

# Construction Cluster

## BUILDING TRADES

Students learn multiple areas of construction disciplines including, but not limited to carpentry, electrical and masonry. Level I students work in a hands-on learning environment, developing skills and tool usage of a variety of hand and power tools applicable to the trade on a full scale house project in the shop. Advanced level students will be increasing their skill set by working on the BAVTS House Project and other community projects. Students have the opportunity to earn an OSHA Certification.

## CARPENTRY

Students will learn the fundamental skills using a variety of materials and numerous tools of the trade to create projects ranging from simple, to complex, to complete layout and construction of residential properties. Level I students work in a hands-on learning environment, developing skills using a variety of hand and power tools, measuring and blueprint reading. Advanced level students will increase their skill set by working on the BAVTS House Project and other community projects. Students have the opportunity to earn OSHA and NAHB Certifications.

## ELECTRICAL CONSTRUCTION

Students will learn to assemble, install and test wiring, fixtures and devices used in commercial, industrial and residential applications. Level I students work in a hands-on learning environment, developing skills and tool usage as well as learning theory; includes calculating amperage, voltage, current and power in electrical circuits. They will learn to read blueprints and schematics for motor control and programmable logic controllers. Advanced level students will increase their skill set by working on real-world project such as the BAVTS House and projects around the school. The student's skill set and job readiness will be measured based on the National Electrical Code standards. Students have the opportunity to earn an OSHA Certification.

## HEATING, VENTILATION & AIR CONDITIONING

Students will learn the core skills for both residential and commercial applications of heating, ventilation and air conditioning. Level I students work in a hands-on learning environment, developing skills while learning blueprint reading, piping and tubing applications, sheet metal and electrical, using the hand tools of the trade. Advanced level students will be increasing their skill set by working on the BAVTS House Project. Students receive training in EPA Section 608 and flexible gas pipe, leading to National Certifications. Students have the opportunity to earn an OSHA Certification.

## MASONRY

Students will learn the fundamental skills of a mason using concrete, brick, stone and block to create a series of projects that progress from jobs as simple as a brick pyramid to as complex as a residential fireplace. Level I students work in a hands-on learning environment, developing skills while using the hand tools of the trade, which include scaffolding, masonry rules, mortar mixers and other basic tools as well as reading blueprints. Advanced level students will be increasing their skill set by working on the BAVTS House Project. Students have the opportunity to earn an OSHA Certification.

## PLUMBING

Students will learn to assemble, install, alter and repair pipe systems which carry water, steam or other materials for sanitation, residential or industrial uses as well as install plumbing fixtures, appliances and hydronic systems. Level I students work in a hands-on learning environment, using acetylene torches and a variety of hand and power tools, reading blueprints and learning pipe fitting formulas. Advanced level students will increase their skill set by working on the BAVTS House Project. The student's skill set and job readiness will be measured based on the International Plumbing Code standards. Students have the opportunity to earn track pipe and gastite certifications.

# Creative Cluster

## COMMERCIAL ART (ADVERTISING DESIGN)

Students will learn the principles of graphic design, typography, basic illustration, use of color, page layout, advertising and digital photography. Working with the latest graphics software and technology, students create brochures, posters, magazine covers, layouts, signs, logos and more. Students will learn how to apply their artistic talents to today's market, beyond pencil and pen, to the computer and using the internet. Advanced level students will be increasing their skill set by compiling a portfolio and using their design skills for school and community projects. The program has an articulation agreement with NCC for 4 credits in Computer Graphics.

# Creative Cluster (cont'd.)

## GRAPHIC COMMUNICATIONS (PRINT TECHNOLOGY)

Students learn how to create marketing products to promote businesses and events using a variety of printing techniques, including digital printing, screen printing and large format printing. Level I students are in a hands-on learning environment, developing skills using the latest graphics software and technology learning the principles of design, typography, use of color, layout, print production, finishing and bindery. Advanced level students increase their skill set by compiling a portfolio and using their design and print skills for school and community projects. The program has an articulation agreement with NCC for 4 credits in Computer Graphics.

## MULTIMEDIA & WEB DESIGN

Students will learn how to design and develop websites using a combination of creativity and computer science. Level I students will be in a hands-on environment, learning the core design principles using various programs such as Photoshop and Illustrator to create website layouts and other visual elements. While still implementing design skills, advanced level students will work heavily on website development. Students will use HTML, CSS, JavaScript, PHP and other programming languages to bring life to their designs. With an 8% employment growth projection between 2023-2033, Multimedia & Web Design students will have an abundance of future career opportunities. The program has an articulation agreement with NCC for 4 credits in Computer Graphics.

## SOCIAL MEDIA MARKETING

The course explore effective methods and tools to utilize social media in business for the purpose of boosting sales and creating brand loyalty. Students engage in a variety of creative tasks related to the emerging world of digital content, design and advertising to achieve goals and objectives. Instruction in this program includes marketing strategies, social media platform exploration, search engine optimization (SEO) as well as graphic design, typography and personal brand development.

## VIDEO & MEDIA ARTS

This 3 year program consists of Audio and Television production in the first year learning to run a mixer, camera or video switcher. Year two concentrates on Video production where students write scripts, conduct interviews, produce and direct those scripts with the use of our professional HD camcorders and edit them on our Final Cut editing stations. Third year students concentrate on Effects production using LightWave 3D, a 3D modeling and animation software program. Instruction in unmanned aerial vehicles (UAV's) for aerial videography using DJI's Phantom 2 Quadcopters is also included. The program has a 3 credit articulation agreement with NCC.

# Culinary Arts Cluster

## CULINARY ARTS

Students will learn the fundamental core competencies in safety, sanitation, measurements, equipment, hand tools, basic food preparation and customer service while rotating through three kitchen settings. Advanced students will develop employability skills as they practice hands on skills in basic baking, food safety, health and nutrition, cross utilization, sustainability, organization and cost control. Students have the opportunity to earn their National Restaurant Association ServSafe certification.

## RETAIL COMMERCIAL BAKING

Students will work in a professional kitchen, learning how ingredients are weighed and measured for commercial sized batches of dough and batter. They will operate large mixing machines and other commercial baking equipment. Students will learn various mixing methods to create sweet and savory treats and participate in the production of many different varieties of bread, rolls, doughnuts, sweet rolls, Danish pastry, cookies and many other pastry varieties. Students will learn how to decorate cakes, starting with layer cakes and sheet cakes, advancing to large multi-tiered wedding cakes. Students will learn the advantages and disadvantages of different production options such as the use of prepared bakery mixes and frozen pre-formed products. Students have the opportunity to earn their National Restaurant Association ServSafe certification.

# Health Cluster

## HEALTH CAREERS

Students will explore various occupations in the healthcare industry. Core curriculum focuses on anatomy and physiology, medical terminology, medical math, medical professionalism and fundamentals of patient care. The academic content prepares students for post-secondary education in various fields such as pre-med, nursing, physical therapy, medical assistant, occupational therapy, radiology, ultrasound technician, massage therapy and many more. Students also learn basic patient care skills such as taking vital signs, activities of daily living and first aid skills. Students will practice these skills on their peers as well as on simulation mannequins. Advanced level students will be increasing their skill set by being taken into the community for various observations at local healthcare facilities. Students have the opportunity to earn their CPR, Basic Life Support, First Aide, Residential Licensing and Blood Borne Pathogens certification. The program has an articulation agreement with NCC.

## MENTAL & BEHAVIORAL HEALTH

This 3-year program focuses on exploration of mental health and behavioral services career paths students can pursue at all levels in the following areas: clinical and counseling psychology, educational and school psychology, industry, health and medicine, legal and forensic psychology, business and industrial-organizational psychology, sport, and performance psychology. Students will begin with developing a thorough understanding of the evolution of psychological science, psychological perspectives, and subfields of psychological practices. Students will develop a strong understanding of theory and further develop necessary clinical skills sets used within the field of mental health and behavioral science by practicing in a controlled application setting.

## SPORTS MEDICINE CAREERS

Students will learn about sports medicine, health fitness and kinesiology (the study of the mechanics of body movements). Level I students will be in a hands-on learning environment, developing fundamentals in theories of injury prevention and recognition, emergency care, creating exercise and rehabilitation programs along with overall mental and physical health wellness. Advanced level students will be increasing their skill set by learning medical terminology, safety procedures, nutritional facts, basic anatomy and kinesiology. Students have the opportunity to earn their First Aide, CPR, AED and Blood Borne Pathogens certifications.

## THE ACADEMY FOR MEDICAL SCIENCES

Students will learn Medical Terminology, Legal Responsibility, Ethics, Human Development, Basic Life Support and Safety in the Health Care Environment. The course is an academic course for college bound SENIORS with learning components involving lecture, discussion, research and lab activities consisting of individual and group projects designed to reinforce theory components. A major part of the course includes clinical observations through St. Luke's University Hospital and Lehigh Valley Health Network for students who meet the course prerequisites. Students can also earn their Basic Life Support certification. The program has an articulation agreement with NCC.

# Manufacturing Cluster

## MECHATRONICS ENGINEERING

This program prepares individuals to apply basic engineering principles and technical skills in both the mechanical and electrical fields. Instruction provides preparation in the design, development and testing of electromechanical devices and systems such as automatic control systems, servomechanisms, vending machines, elevator controls, missile controls, tape control machines and auxiliary computer equipment. Instruction also includes feasibility testing of engineering concepts, systems analysis including designs, selection, testing, and application of engineering data; and, the preparation of written reports and test results in support of mechanical and electrical engineers.

## ELECTRONIC TECHNOLOGY

Students will learn the fundamental skills related to the electronics industry. Level I students will be in a hands-on learning environment, developing skills in AC/DC Circuits, Digital Electronics, Solid State Devices and Computer Applications. Advanced level students will be increasing their skill set by designing and manufacturing electronic assemblies. Students have the opportunity to earn certifications for IPC-610-Electronic Assemblies and J-STP-001.

## PRECISION MACHINING

Students will use critical thinking and the design process to bring new ideas to life for companies, communities and citizens. Students will learn fundamental skills for machining metal and other materials through the use of lathes, mills, drills, saws and other specialized equipment. This hands-on learning environment will also develop blueprint reading and precision measurement skills. Computer Numerical Control (CNC) programming and machining operations are emphasized in the

## Manufacturing Cluster (cont'd.)

### WELDING

Students learn fundamental skills for welding carbon steel and other metals. Level I is a hands-on learning environment which develops skills from basic welds to various configurations and positions using a variety of hand tools, saw operation, drill press, hand and pedestal grinders and brake press used for fabrication preparation. Advanced level students progress to complex joints, cutting, various metal removal methods and read and visualize shapes from blueprints. Skill set and job readiness are measured by American Welding Society standards. Students can earn an OSHA Certification. Welding has articulation agreements with NCC and Penn Tech.

## Service Cluster

### COMPUTER NETWORKING

This instructional program focuses on design, implementation and management of linked systems of computers, peripherals and associated software, preparing students with the technical skills required to support networks and network users. This program includes instruction in networks technologies and standards; system design, architecture, operating systems, security, communications protocols, client support, messaging services, network management, troubleshooting and server optimization. Those completing the program may be employed as a network administrator, network specialist, network technician, webmaster, client services analyst (end user) or network operator.

### COSMETOLOGY

Students will learn the fundamental skills needed to sit for the Pennsylvania State Board of Cosmetology Licensing Exam. Level I students will be in a hands-on learning environment, developing skills using mannequins to learn permanent waving, shampooing and styling, manicuring, haircutting, facials, scalp treatments and color. Each student works independently and advances from one skill to another throughout the training process. Advanced level students increase their skill set by working on clients in the school's salon.

### ESTHETICS

Students will learn the fundamental skills needed to sit for the Pennsylvania State Board of Estheticians Licensing Exam. This is a 300 hour course which can be completed in one year (2 blocks per day). Students will be in a hands-on learning environment, developing skills in skin diseases and disorders, facial hair removal, facial massages and treatments, make-up application, anatomy of the skin and electrotherapy. Students will be increasing their skill set by working on clients in the school's salon.

### PROTECTIVE SERVICES

Students will learn the technical knowledge and hands-on skills required for entry-level duties as a police officer, firefighter, paramedic, military service and other safety services, especially in emergency and disaster situations. Physical development, discipline and self confidence skills are emphasized due to the nature of the specific occupations. Advanced level students receive training in social and psychological skills, map reading, vehicle and equipment operations, the judicial system, pre-hospital emergency medical care, appropriate emergency assessment, treatment and communication. Students have the opportunity to earn their CPR, First Aid, AED, NIMS, PATH, PPBT, OCAT and Personal Protection Control and Defense certifications.



## Transportation Cluster

### AUTOMOTIVE COLLISION REPAIR

Students learn the fundamental skills needed to be employed in local body shops or insurance claim adjusters. Level I students are in a hands-on learning environment, developing skills which include repairing and replacing panels, working with sophisticated automotive finishes, special alloy steels and plastics, and the safe use of hand and power tools. Advanced level students will increase their skill set progressing through all phases of repair; including use of frame straightening equipment and the latest in repair and refinishing techniques, using industry standard equipment. Hands-on training on customer-owned vehicles allows an opportunity for real-world experiences.

### AUTOMOTIVE TECHNOLOGY

The Automotive program is credentialed by the National Automotive Technician Education Foundation (NATEF) under the approved Maintenance & Light Repair (MLR) requirements. The curriculum follows the Automotive Service Excellence (ASE) framework and is designed to prepare students for entry level service positions at local dealerships, the military and/or post-secondary education in the high-priority Automotive Service field. Teachers hold ASE Master level certification status in; AI-A8, LI Emissions, G1 General Automotive Repair, C1 Service Consultant, Safety Inspection, Emissions and NC3 Electronics/Electrical. Students are engaged in high-level STEM integration as they research and apply repair information and technical skills in the servicing and maintenance of all types of automobiles and light trucks. Learners apply Physics, varied practical Mathematical applications including Geometry, literacy, and communication skills applicable to the automotive workplace. Students may complete optional coursework in order to obtain certifications as a PA State Inspection technician, Emissions Inspector and ASE 609 Refrigerant Recovery and Recycling technician for a fee of approximately \$100.

## Student Organizations

### SKILLSUSA

SkillsUSA is a national student organization partnering with business and industry, which offers trade related competitions and leadership opportunities. SkillsUSA gives motivated students the opportunity to highlight their skills on the district, state and national levels.

### HOSA - FUTURE HEALTH PROFESSIONALS

HOSA is an international student organization for students in health related programs. It offers both leadership opportunities as well as trade related competitions. HOSA gives motivated students an opportunity to highlight their skills on the state and national levels.

### NATIONAL TECHNICAL HONOR SOCIETY (NTHS)

NTHS is an elite organization offered to students who have maintained a "A" average in their BAVTS class and a "B" average at their home school. Students must complete an application for acceptance.

### DECA

DECA helps students learn business skills for college and careers. It makes learning more engaging by connecting lessons to real-world business and competition. This approach prepares students to succeed in both college and the workplace.

## Fast Track

Fast Track is a Career Exploration opportunity for motivated 9th graders, from Liberty or Freedom, with good attendance that meet the grade level standards based on GPA. Students will rotate through all career areas offered at BAVTS during one block of their school day. The students will then have an opportunity to register for a specific program for their 10th grade year without going through the traditional rotation process.

## Cooperative Education

This is a half day, supervised, work-based experience in the student's occupational area, assisting in the transition from school to the workplace. This program is reserved for those individuals recommended by their instructors to be the most likely to succeed on the job. Students are representing the school and establishing reputations and records that will follow them beyond graduation. Considering the responsibility of representing your instructor, school and yourself in a business, there are qualifications to ensure that only conscientious and proficient students participate in the program.

## Integrated Instruction

In addition to normal program coursework, BAVTS offers supplemental instruction in the areas of English, Mathematics and Technology to ensure that our students have the necessary skills to enter the workforce or college immediately after graduating.

The Bethlehem Area Vocational-Technical School does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs or activities and provides equal access to the Boy Scouts and other designated youth groups. Inquiries may be directed to the Bethlehem Area Vocational Technical School's Business Administrator, Title IX and Section 504 Coordinator, at 3300 Chester Avenue, Bethlehem, PA 18020, via e-mail at [complianceofficer@bavts.org](mailto:complianceofficer@bavts.org) or by phone at 610-866-8013, ext. 105.

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# Course Offerings

3300 Chester Avenue • Bethlehem, PA 18020 • 610.866.8013

*Bethlehem Area Vocational-Technical School is a student centered career and technical facility working to meet the needs of our diverse student population through challenging, integrated educational experiences of curriculum and community support.*