and senior year, this experience will be complemented by hands-on training opportunities to earn industry-recognized credentials. Students in grades 11 and 12 will also take a minimum of two college-level courses and earn college credits.

According to the U.S. Bureau of Labor Statistics, healthcare occupations are expected to add more jobs than any other occupational group over the next ten years. Employment is expected to **grow 14 percent from 2018 to 2028.**

The annual Mercer Healthcare Workforce Analysis predicts that by 2025, the U.S. could **experience a shortage** of 446,300 home health aides, 95,000 nursing assistants, 98,700 medical and lab technologists and technicians and 29,400 nurse practitioners.

“We’re in a unique position to fill some of those jobs and to train people ... so they can actually find employment in their home. We don’t want to see our brightest and our best moving elsewhere. We want them to stay in the Brockton region and, again, this is an opportunity that would allow them to do that.” - Sheila Sullivan-Jardim, Executive Director of the MassHire Greater Brockton Workforce Board, *The Enterprise*, July 23, 2019

HEALTHCARE PATHWAYS

Aligning curricula with the careers of tomorrow

HEALTH ASSISTING

Related Occupations:

- Nurse
- Nurse Assistant
- Medical Assistant
- Medical Administrative Assistant
- Medical Interpreter

LABORATORY TECHNOLOGIES

Related Occupations:

- Chemist
- Bio-Chemist
- Laboratory Technician
- Laboratory Assistant Technician
- Bio-Medical Technician
- Phlebotomist
- Forensics

ADMINISTRATIVE SUPPORT SERVICES

Related Occupations:

- Operations Management
- Healthcare Systems Manager
- Medical Records Specialist
- Medical Transcriptionist—Scribe
- Medical Administrative Assistant
- Medical Office Manager

ENGINEERING: ADVANCED MANUFACTURING

Related Occupations:

- Bio-Engineering and Bio-Manufacturing
- Bio-Mechanical Engineering
- Prosthetist
- Bio-Manufacturing
- Medical Product Designer
- Prosthodontist Technician
- Orthotics and Prosthetics Technicians

ENGINEERING: MEDICAL FOCUS

Related Occupations:

- Medical and Healthcare Engineering
- Bio-Engineering and Mechanical Engineering
- Bio-Robotics
- Medical Products Designer

ENGINEERING: ELECTRONICS/ELECTRICAL

Related Occupations:

- Bio-Medical Electronics
- Bio-Medical Equipment Technician
- Electronics Technician
- Medical Imaging Technician

FINANCIAL SUPPORT SERVICES

Related Occupations:

- Accountants
- Patient Financial Services
- Financial Analyst
- Financial Counselor
- Financial Operations Analyst

INFORMATION TECHNOLOGY

Related Occupations:

- Health Records Specialist
- Medical/Clinical Coding Specialist
- Medical Database Specialist
- Clinical Applications Coordinator
- Electronic Health Records Analyst
- Implementation Support Specialist
- Health Information Systems Administration/Manager
- IT Support Technician
- IT Systems /Security Administrator

COMPUTER SCIENCE

Related Occupations:

- Medical Software Developer
- Software Medical Researcher
- Computer Scientist
- Clinical/Public Health Data Analyst
- Database/Manager System Specialist
- Bio-Informatics

AVAILABLE CERTIFICATIONS

- OSHA General Industry
- OSHA Healthcare
- CPR
- Home Health Aide
- CNA
- Laboratory Safe Procedures
- Office Assistant
- MACWIC Engineering Manufacturing Level I
- AutoCAD
- 3-D Modeling
- Cisco Essentials
- A+ Software/Hardware

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HEALTHCARE PATHWAYS: COURSE DESCRIPTIONS

The following is a list of courses offered through the Healthcare Innovation Pathway (HCIP) Program at Brockton High School. If you would like further information about any of these courses, please email Shawn Desmond at shawntdesmond@bpsma.org.

HEALTH ASSISTING

EXPLORING HEALTH ASSISTING PROFESSIONS I: This is an introductory course designed to help students understand the skills, attitudes and behaviors needed in Health Assisting and related professions. Students will be presented with academically challenging material to gain awareness of clinical terms, human physiology, pathological diseases, procedures and protocols.

EXPLORING HEALTH ASSISTING PROFESSIONS II: This course explores Health Assisting and its related tasks as it walks students through the study of body systems and common diseases and disorders. Students will gain an understanding of the specific Health Assisting skills associated with these conditions.

HEALTH ASSISTING TRAINING: The goal of this course is to prepare students for the Massachusetts Department of Public Health Certification exam for Nursing Assistants and to gain a Certified Nursing Assistant (CNA) Certificate. In this course, students will further explore common diseases and disorders connected with selected body systems. Emphasis will be placed on the specialized Nursing Assistant procedures and skills that will qualify them to pass the Home Health Aide test with CPR and First Aid and make them eligible to take the CNA test.

LABORATORY TECHNOLOGIES AND HEALTH STUDIES

BIOTECH HEALTH SCIENCE III CHEMISTRY: This course, the third in the Biotechnology program, will focus on the biotechnological applications of matter, atomic structure and bonding, periodicity and chemical reactions. An emphasis on Forensic Science will guide students through these topics.

BIOTECH HEALTH SCIENCE IV CAPSTONE: This course, the fourth in the Biotechnology program, will focus on the applications and Engineering principles of Biotechnology. This course will build upon the concepts and skills learned in previous Biotechnology courses and allow students to design, develop and run experiments that are similar to those in today's Biotechnology labs. Students are required to develop and present a science fair project.

ENGINEERING: ADVANCED MANUFACTURING TECHNOLOGY FOCUS OPTION #1

ENGINEERING DRAWING ESSENTIALS: This course is designed for students who want to develop the basic skills needed to become Engineers, Architects, Civil, Mechanical or Manufacturing Engineers or Machinists. 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 curriculum.

BLUE PRINT READING: Engineers communicate their ideas through pictures and drawings. They also have to be able to understand technical drawings. This is a higher level course specifically for students interested in furthering their technical drawing knowledge and skills so they can apply them to mechanical, manufacturing, and robotics designs. The course will review concepts such as Isometric and Orthographic drawings, dimensioning, sectioning, drawing tools, assembly drawings, cross-sectional views, half-sections and sections of objects with more complex surfaces holes. This course uses MACWIC curriculum for Manufacturing Technologies.

ENGINEERING AND MANUFACTURING: This is a competency-based, standardized Engineering and Manufacturing curriculum which 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 a MACWIC (MA-Manufacturing Advanced Center) exam. Acceptable scores will confer students a Level 1 or 2 Manufacturing Certification.



HEALTHCARE INDUSTRY PATHWAYS - COURSE DESCRIPTIONS

ENGINEERING: GENERAL ENGINEERING STUDIES OPTION #2

PROJECT LEAD THE WAY INTRODUCTION TO ENGINEERING DESIGN: This is the first of at least three and a maximum of four Engineering courses for students interested in pursuing a career in Engineering. Each course is an every day, full-year course. In this course, students will acquire in-depth knowledge about the Engineering design process by applying Math, Science, and Engineering standards. They will work both individually and in teams to design solutions for a variety of problems using 3D modeling software. This is an Honors course for the highly committed student who must be prepared to take final examinations at the end of the year.

PROJECT LEAD THE WAY PRINCIPLES OF ENGINEERING: This is the second of a minimum of three and a maximum of four full-year Engineering courses that require a final examination. Through problems that engage and challenge, students will explore a broad range of Engineering topics, including mechanisms, automation and the strength of structures and materials. Students will develop skills in problem solving, research, and design while learning strategies for design process documentation, collaboration, and presentation.

ENGINEERING: ELECTRONIC TECHNOLOGY

INTRODUCTION TO ELECTRONICS: This course will introduce students to the basic concepts of electronics and electronic devices including diodes, transistors, transistor biasing, rectifiers, and amplifiers. Instruction will focus on providing a foundational understanding of the characteristics of basic circuits and the math used in circuit analysis. Students will learn how to complete electric soldering projects, make basic repairs and maintain electronic equipment, read schematics, identify components and build breadboard circuits. The course will also include an examination of career opportunities in Electrical Engineering as well as Electronic Technologies.

ELECTRONIC ENGINEERING SYSTEMS: This is a full-year higher level course for students interested in advancing their knowledge in the field of Electronics and Electronic Engineering. This course will introduce concepts of Applied Physics, Calculus and Analytic Geometry. During the first semester, students will learn about the use of electronic components in communication, automation and control, computer and space technology. This course will cover analog, integrated circuitry and solid state. During the second semester, students will delve into theory, terminology, equipment and practical experience to explore and develop the skills needed for careers in the Electronic Engineering field. Course topics will include digital devices, amplifiers and semiconductors. As part of this course's Capstone project, students will work in teams to construct robotic arms and compete against their peers.

ADMINISTRATIVE SUPPORT SERVICES

BUSINESS OPERATIONS: Students in this course will learn about Systems Theory as it applies to the concept of Operation Systems in Business Administration. Using concrete examples and research, students will learn the various components of a supply chain and understand the impact that decision making has at every step of the production chain of a business product. Topics include control charts, business applications and digital tools to illustrate operations. Students will be encouraged to use critical thinking skills in order to identify and analyze problems and generate potential solutions.

BUSINESS DATA MANAGEMENT: This course will expose students to the theoretical and practical aspects of Business Analytics. Students will learn the importance of data collection, data storage and data management and its impact in the decision making process. The course will introduce students to the core concepts of data analytics and expose them to a comprehensive number of tools and applications, including statistics and computer and digital business applications. Using real data, students will gain hands-on experience with data collection, management, and analysis and report preparation. Students will use tools such as MS Excel and MS Access, among others.

PEOPLE MANAGEMENT: Students will learn the difference between "People Management" as in Business Administration and Human Resources Management. Students will identify their strengths as well as traits that require significant personal development and growth in pursuit of a potential management position in the future. Students will gain a deeper understanding of effective management practices by developing critical and reflective skills.



HEALTHCARE INDUSTRY PATHWAYS - COURSE DESCRIPTIONS

FINANCIAL SUPPORT SERVICES

AUTOMATED ACCOUNTING I: This is part one of two one-semester courses designed for students who will major in Accounting, Business Administration or Business Management in college. Students will learn basic accounting practices to record and analyze business transactions and to prepare financial statements. Students will learn to do accounting manually and then enter data electronically via Excel and Peachtree™ accounting software. This course has been aligned in accordance with the NCTM Standards, NBEA Computation Standards, and the Massachusetts Curriculum Framework Standards.

AUTOMATED ACCOUNTING II: This is part two of two one-semester courses designed for students who will major in Accounting, Business Administration or Business Management in college. This course will expand upon the basic accounting practices students learned in part one of the course. This course has been aligned in accordance with the NCTM Standards, NBEA Computation Standards, and the Massachusetts Curriculum Framework Standards.

INFORMATION TECHNOLOGY

CISCO ACADEMY IT ESSENTIALS: This course covers the fundamentals of PC hardware and software as well as advanced concepts. It is designed for students who want to pursue careers in IT and/or those who want to gain practical knowledge of how a computer works. Students who complete this course will be able to describe the internal components of a computer, assemble a computer system, install an operating system and troubleshoot using system tools and diagnostic software.

CISCO ACADEMY A+ HARDWARE TECHNICIAN: This is an intensive course 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 PDAs, printers, building a PC, troubleshooting, and the responsibilities of a PC technician.

CISCO ACADEMY A+ SOFTWARE TECHNICIAN: This is an intensive course designed to take students from the just-a-user level to understanding the behind-the-scenes of customizing, optimizing and troubleshooting a Windows operating system and the most common software applications. Students will learn all aspects of the operating system, including the major differences between Windows, Unix, Linux and the Mac OS. Upon successful completion of this course, students will understand the boot process, be able to support and install Windows on a network and on the Internet, manage memory, install printers and I/O devices and understand the responsibilities of a PC technician.

CYBERSECURITY: This course explores cyber trends and threats among many other topics in cybersecurity. Students will learn how to protect their personal privacy online while gaining additional insight on the challenges companies, and governmental and educational institutions face today. Security professionals are in demand and the need for these professionals continues to grow. In this course, students will develop an understanding of cybercrime, security principles, technologies and procedures used to defend networks.

COMPUTER SCIENCE

PROJECT LEAD THE WAY COMPUTER SCIENCE ESSENTIALS: This is a PLTW course which exposes students to a diverse set of computational thinking concepts. Students will use visual and block-based programming via Python. They will apply computational thinking practices, build vocabulary, and collaborate as computing professionals to create products that address topics and problems important to them.

PROJECT LEAD THE WAY COMPUTER SCIENCE PRINCIPLES: This is a PLTW course which exposes students to a diverse set of computational thinking concepts. Students will use visual and block-based programming via Python. Students will develop programming expertise and explore the workings of the Internet. Projects and problems include app development, visualization of data, cybersecurity, and simulation.