

2023-2025 CAREER PATHWAYS



RICHMOND PUBLIC SCHOOLS
**CAREER & TECHNICAL
EDUCATION**

RPS RICHMOND
PUBLIC SCHOOLS



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Welcome Letter

Greetings!

We are thrilled to present you with this comprehensive guide, designed to assist in navigating the exciting world of Career and Technical Education (CTE) within Richmond Public Schools. Whether you are a counselor working with a student on course selection leading to a credential and course completion or a community partner trying to understand our CTE offerings, this booklet serves as a valuable resource in exploring various career paths and steps needed for our students to achieve their professional goals.

Our overall objective is to empower youth with knowledge and confidence as they embark on their journey to a promising career. We understand that choosing a career path is a significant decision, and we aim to provide you with the tools and information necessary to make informed choices. Remember, the path to success is rarely a straight line. It is filled with exploration, learning, and growth. We encourage counselors, students, and parents to approach this journey with an open mind and a willingness to explore the possibilities.

Students, we wish you the best of luck on your career journey. Should you encounter challenges and need further assistance, please do not hesitate to contact our department.

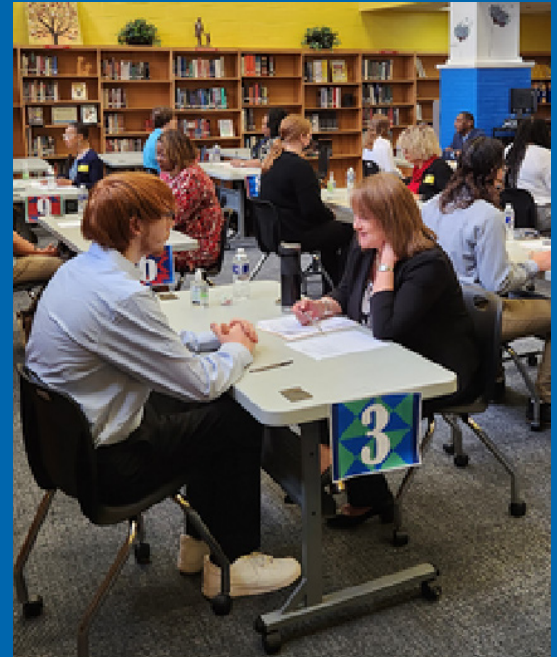
Warm regards,
Dr. Rhonda Turner
CTE Manager



The mission of the CTE Advisory Committee is to bring awareness, advocacy and support to impact RPS CTE programs.



Raising the bar within CTE!



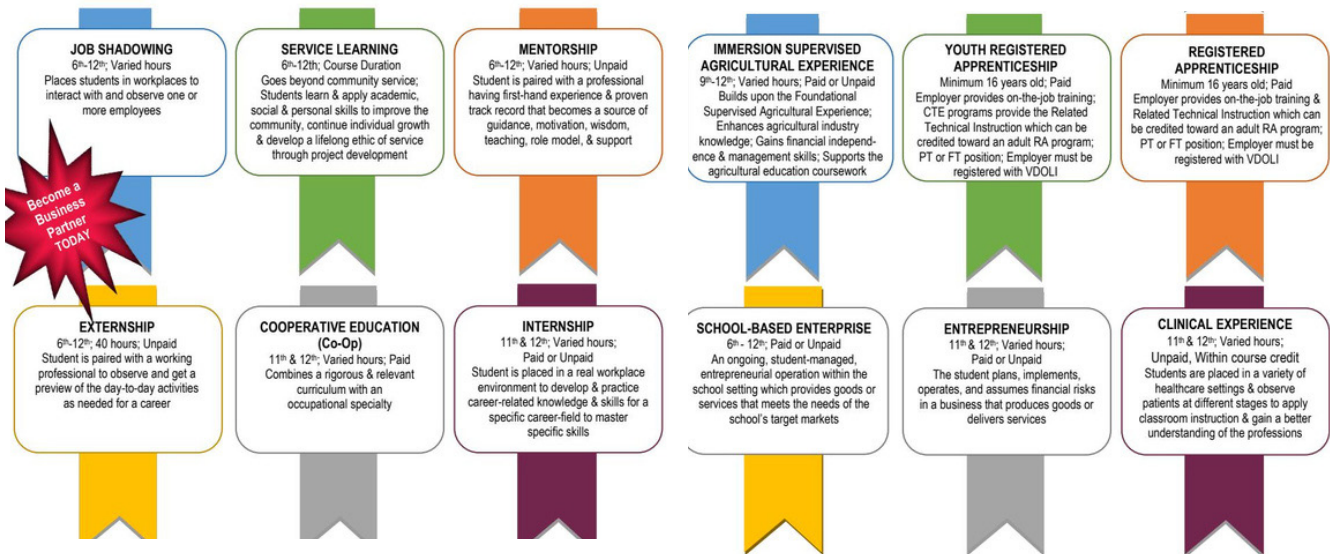
Work-Based Learning

HIGH-QUALITY WORK-BASED LEARNING OPPORTUNITIES



VIRGINIA IS FOR LEARNERS

VIRGINIA DEPARTMENT OF EDUCATION



Scan the QR code to check out our WBL Website



High-Quality Work-Based Learning (HQWBL) is comprised of school-coordinated workplace experiences that are:

- related to student's career goals and/or interests
- integrated with instruction
- performed in partnership with local businesses and organizations

CTE HQWBL experiences enable students to apply classroom instruction in a real-world business or service-oriented work environment and are available throughout the year. While many students work during the school year, experiences are also available during the summer months.

Work-Based Learning



JAYLA TYLER

RICHMOND COMMUNITY HIGH SCHOOL

Jayla interned as a Geotechnical Engineer with Froeling and Roberts. She performed soils and concrete inspection services to include but not limited to reading construction documents such as testing specifications and standards, testing soil and concrete cylinders from construction site, addressing the cleanliness and organization of the lab, and report creation and editing.



JONNAE STRINGER

RICHMOND HIGH SCHOOL FOR THE ARTS

Jonnae works as a Cooperative Education Student in the role of “Junior Associate” with VITA. She will be rotating throughout the agency to gain experience and insight of the agencies processes and procedures specifically Human Resources, Technology and Finance.



XAVIER LIGGINS

HUGUENOT HIGH SCHOOL

Xavier completed coursework in the Office Administration and Medical Administration programs. He worked as an intern in our RPS Career and Technical Education Office as an Office Assistant. He recalled his experience as an excellent way for him to develop workplace readiness skills and the credential for it. Now, he is working with the VCU Health Ways to get a position in the healthcare industry.

Student Highlights



TAYLOR WALKER
HUGUENOT HIGH SCHOOL

Taylor completed the Office Administration and Medical Administration programs. She worked as an intern in our RPS Career and Technical Education Office as an Office Assistant. She recalled this experience as an excellent way for her to further develop workplace readiness skills. She earned credentials for the Workplace Readiness Skills and Medical Administrative Assistant. She is studying at A&T University in Greensboro, NC.



MARTEZ LAUREANO
HUGUENOT HIGH SCHOOL

Martez created a Service Learning project to promote awareness of Diabetes; symptoms, diagnosis, treatment and prevention presentation to the local community. He secured a space and time at his school and invited health professionals to be a part of the conversation. Mr. Laureano is an aspiring physician.



CARRINTON TERRY
JOHN MARSHALL HIGH SCHOOL

Carrinton completed the Pharmacy Technician II program at Richmond Technical Center. She performed 100 hours assisting the Pharmacist fulfill orders at the Walgreens Pharmacy. She recalls it was an amazing experience because it really helped her to decide on whether this is the career for her. In fact, she plans to apply to four-year universities and major in biochemistry.

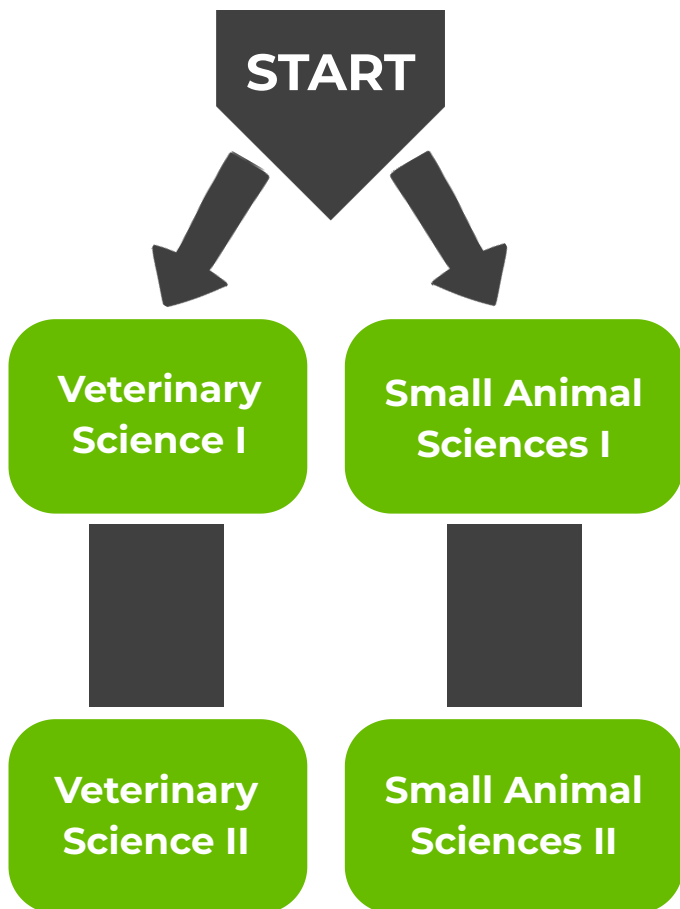


LAIHAH SHABAZZ
THOMAS JEFFERSON HIGH SCHOOL

Lailah completed the Automotive Technology program at the Richmond Technical Center in 2020. She started her internship in March 2022 at West Broad Kia Auto Dealership. After graduation in June 2023, they hired her full-time as a Lube Technician. She recalls this has been a wonderful experience. She is now enrolled in Reynolds Community College's Automotive Technology Program on Goochland's Campus while working part-time with West Broad Kia.



Agriculture, Food & Natural Resources



Career Options

| Occupation | Median Salary | Education |
|-------------------------|---------------|---|
| Veterinarian | \$100,370 | Doctorate or Professional Degree required |
| Veterinarian Technician | \$36,850 | Associate's Degree required |

Occupational Outlook Handbook. (2023). U.S. Bureau of Labor Statistics. <https://www.bls.gov/ooh/>

Industry Credential(s):

- Workplace Readiness Skills
- Pet Sitters Certification Exam
- Veterinary Science

Course Descriptions

Small Animal Sciences I

Grades 9-12, 1 Credit

Students learn how to care for and manage small animals, focusing on instructional areas in animal health, nutrition, management, reproduction, and evaluation. Course content also includes instruction in the tools, equipment, and facilities for small animal care, and provides activities to foster leadership development. Live animal handling may occur. FFA, SAE, or related student organization activities are encouraged. This course will use a combination of technology, hands-on labs, and lecture to distribute information.

Small Animal Sciences II

Grades 9-12, 1 Credit

Students develop their skills in the training and grooming of companion animals, focusing on specific needs of various breeds. Instruction includes handling animals and grooming/caring for coats, as well as technical and maintenance functions related to animal health. Live animal handling will occur. The course also includes technical office management instruction and affords students the opportunity to practice leadership skills. FFA, SAE, or related student organization activities are encouraged. This course will use a combination of technology, hands-on labs, and lecture to distribute information.

Veterinary Science I

Grades 9-12, 1 Credit

This course prepares students for post-secondary education and/or careers in veterinary medicine or related fields. Students develop their skills in anatomy, nutrition, medical terminology, sanitation, clinical exams, and handling animals. Live animal handling may occur. Course content also includes facility maintenance, and office functions, as well as safety practices. The National FFA Organization, Supervised Agricultural Experience (SAE), or related student organization activities are encouraged.

Veterinary Science II

Grades 9-12, 1 Credit

Students expand their knowledge of animal science and the care of animals, including animal structure and function, microbes and disease prevention, parasitology, and genetics and breeding. Students develop more advanced skills and techniques for assisting the veterinarian/technician in the following areas: performing first aid and surgery, applying aseptic techniques, performing technical functions, administering medication, handling death and dying, working with wildlife, and performing office functions. On-the-job clinical instruction coordinated by the instructor may be included in veterinary offices or animal clinics. This course will use a combination of technology, hands-on labs, and lecture to distribute information.

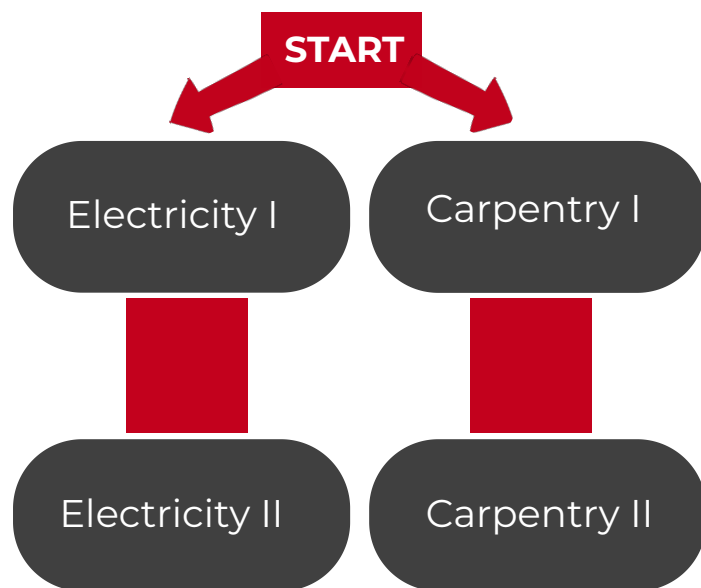


Architecture & Construction

Career Options

| Occupation | Median Salary | Education |
|--------------|---------------|-----------------------------------|
| Carpenters | \$51,390 | High School Diploma or Equivalent |
| Electricians | \$60,240 | High School Diploma or Equivalent |

Occupational Outlook Handbook. (2023). U.S. Bureau of Labor Statistics. <https://www.bls.gov/ooh/>



Industry Credential(s):

International Code Council
Residential Electrical Inspector
(EI) Examination

National Construction Career Test:
National Center for Construction
Education & Research (NCCER)

Course Descriptions

Carpentry I & II

Grades 9-12, 1 Credit

Carpentry I is the foundation for achieving high-level construction industry skills that can result in an exciting and lucrative career. With an emphasis on safety, students are taught to use hand and power tools, cut stock apply construction mathematics, interpret blueprints, and understand basic rigging. Students will become proficient in identifying types of residential construction components to frame walls, floors, ceilings, roofs, doors, and windows. All students will obtain the required OSHA 10 safety credential.

Carpentry II prepares students for successful transition into postsecondary education for careers in carpentry and related fields, such as construction management, architecture, and others. Students are taught the safe use of hand and power tools common to the industry to complement their Construction Industry OSHA 10 safety credential earned in Carpentry I. Students will become proficient in assembling and installing various types of residential construction components according to industry standards, including forming foundations, framing floors, walls, ceiling, roofs, trusses, roofing materials, stairs, and exterior doors and windows.

Electricity I & II

Grades 9-12, 1 Credit

Students develop fundamental electrical skills to help them prepare for a career in the installation, operation, maintenance, and repair of residential, commercial, and industrial systems. Students will engage in hands-on activities in a lab setting. They will be introduced to residential wiring of houses and apartments, commercial wiring of retailers, schools, businesses, and hospitals, and industrial wiring of factories.

Students will continue to develop skills in the installation, operation, maintenance, and repair of residential, commercial, and industrial electrical systems. Students will also study electrical theory and mathematical problems related to electricity, apply requirements of the National Electrical Code (NEC) Book, select and install conductors, examine lighting, communication, and power systems, and work with conduit and raceways, panelboards, switchboards, grounding systems, and generators.

Design & Pre-construction



Architecture & Construction

Career Options

| Occupation | Median Salary | Education |
|--------------------|---------------|-------------------|
| Aerospace Engineer | \$126,880 | Bachelor's Degree |
| Civil Engineer | \$89,940 | Bachelor's Degree |

Occupational Outlook Handbook. (2023). U.S. Bureau of Labor Statistics. <https://www.bls.gov/ooh/>

Industry Credential(s):

Autodesk Certified User Examination (Certiport); Workplace Readiness Skills for the Commonwealth

Technology Foundations

Technical Drawing and Design

Architectural Drawing and Design

Course Descriptions

Architectural Drawing and Design

Grades 9-12, 1 Credit

Students learn the principles of architecture and increase understanding of working drawings and construction techniques learned in the prerequisite course. Experiences include residential and commercial building designs, rendering, model development, and structural details. Students use computer-aided drawing and design (CADD) equipment and established standards or codes to prepare models for presentation. The course is especially beneficial to future architects, interior designers, or home builders.

Technical Drawing and Design

Grades 9-12, 1 Credit

In this foundation course, students learn the basic language of technical drawing and design, and they design, sketch, and make technical drawings, models, or prototypes of real design problems. The course is especially recommended for future engineering and architecture students.

Technology Foundations

Grades 9-12, 1 Credit

In this hands-on technology education course, students use tools to build and control objects and systems using engineering design. Students will learn about materials, energy, and engineering processes. Students design, create, and assess innovations, systems, and products to learn about how and why technology works. This introductory course is a prerequisite for Technology Transfer and Technology Assessment.



Arts, AV Technology & Communications

Career Options

| Occupation | Median Salary | Education |
|--------------------|---------------|--------------------|
| Desktop Publishers | \$47,910 | Associate's Degree |
| Graphic Designers | \$57,990 | Bachelor's Degree |

Occupational Outlook Handbook. (2023). U.S. Bureau of Labor Statistics. <https://www.bls.gov/ooh/>

Industry Credential(s):

Workplace Readiness Skills

Adobe Illustrator Graphic Design Certification

START

Graphic Imaging Technology I

Graphic Imaging Technology II

Course Descriptions

Graphic Imaging Technology I

Grades 9-12, 1 Credit

Graphic Imaging Technology I introduces students to the graphic communications industry. Students gain an overview of digital file preparation, image capture, color theory, digital file output, press operations, and bindery operations. Students learn to practice workplace safety and develop skills in measurement, mathematical problem-solving, interpersonal communication, and the job application process. Graphic imaging technology programs must be accredited by PrintEd, administered by the Graphic Arts Education and Research Foundation (GAERF).

Graphic Imaging Technology II

Grades 9-12, 1 Credit

Graphic Imaging Technology II prepares students for a career in the graphic communications industry. Students gain knowledge and skills in digital file preparation and output. Graphic Imaging Technology programs must be accredited by PrintEd, administered by the Graphic Arts Education and Research Foundation (GAERF).

Administrative Support



Business Management & Administration

Career Options

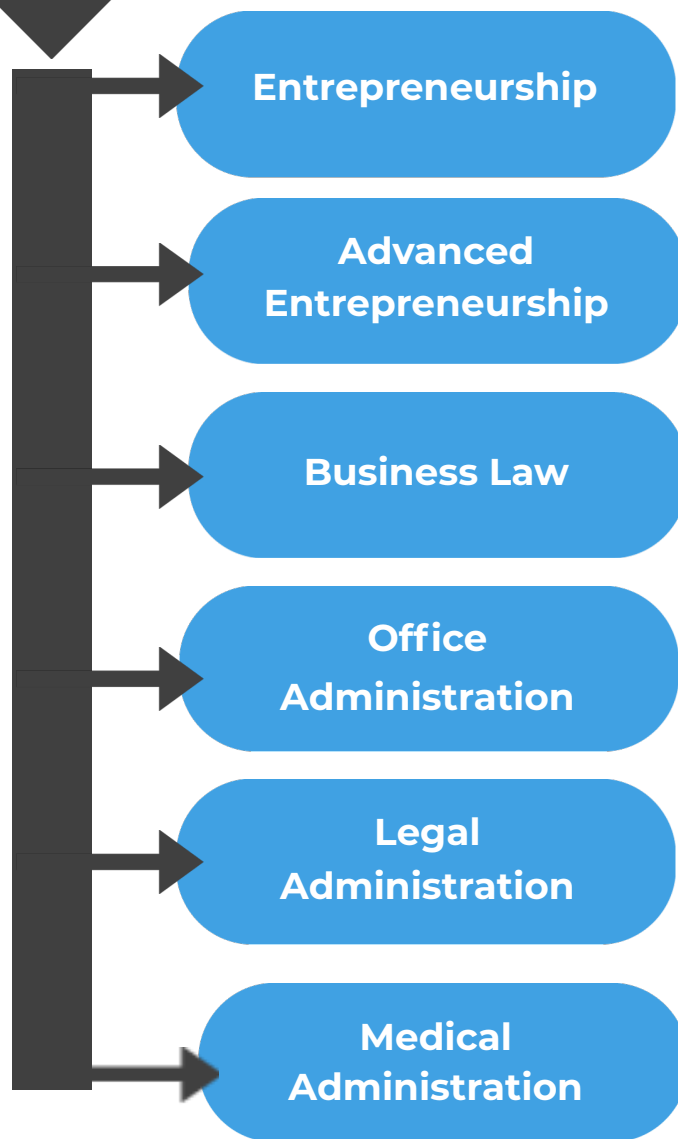
| Occupation | Median Salary | Education |
|---|---------------|-----------------------------------|
| Office Clerks | \$38,040 | High School Diploma or Equivalent |
| Bookkeeping, Accountancy, and Auditing Clerks | \$45,860 | Some College |
| Administrative Assistants | \$44,080 | High School Diploma or Equivalent |
| Court Reporter | \$63,560 | PostSecondary Nondegree Awards |
| Medical Records Specialists | \$47,180 | PostSecondary Nondegree Awards |

Occupational Outlook Handbook. (2023). U.S. Bureau of Labor Statistics. <https://www.bls.gov/ooh/>

Industry Credentials:

- Microsoft Office Specialist Exam
- Medical Administrative Assistant Certification Exam

START



Course Descriptions

Advanced Entrepreneurship

Grades 9-12, 1 Credit

This course is designed for students who wish to concentrate on advanced strategies for entrepreneurship, building upon concepts introduced in Entrepreneurship (9093). The focus of the course is on the development of a business plan and small business management. Students will establish, market, and maintain a business.

Business Law

Grades 10-12, 1 Credit

Students examine the foundations of the American legal system and learn the rights and responsibilities of citizens and businesses. Students gain knowledge and skills by exploring economic and social concepts related to laws governing business and individuals. Focus areas include contracts, consumer protection, criminal law, tort law, international law, family/domestic law, employment law, cyber law, and careers in the legal profession.

Entrepreneurship

Grades 9-12, 1 Credit

This course introduces students to the exciting world of creating, owning, and launching their own business. Students will learn concepts and techniques for planning an entrepreneurial venture, using design thinking and business model development. Students will learn about financial statements, marketing principles, sales and customer service, and basic economic principles for successful operation.

Legal Administration

Grades 9-12, 1 Credit

Students wishing to gain employment in the healthcare field may take this course to learn how to use medical terminology and apply administrative procedures necessary to be productive employees in a healthcare environment. Students will learn how to manage office activities, enhance communication and employability skills, identify legal and ethical issues in healthcare practices, and manage financial activities.

Course Descriptions *(continued)*

Office Administration

Grades 9-12, 1 Credit

Students develop and enhance skills in processing and managing information, data, and financial functions while developing and improving communication skills and other vital competencies needed for successful employment as administrative support professionals. Students examine and employ the latest technology and software used in office systems.

Medical Administration

Grades 9-12, 1 Credit

Students wishing to gain employment in the healthcare field may take this course to learn how to use medical terminology and apply administrative procedures necessary to be productive employees in a healthcare environment. Students will learn how to manage office activities, enhance communication and employability skills, identify legal and ethical issues in healthcare practices, and manage financial activities.



Education & Training

START

Child Development and Parenting

Early Childhood Education

Virginia Teachers for Tomorrow

Career Options

| Occupation | Median Salary | Education |
|---------------------------------------|---------------|-------------------------|
| Childcare Worker | \$28,580 | HS Diploma |
| PreSchool & Childcare Center Director | \$49,690 | Bachelor's Degree |
| Teacher Assistant | \$30,920 | Some College; No Degree |
| High School Teachers | \$62,360 | Bachelor's Degree |

Occupational Outlook Handbook. (2023). U.S. Bureau of Labor Statistics. <https://www.bls.gov/ooh/>

Industry Credential(s):

- Workplace Readiness Skills
- Child Development Associate Assessment

Course Descriptions

Child Development & Parenting

Grades 9-12, 1 Credit

Students enrolled in Child Development and Parenting focus on balancing work and family. Students will analyze parenting roles and responsibilities ensuring a healthy start for mother and child, evaluate support systems that provide services for parents, and evaluate parenting practices that maximize human growth and development. This course will use a combination of technology (computer, reality babies) and lecture to distribute information.

Early Childhood Education

Grades 9-12, 1 Credit

Students prepare to be primary providers of home-, family-, or institution-based childcare services by focusing on the planning, organizing, and conducting of meaningful play and learning activities; child monitoring and supervision; recordkeeping and referral procedures; and work-based learning experiences in on-site labs, local daycare centers, elementary schools, and other institutions under the supervision of the instructor. Students also prepare for continuing education leading to careers in early childhood fields (e.g., medical, social services, education).

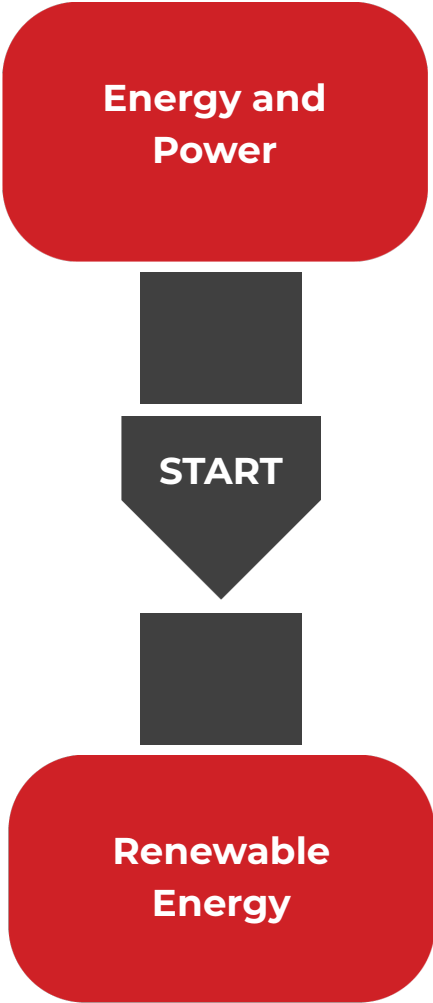
Virginia Teachers for Tomorrow

Grades 9-12, 1 Credit

Virginia Teachers for Tomorrow (VTfT) fosters student interest, understanding, and appreciation of the teaching profession and allows secondary students to explore careers in education. Students build a foundation for teaching, learn the history, structure and governance of teaching, apply professional teaching techniques in the VTfT classroom and field experience, and reflect on their teaching experiences. Additional educational leadership opportunities are offered through the student organization Educators Rising. This course will use a combination of technology, research, project creation, and lecture to distribute information. There is also the opportunity to compete in a CTSO conference.



Energy & Power



| Career Options | | |
|---------------------|---------------|-------------------|
| Occupation | Median Salary | Education |
| Civil Engineer | \$89,940 | Bachelor's Degree |
| Mechanical Engineer | \$106,260 | Bachelor's Degree |

Occupational Outlook Handbook. (2023). U.S. Bureau of Labor Statistics. <https://www.bls.gov/ooh/>

Industry Credential(s):

- Workplace Readiness Skills
- Energy Industry Fundamentals Certificate Assessment

Course Descriptions

Energy and Power

Grades 9-12, 1 Credit

In this course, students analyze energy sources and explore the generation, transmission, and distribution of electricity using the Energy Industry Fundamentals modules from the Center for Energy Workforce Development (CEWD). The course provides math, science, and technical writing skills through hands-on application. Students have an opportunity to take the Energy Industry Fundamentals Certificate Assessment.

Renewable Energy

Grades 9-12, 1 Credit

Renewable energy sources are steadily becoming more important in the global economy as nations strive to replace fossil fuels with eco-friendly power. In this course, students will explore select renewable energy technologies, gain hands-on experience in their design and function, and practice installation skills.

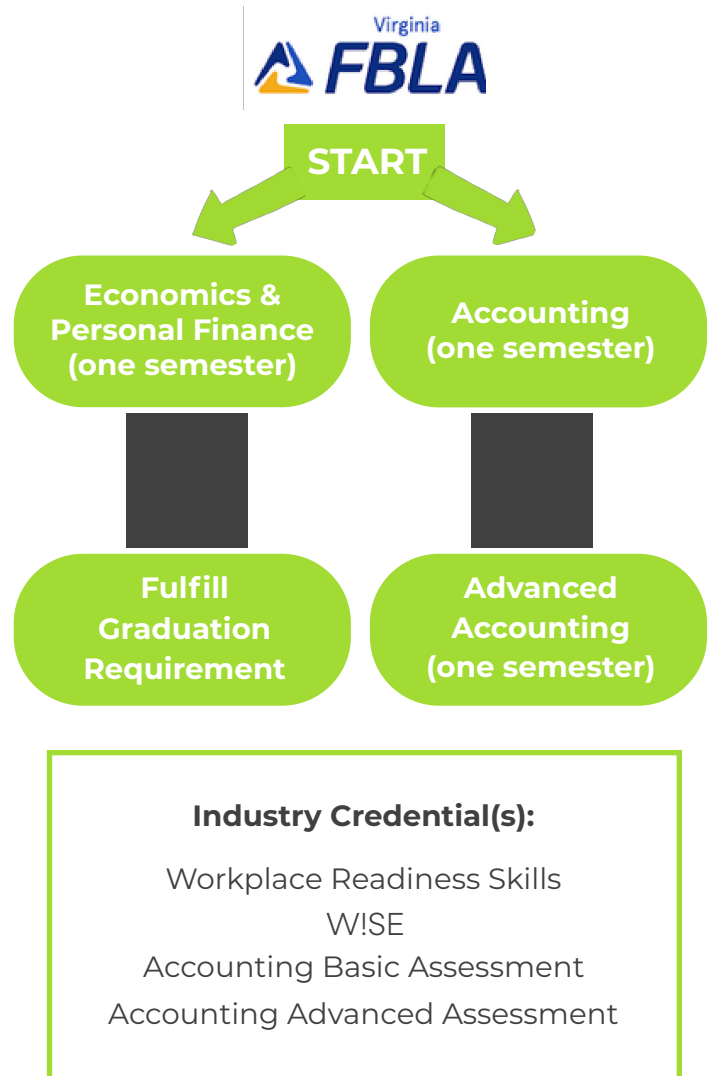
Accounting & Bank Services



Finance

| Career Options | | |
|---------------------------|---------------|---|
| Occupation | Median Salary | Education |
| Accountant / Auditor | \$78,000 | Bachelor's Degree |
| Financial Clerks Personal | \$45,570 | HS Diploma or equivalent |
| Financial Advisor | \$95,390 | Bachelor's Degree |
| Loan Officers/ Tellers | \$65,740 | Bachelor's Degree; >5 years of experience |
| Financial Managers | \$139,790 | Bachelor's Degree required; 5+ years experience |
| Bill & Account Collector | \$39,470 | HS Diploma or equivalent required |

Occupational Outlook Handbook. (2023). U.S. Bureau of Labor Statistics. <https://www.bls.gov/ooh/>



Course Descriptions

Accounting

Grades 9-12, 1 Credit

Accounting students study the basic principles, concepts, and practices of the accounting cycle for a service business and a merchandising business. Topics covered include analyzing transactions, journalizing and posting entries, preparing payroll records and financial statements, and managing cash control systems. Business ethics and professional conduct are emphasized. Students learn fundamental accounting procedures. Graduation Requirements: This is an elective course and does not fulfill the requirements of a standard credit course

Advanced Accounting

Grades 9-12, 1 Credit

Advanced Accounting students gain knowledge of advanced accounting principles, procedures, and techniques used to solve business problems and make financial decisions. Students work in a technology-integrated environment, using accounting and spreadsheet software to analyze, synthesize, evaluate, and interpret business financial data related to inventory, fixed assets, notes/accounts payable and receivable, implementation of a partnership and a corporation, and other specialized accounting systems. Using authentic workplace scenarios that reflect current industry trends and standards, students analyze financial data and acquire knowledge of business ethics

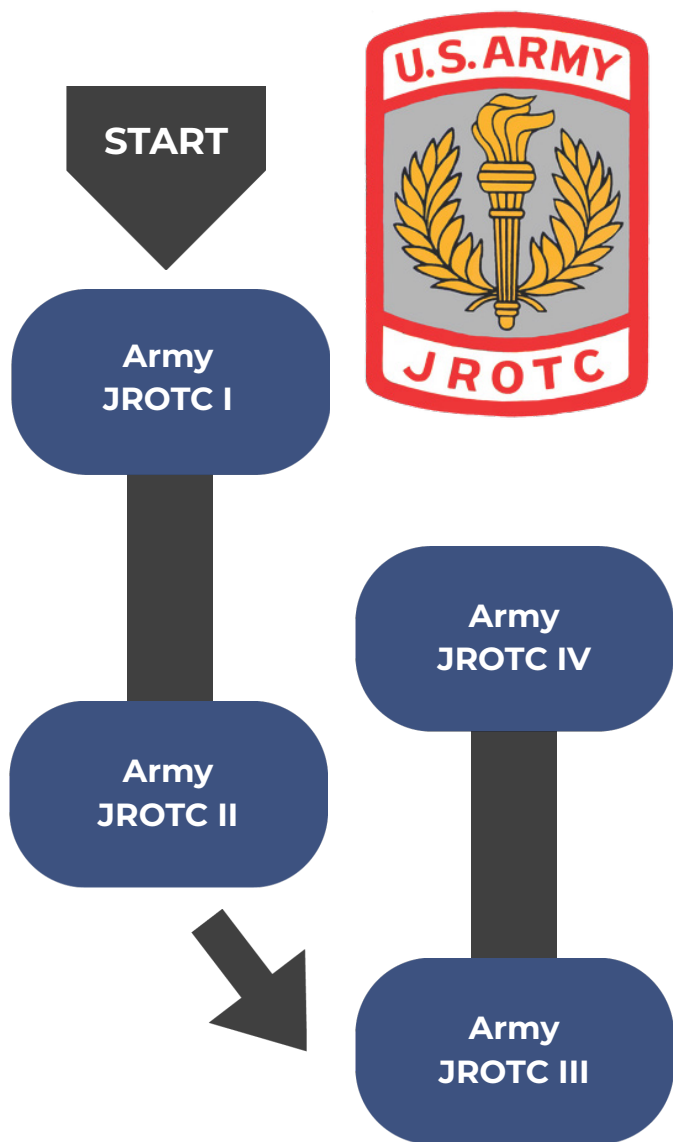
Economics and Personal Finance

Grades 9-12, 1 Credit

Students learn how economies and markets operate and how the United States economy is interconnected with the global economy. Additionally, they learn how to navigate the financial decisions they must face and to make informed decisions relating to career exploration, budgeting, banking, credit, insurance, spending, financing postsecondary education, taxes, saving and investing, buying/leasing a vehicle, and living independently. They also learn the importance of investing in themselves in order to gain the knowledge and skills valued in the marketplace. Development of financial literacy skills and an understanding of economic principles will provide the basis for responsible citizenship, more effective participation in the workforce, and career success. The course incorporates all economics and financial literacy objectives included in the Code of Virginia §22.1-200-03B. Graduation Requirements: This course is required to fulfill Economics & Personal Finance credit and meets graduation requirements for online course.



Government & Public Administration



| Career Options | | |
|-----------------------------|---------------|----------------|
| Occupation | Median Salary | Education |
| E3 Private First Class Army | \$52,127 | HS Diploma |
| 2LT Second Lieutenant Army | \$67,499 | College Degree |

Occupational Outlook Handbook. (2023). U.S. Bureau of Labor Statistics. <https://www.bls.gov/ooh/>

Industry Credential(s):

- JROTC Leadership and Employability
- Skills Assessment
- Armed Services Vocational Aptitude
- Battery Examination
- NOCTI

Course Descriptions

Army JROTC I

Grades 9-12, 1 Credit

This course introduces students to the foundations of the Army JROTC program, the rights and responsibilities of U.S. citizenship, the principle components of leadership, and the foundational elements needed for academic and career success. Additionally, students receive instruction in U.S. and military history, discipline, personal wellness, physical fitness, career education, and workplace readiness skills. Military customs and courtesies, proper uniform wear, and personal appearance guidelines are established and reinforced in the classroom, drill, and military ceremonies.

Army JROTC II

Grades 9-12, 1 Credit

This course continues to provide students instruction in the Army JROTC program and the rights and responsibilities of U.S. citizenship. Students continue to learn leadership skills, U.S. and military history, the origins and development of the U.S. government, discipline, personal wellness, physical fitness, first aid, map skills, career education, and workplace readiness skills. Military customs and courtesies, proper uniform wear, and personal appearance guidelines are emphasized within the leadership lab, drill, and military ceremonies.

Army JROTC III

Grades 9-12, 1 Credit

Students are instructed in the Army JROTC curriculum, where U.S. citizenship rights and responsibilities are reinforced. This course continues to provide students instruction in the Army JROTC program, reinforcing U.S. citizenship rights and responsibilities. Students continue instruction in leadership, military history, discipline, physical fitness, career education, financial planning, personal development, and workplace readiness skills. Military customs and courtesies, proper uniform wear, and personal appearance guidelines are required in the leadership lab, drill, and military ceremonies.

Army JROTC IV

Grades 9-12, 1 Credit

Students continue instruction in the Army JROTC program, consisting of U.S. citizenship rights and responsibilities, leadership, military history, discipline, citizenship, physical fitness, career education, and workplace readiness skills. Students receive additional instruction in military customs and courtesies, proper uniform wear, and personal appearance guidelines. Adherence to the guidelines is required in leadership lab, drill, and military ceremonies.

Therapeutic, Emergency & Fire Services



Health Science

Career Options

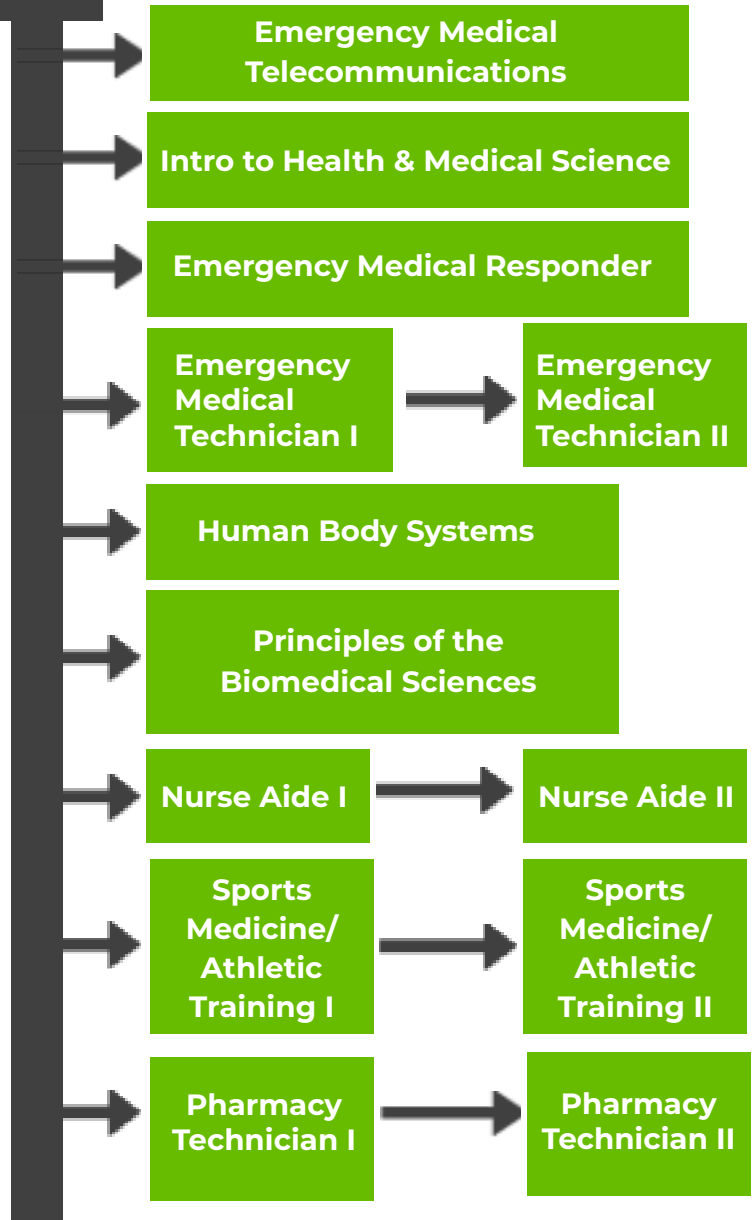
| Occupation | Median Salary | Education |
|--------------------------------|---------------|---|
| Emergency Medical Technician | \$36,930 | High School Diploma, Vocational School-EMT courses, Pass NREMT exam |
| Paramedic | \$46,770 | Associates or Bachelor's Degree |
| Certified Nurse Aide (CNA) | \$30,290 | State-Approved Education Program; Pass state competency exam |
| Home Health Aide | \$29,430 | High School Diploma |
| Occupational Therapist Aide | \$33,560 | High School Diploma |
| Athletic Trainer | \$48,420 | Master's Degree |
| Physical Therapist | \$95,620 | Doctoral Degree or Higher |
| Registered Nurse | \$77,600 | Bachelor's Degree |
| Public Safety Telecommunicator | \$46,900 | HS Diploma or Equivalent |
| Dispatcher | \$46,670 | High School Diploma |

Occupational Outlook Handbook. (2023). U.S. Bureau of Labor Statistics. <https://www.bls.gov/ooh/>

Industry Credential:

- Workplace Readiness Skills
- Emergency Medical Responder Exam 8336
- Emergency Medical Technician Exam 8334
- Project Lead the Way EOC Assessment:
 - Human Body Systems
- Certified Pharmacy Technician (CPht) Examination
- Emergency Medical Telecommunicator Exam 8337

START



Course Descriptions

Emergency Medical Responder

Grades 9-12, 1 Credit

The Emergency Medical Responder (EMR) course prepares the EMR student to provide immediate lifesaving interventions for patients of all ages while awaiting additional emergency medical services (EMS) resources. Areas of study include an introduction to EMS systems, roles and responsibilities of the EMR, anatomy and physiology, medical emergencies, trauma, and special considerations for working in the pre-hospital setting. Students must complete a minimum of 85 percent of the didactic and lab aspects of the course, per 12VAC5-31-1501 in the Code of Virginia. Successful completion of all course requirements and instructor endorsement may lead to eligibility to take the Virginia State Psychomotor Exam and the National Registry of Emergency Medical Technicians (NREMT) EMR cognitive exam. Students must meet the requirements of the Functional Position Description for the Basic Life Support Provider (refer to EMS.TR.14B and 12VAC5-31-1501 in the Code of Virginia). NOTE: Students must be 16 years old or older to take this course. All students will need to undergo a criminal background check that includes fingerprinting and drug screening

Emergency Medical Technician I & II

Grades 9-12, 1 Credit

The tasks for this course represent the National and Virginia Emergency Medical Services (EMS) Educational Standards. Students explore and apply the fundamentals of EMS, anatomy, physiology, and medical terminology while demonstrating skills in assessing and managing patient care, including assessing the scene and understanding shock, resuscitation, and trauma. Successful completion of this course and instructor endorsement qualifies students to enroll in EMT II to complete the program sequence. Students must complete a minimum of 85 percent of the didactic and lab aspects of the course, per 12VAC5-31-1501 in the Code of Virginia. Successful completion of all course requirements and instructor endorsement may lead to eligibility to take the Virginia State Psychomotor Exam and the National Registry of Emergency Medical Technicians (NREMT) cognitive exam. Students must meet the requirements of the Functional Position Description for the Basic Life Support Provider (refer to EMS.TR.14B and 12VAC5-31-1501 in the Code of Virginia). NOTE: Students must be at least 16 years old prior to the first day of EMT instruction. All students will need to undergo a criminal background check that includes fingerprinting and drug screening.

Emergency Medical Telecommunications

Grades 9-12, 1 Credit

Emergency Medical Telecommunications is designed to provide the beginning telecommunicator with an understanding of situations encountered in an emergency communications environment. The student will be able to summarize issues involving the telecommunicator's role and responsibilities as a member of the health and public safety environment. The student will also be able to summarize issues involving resources available to a telecommunicator, the importance of maintaining confidentiality, and liability and legal issues involving emergency telecommunicators and their agencies. The student will be able to describe the process of stress management, inside and outside a communications department/center. The student will develop the entry-level skills needed in a telecommunications environment for rescue, fire, and police

Course Descriptions *(continued)*

Human Body Systems

Grades 9-12, 1 Credit

In this specialization course for Project Lead the Way (PLTW), students explore the human body systems of communication, power, and movement. To do this, students are taught the body's components, tissues, molecules, and cells, as well as concepts of homeostasis and body system defenses.

Introduction to Health and Medical Sciences

Grades 9-12, 1 Credit

This course introduces the student to a variety of healthcare careers and develops basic skills required in all health and medical sciences. It is designed to help students understand the key elements of the U.S. healthcare system and to learn basic healthcare terminology, anatomy and physiology for each body system, pathologies, diagnostic and clinical procedures, therapeutic interventions, and the fundamentals of traumatic and medical emergency care. Throughout the course, instruction emphasizes safety, cleanliness, asepsis, professionalism, accountability, and efficiency within the healthcare environment. Students also begin gaining job-seeking skills for entry into the health and medical sciences field.

Nurse Aide I & II

Grades 9-12, 1 Credit

Nurse Aide I, offered as an occupational preparation course beginning at the 11th-grade level, is regulated under the Virginia Board of Nursing. It emphasizes the study of nursing occupations as related to the healthcare system. Students study growth and development across the lifespan, simple body structure and function, and medical terminology. They are introduced to concepts of infection prevention and disease processes. Students receive entry-level skill training in patient & nurse aide relationships, measuring and recording of vital signs, cardiopulmonary resuscitation, and general patient care. Work-based learning may be offered as part of this course. The Nurse Aide I course introduces students to careers in nursing, health professions, and STEM-H professions. Students must maintain American Heart Association's Cardiopulmonary Resuscitation (CPR) & Emergency Cardiovascular Care (ECC) training during this course. The program must be completed in entirety to include both classroom and clinical portions of the program. Further, pursuant to regulation (18VAC90-263-50 (C)(3)), clinical must include a minimum of 40 hours of direct client care and only 5 of those hours are permitted to be in a setting other than geriatric long term care.

Nurse Aide II is an occupational preparation course, emphasizing advanced skill training in areas such as catheter care, range of motion, bowel and bladder training, care of the dying, selected procedures for maternal and infant care, and admission and discharge procedures. Students learn diseases and body systems as related to advanced clinical care of the acute medical surgical patient, the chronically ill, and the elderly. On-the-job instruction in a licensed nursing home is part of the course. Upon completion of the nurse aide program, the student is eligible to take the nurse aide certification exam that leads to employment as a certified nurse aide in hospitals and nursing homes.

Course Descriptions *(continued)*

Pharmacy Technician I & II

Grades 9-12, 1 Credit

This certificate program is designed to provide students with the basic skills and knowledge to begin work as a pharmacy technician. The coursework will fulfill the requirements of the Virginia Board of Pharmacy and prepare students to take the national examinations, the Certified Pharmacy Technician (CPhT) Examination from the Pharmacy Technician Certification Board (PTCB) or the Examination for Certification of Pharmacy Technicians (ExCPT) from the National Healthcareer Association (NHA). Trained, experienced pharmacy technicians, who can demonstrate the right skills and knowledge, have many exciting and respected career options and are well-positioned to pursue postsecondary study in the pharmacy field. Pharmacy Technician I is a prerequisite for Pharmacy Technician II.

Principles of the Biomedical Sciences

Grades 9-12, 1 Credit

In this specialization course for Project Lead the Way (PLTW), students are taught concepts of forensic inquiry, DNA and inheritance, and the function of human body systems, exploring the body through diseases, such as those leading to diabetes and heart, sickle cell, and infectious diseases. Students also explore medical interventions, postmortem examination, bioprocessing, bioinformatics, and concepts of microbiology and genetic engineering.

Sports Medicine/Athletic Training I

Grades 9-12, 1 Credit

In this course, students earn a certification in First Aid/CPR/AED. The course introduces students to topics such as human anatomy and physiology, nutrition, biomechanics, medical terminology, injuries and illnesses, and legal and ethical issues in sports medicine. Students also examine prospective careers in the sports medicine field. Upon successful completion of this course, students are eligible to take Sports Medicine II and pursue certification as a personal trainer.

Sports Medicine/Athletic Training II

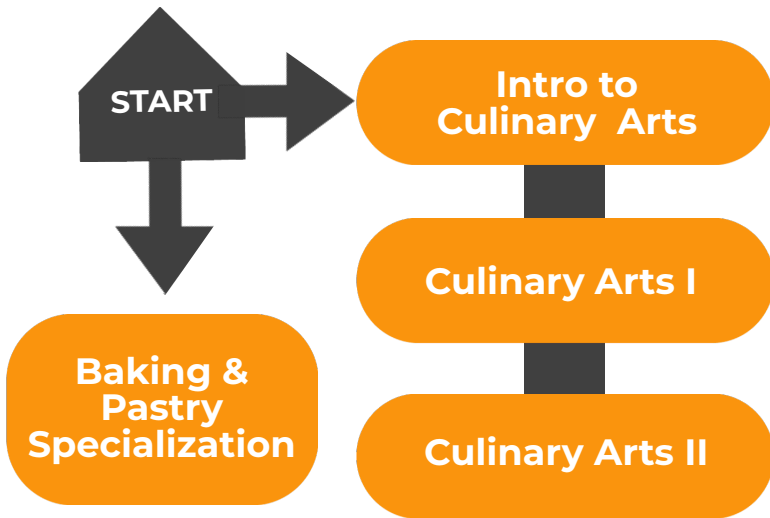
Grades 9-12, 1 Credit

Upon successful completion of this course, students will be eligible to take the National Academy of Sports Medicine Certified Personal Trainer (NASM-CPT) exam. This course builds upon basic knowledge acquired in Sports Medicine I on topics such as exercise physiology, biomechanics, exercise program design, and injury prevention, assessment, treatment, and management. Students prepare for a career in sports medicine, including completing an internship.

Restaurant, Food & Beverage Service



Hospitality & Tourism



Career Options

| Occupation | Median Salary | Education |
|--------------------|---------------|------------|
| Chefs & Head Cooks | \$50,160 | HS Diploma |
| Bakers | \$29,750 | HS Diploma |

Occupational Outlook Handbook. (2023). U.S. Bureau of Labor Statistics. <https://www.bls.gov/ooh/>

Industry Credential(s):

Workplace Readiness Skills

Pro Start Certification of Achievement Examination

Servsafe Food Protection Manager Certification



Course Descriptions

Baking and Pastry Specialization

Grades 9-12, 1 Credit

The Culinary Arts Specialization course provides students with skills and knowledge to pursue careers in the food service industry. In a hands-on environment, students apply nutritional principles, plan menus, use business and mathematics skills, select and maintain food service equipment, and adhere to safety and sanitation standards. The curriculum continues to place a strong emphasis on science and mathematics knowledge and skills, critical thinking, practical problem-solving, and entrepreneurial opportunities within the field of culinary arts.

Culinary Arts I

Grades 9-12, 1 Credit

Culinary Arts I provides students with a foundational understanding of the food service industry and opportunities to build technical skills in food preparation and service. Students examine basic rules of kitchen safety and sanitation, of purchasing and receiving, and of fundamental nutrition. The curriculum incorporates math and science in culinary applications.

Culinary Arts II

Grades 9-12, 1 Credit

Culinary Arts II students continue to acquire a comprehensive knowledge of the food service industry while refining their technical skills. Students apply kitchen safety and sanitation, nutritional principles, and advanced food-preparation techniques. Students complete work-based learning in venues such as the à la carte kitchen, the dining room, and catered functions. This course will use a combination of technology and lecture to distribute information.

Introduction to Culinary

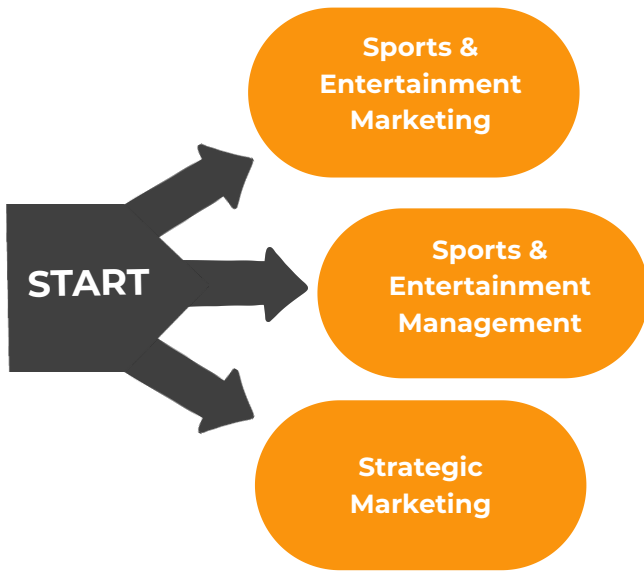
Grades 9-12, 1 Credit

Introduction to Culinary Arts students investigate food safety and sanitation, culinary preparation foundations, basic culinary skills, diverse cuisines, service styles, nutrition and menu development, and the economics of food. Students also explore postsecondary education options and career opportunities within the food service industry. This course will use a combination of technology and lecture to distribute information.

Recreation Amusements & Attractions



Hospitality & Tourism



Career Options

| Occupation | Median Salary | Education |
|--|---------------|-------------------|
| Advertising, Promotions, & Marketing Manager | \$138,730 | Bachelor's Degree |
| Athletic Trainer | \$53,840 | Master's Degree |
| Coaches and Scouts | \$44,890 | Bachelor's Degree |
| Entertainment & Recreation Managers | \$67,220 | Bachelor's Degree |
| Meeting, Convention, & Event Planner | \$52,560 | Bachelor's Degree |

Occupational Outlook Handbook. (2023). U.S. Bureau of Labor Statistics. <https://www.bls.gov/ooh/>

Course Descriptions

Sports & Entertainment Management

Grades 10-12, 1 Credit

Students will build on prior knowledge of sports and entertainment marketing. This course focuses on the principles of management and planning supported by research and by financial, economic, ethical, and legal concepts. Students will be able to plan and execute an event, establish a sports, entertainment, or recreation marketing product/business, and develop a career plan.

Sports & Entertainment Marketing

Grades 10-12, 1 Credit

This course helps students develop a thorough understanding of fundamental marketing concepts and theories as they relate to the sports and entertainment industries. Students will investigate the components of customer service, branding, product development, pricing and distribution, business structures, sales processes, digital media, sponsorships and endorsements, as well as promotion needed for sports and entertainment events. The course explores career options and develops workplace readiness skills.

Strategic Marketing

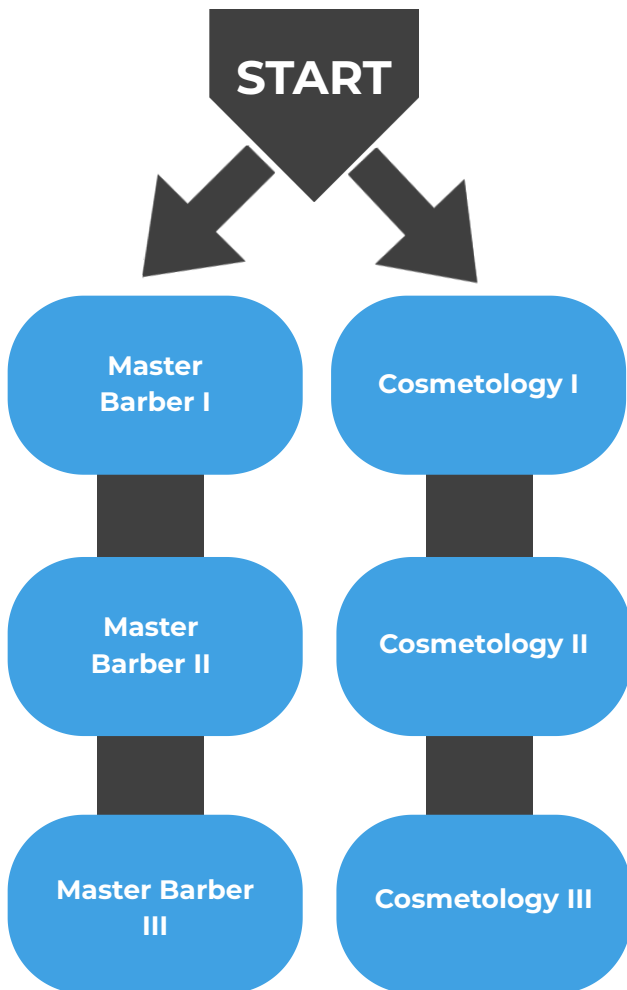
Grades 10-12, 1 Credit

Students build on knowledge gained in a prior Marketing course. Students participate in supervisory and management activities focusing on the marketing mix, purchasing, financing, human resources, global marketing, pricing, and emerging technologies. Students will prepare for advancement in marketing careers and postsecondary education. Computer/technology applications and DECA activities enhance the course. DECA, the co-curricular student organization, offers opportunities in leadership, community, and competitive events.

Recreation Amusements & Attractions



Human Services



Career Options

| Occupation | Median Salary | Education |
|---|---------------|-------------------------------|
| Barbers, Hairstylists, & Cosmetologists | \$33,400 | Postsecondary Nondegree Award |
| Manicurists & Pedicurists | \$31,130 | Postsecondary Nondegree Award |
| Skincare Specialists | \$38,060 | Postsecondary Nondegree Award |

Occupational Outlook Handbook. (2023). U.S. Bureau of Labor Statistics. <https://www.bls.gov/ooh/>

Industry Credential(s):

Barbers and Cosmetology Examinations:
Virginia Board of Barbers and Cosmetology
(Department of Professional & Occupational Regulation)

Course Descriptions

Cosmetology I

Grades 9-12, 1 Credit

In this introductory course, students study hair, skin, nails and their related care. Students are grounded in theory as they prepare to practice procedures in a clinical lab setting or classroom, using mannequins for manipulative skill practice. The first-year course emphasizes personal safety, professionalism, and sanitation and disinfection of equipment and facilities. Students develop skills in shampooing and conditioning hair, as well as styling and cutting hair. They are introduced to hair coloring and chemical texture services and develop skills in manicure and pedicure procedures. Cosmetology students must satisfy a minimum of 840 hours of instruction in a three-year coherent sequence of courses to be eligible to take the Board for Barbers and Cosmetology licensing examination. Upon successful completion of the program, students may earn the Virginia Board for Barbers and Cosmetology license.

Cosmetology II

Grades 9-12, 1 Credit

In this continuing course, students build on their theoretical foundation of general sciences and practices in cosmetology to increase proficiency in hair cutting and styling on live models, with attention to professionalism, client consultation, safety, and infection control. Students are trained in safe chemical processes related to permanent waves, relaxers, lightening, and coloring hair. In addition, students learn to care for skin, hands, and feet, developing experience in providing facials, manicures, pedicures, and nail enhancements. Students will be introduced to a business management unit with a focus on managing the salon. Cosmetology students must satisfy a minimum of 840 hours of instruction in a three-year coherent sequence of courses to be eligible to take the Board for Barbers and Cosmetology licensing examination. Upon successful completion of the program, students may earn the Virginia Board for Barbers and Cosmetology license.

Cosmetology III

Grades 9-12, 1 Credit

In this advanced course, students build on their theoretical foundation of general sciences and practices in cosmetology to increase proficiency in hair cutting and styling on live models, with attention to professionalism, client consultation, safety, and infection control. Students are trained in safe chemical processes related to chemical texture services and advanced hair coloring techniques. They also develop artistic skills with wigs and hair additions. In addition, students learn to care for skin, hands, and feet, developing experience in providing facials, manicures, pedicures, and nail enhancements. An advanced business management unit focuses on managing the salon. Competency completion prepares the student for the Virginia State Licensing Exam. Cosmetology students must satisfy a minimum of 840 hours of instruction in a two- or three-year coherent sequence of courses to be eligible to take the Board for Barbers and Cosmetology licensing examination. Upon successful completion of the program, students may earn the Virginia Board for Barbers and Cosmetology license.

Course Descriptions

Master Barber I

Grades 9-12, 1 Credit

This introductory course is designed for students pursuing a career as a master barber. Students will demonstrate knowledge and skills in a clinical lab setting, using mannequins and live models for manipulative practice. The program emphasizes personal safety, professionalism, scalp and hair care, hair cutting, styling, lightening and coloring, shaving, and barbershop management. Barbering students must satisfy a minimum of 840 hours of instruction in a two- or three-year coherent sequence of courses to be eligible to take the Board for Barbers and Cosmetology licensing examination. Upon successful completion of the program, students may earn the Virginia Board for Barbers and Cosmetology license.

Master Barber II

Grades 9-12, 1 Credit

This course is designed to build on the knowledge and skills from Master Barbering I. Students will apply their knowledge skills in a clinical lab setting, using mannequins and live models for manipulative practice. The program emphasizes skills in the areas of safety, professionalism, hair cutting, styling, shaving, barbershop management, and chemical service procedures. Barbering students must satisfy a minimum of 840 hours of instruction in a two- or three-year coherent sequence of courses to be eligible to take the Board for Barbers and Cosmetology licensing examination. Upon successful completion of the program, students may earn the Virginia Board for Barbers and Cosmetology license.

Master Barber III

Grades 9-12, 1 Credit

In this advanced course, students build on their theoretical foundation of general sciences and practices in barbering to increase proficiency in hair cutting and styling on live models, with attention to professionalism, client consultation, safety, and infection control. Students are trained in safe chemical processes related to chemical texture services and advanced hair coloring techniques. They also develop artistic skills with wigs and hair additions. An advanced business management unit focuses on creating a barbershop business plan prepares the student for the Virginia state licensing exam.. Barbering students must satisfy a minimum of 840 hours of instruction in a two- or three-year coherent sequence of courses to be eligible to take the Board for Barbers and Cosmetology licensing examination. Upon successful completion of the program, students may earn the Virginia Board for Barbers and Cosmetology license.

Information Support & Services

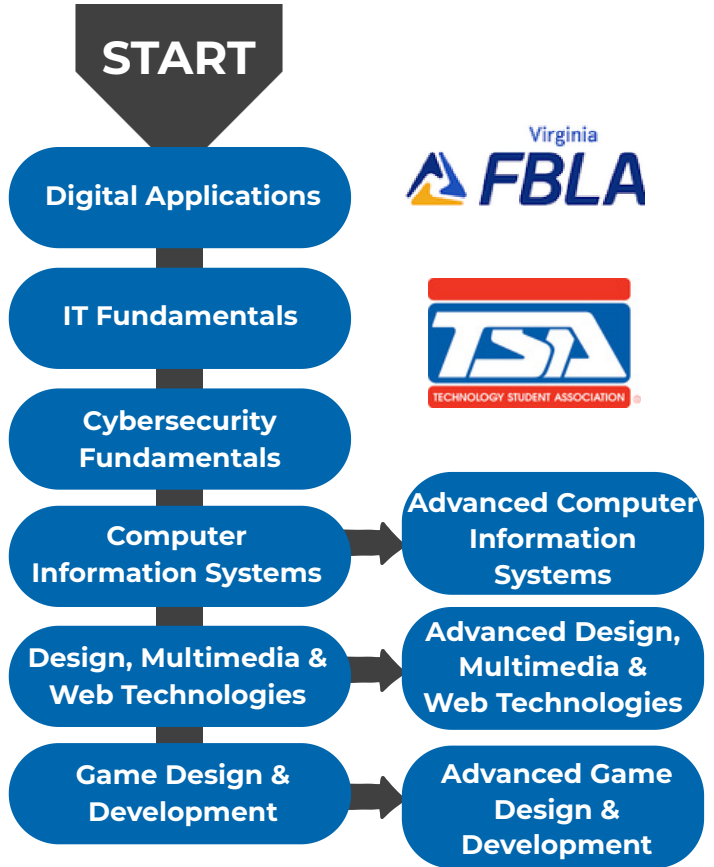


Information Technology

Career Options

| Occupation | Median Salary | Education |
|--------------------------------------|---------------|--------------------------|
| Computer Support Specialist | \$59,660 | Computer Knowledge |
| Instructional Coordinators | \$66,490 | Master's Degree |
| Information Security Analyst | \$112,000 | Bachelor's Degree |
| Customer Service Representatives | \$37,780 | HS Diploma or Equivalent |
| Database Administrators & Architects | \$112,120 | Bachelor's Degree |
| Computer Systems Analyst | \$102,240 | Bachelor's Degree |

START



Occupational Outlook Handbook. (2023). U.S. Bureau of Labor Statistics. <https://www.bls.gov/ooh/>

Industry Credential(s):

Workplace Readiness Skills
 Microsoft Office Specialist
 Examination (MOS) Artist

Certification Programmer
 Certification VR Developer
 Certification

Course Descriptions

Advanced Computer Information Systems

Grades 10-12, 1 Credit

Students apply problem-solving skills to real-life situations through advanced integrated software applications, including printed, electronic, and web publications. Students work individually and in groups to explore advanced computer maintenance activities, website development, programming, networking, emerging technology, and employability skills.

Advanced Cybersecurity Systems Technology

Grades 10-12, 1 Credit

This advanced course provides students with training in procedures for optimizing and troubleshooting concepts for computer systems, subsystems, and networks. Students explore the following: Basic network design and connectivity, Network documentation, Network limitations and weaknesses, and Network security, standards, and protocols. Students will gain a basic understanding of emerging technologies including unified communications, mobile, cloud, and virtualization technologies. The course prepares students for postsecondary education and training and a successful career in information technology. Upon successful completion of the course, students may qualify to take CompTIA's A+ and Network+ certification exams.

Advanced Design, Multimedia & Web Technologies

Grades 10-12, 1 Credit

In this course, students acquire advanced skills in design, multimedia, and web development by applying project management principles to create professional quality digital media projects. Work-based learning experiences allow students to apply layout and design techniques in real world situations. Students create portfolios that include a résumé, certifications earned, and a variety of print, multimedia, and website projects produced in the course.

Advanced Game Design & Development

Grades 10-12, 1 Credit

This project-based course enhances problem solving, project management, and communication skills through the analysis, design, construction, and critique of interactive games. Students will learn about career opportunities in game design and development and investigate the training and certification requirements. Contextual instruction and student participation in co-curricular career and technical student organization (CTSO) activities will develop leadership, interpersonal, and career skills. High-quality work-based learning (HQWBL) will provide experiential learning opportunities related to students' career goals and/or interests, integrated with instruction, and performed in partnership with local businesses and organizations.

Computer Information Systems

Grades 9-12, 1 Credit

Students apply problem-solving skills to real-life situations through word processing, spreadsheets, databases, multimedia presentations, and integrated software activities. Students work individually and in groups to explore computer concepts, operating systems, networks, telecommunications, emerging technologies, and career opportunities related to the information technology field.

Course Descriptions

Cybersecurity Fundamentals

Grades 9-12, 1 Credit

This course focuses on the evolving and pervasive technological environment with an emphasis on securing personal, organizational, and national information. Students will be introduced to the principles of cybersecurity, explore emerging technologies, examine threats and protective measures, and investigate the diverse high-skill, high-wage, and high-demand career opportunities in the field of cybersecurity. Students will have the opportunity to prepare for success on related industry certifications aligned to the course content.

Cybersecurity Systems Technology

Grades 9-12, 1 Credit

Students enter the world of computer networking and learn to troubleshoot networks and networking devices, using system tools and diagnostic software. They develop skills in computer networking, resource sharing, and associated security risks. In addition, students explore the relationships between internal and external computer components. Contextual instruction and student participation in co-curricular career and technical student organization (CTSO) activities and high-quality work-based learning (HQWBL) will develop leadership skills and interests.

Design, Multimedia, & Web Technologies

Grades 9-12, 1 Credit

Students apply creativity and technology to create visual design, multimedia projects, and web projects, using industry-standard software. Work-based learning experiences allow students to apply layout and design techniques in real-world situations. Students create portfolios that include a résumé, certifications earned, and a variety of projects produced in the course.

Digital Applications

Grades 9-12, 1 Credit

This course is designed for secondary school students to develop real-life, outcome-driven approach skills for digital citizenship, basic computer operations, keyboarding, application software (word processing, spreadsheets, multimedia applications, databases), and career exploration. This course promotes skills that can be applied across the curriculum and offers preparation relevant to 21st century skills and post-secondary education. Students who successfully complete this course may be eligible for a rigorous and relevant industry certification examination.

Game Design & Development

Grades 9-12, 1 Credit

In this project-based course, students will create innovative games through the application of graphic design, animation, audio, and writing skills. Students will work in teams while developing problem-solving, critical thinking, and effective communication skills. They will analyze, design, prototype, and critique interactive games within a project management environment. Contextual instruction and student participation in co-curricular career and technical student organization (CTSO) activities and high-quality work-based learning (HQWBL) opportunities will develop leadership skills and interests.

Information Technology Fundamentals

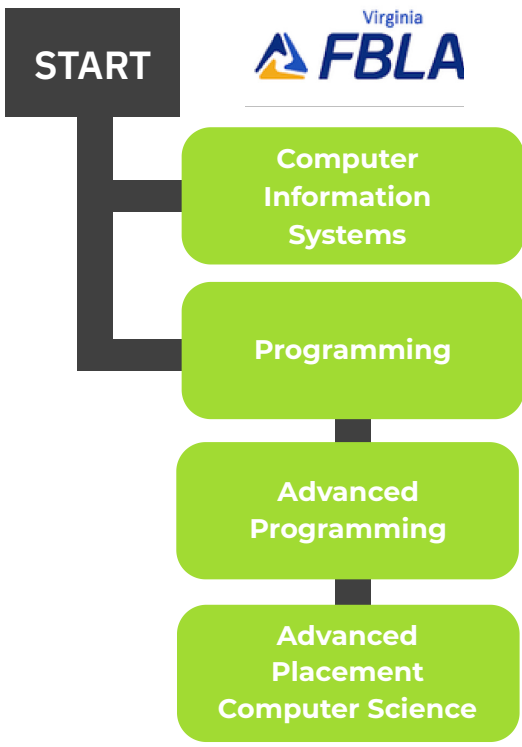
Grades 9-12, 1 Credit

Information Technology Fundamentals introduces the essential technical and professional skills required for students to pursue programs leading to professional careers and information technology certifications. The course introduces skills related to digital technology, digital applications, maintenance/upgrading/troubleshooting, and networking fundamentals. Students also explore ethical issues related to computers and Internet technology and examine web page and game design.

Programming & Software Development



Information Technology



| Career Options | | |
|---|---------------|-------------------|
| Occupation | Median Salary | Education |
| Software Developers | \$124,200 | Bachelor's Degree |
| Computer Hardware Engineers | \$132,360 | Bachelor's Degree |
| Computer Information and Research Scientist | \$136,620 | Bachelor's Degree |
| Computer Programmers | \$97,800 | Bachelor's Degree |
| Web Developers | \$80,730 | Bachelor's Degree |

Industry Credential(s):

Workplace Readiness Skills
 Microsoft Office Specialist
 Examination (MOS)

Occupational Outlook Handbook. (2023). U.S. Bureau of Labor Statistics. <https://www.bls.gov/ooh/>

Course Descriptions

Advanced Placement Computer Science

Grades 9-12, 1 Credit

Course content corresponds to the syllabus of the College Board Advanced Placement program. The goals of the course are application and teaching of concepts around the following: design, implement, and analyze solutions to problems; use and implement commonly used algorithms; use standard data structures; develop and select appropriate algorithms and data structures to solve new problems; write solutions fluently in an object-oriented paradigm; write, run, test, and debug solutions in the Java programming language, utilizing standard Java library classes and interfaces from the AP Java subset; read and understand programs consisting of several classes and interacting objects; read and understand a description of the design and development process leading to such a program; understand the ethical and social implications of computer use. College credit is given at the discretion of the institution accepting the student and is based on the student's score on the AP Exam. Students enrolled are expected to take the AP Exam.

Advanced Programming

Grades 9-12, 1 Credit

Building on their foundation of programming skills, Advanced Programming students use object-oriented programming to develop database applications, interactive multimedia applications including game applications, mobile applications, and web applications. Students continue to develop their employability skills as they research pathways for continuing education and careers in the information technology industry and engage in various career-building activities.

Computer Information Systems

Grades 9-12, 1 Credit

Students apply problem-solving skills to real-life situations through word processing, spreadsheets, databases, multimedia presentations, and integrated software activities. Students work individually and in groups to explore computer concepts, operating systems, networks, telecommunications, emerging technologies, and career opportunities related to the information technology field.

Programming

Grades 9-12, 1 Credit

Students in the Programming course explore programming concepts, use algorithmic procedures, implement programming procedures with one or more standard languages, and master programming fundamentals. Coding is used throughout the course. Graphical user interfaces may be used as students design and develop interactive multimedia applications, including game programs. In addition, students employ hypertext markup language (HTML) or JavaScript to create web pages. Students develop their employability skills through a variety of activities.

Corrections Services



Law, Public Safety, Corrections & Security

START

Criminal Justice I

Criminal Justice II

Career Options

| Occupation | Median Salary | Education |
|---|-----------------|---------------------------------|
| Correctional Officers & Bailiffs | \$49,610 | HS Diploma or Equivalent |

Occupational Outlook Handbook. (2023). U.S. Bureau of Labor Statistics. <https://www.bls.gov/ooh/>

Industry Credential(s):

Criminal Justice Assessment (NOCTI)



Course Descriptions

Criminal Justice I

Grades 9-12, 1 Credit

Students are introduced to law, public safety, corrections, and security practices. Students examine contemporary issues in the criminal justice system and explore crime scene investigation, criminal investigation, court procedures, policing, and juvenile justice. This course provides a foundation for careers as lawyers, as forensics specialists, and as law enforcement and corrections officers.

Criminal Justice II

Grades 9-12, 1 Credit

Students apply knowledge learned in Criminal Justice I through practical scenarios involving crime scene investigation, criminal investigation, and crisis intervention. Students explore trends in correctional standards and in identifying and preventing terror threats. This course prepares students for careers as lawyers, forensics specialists, and law enforcement and corrections officers.



Manufacturing

START

Welding I

Welding II

Career Options

| Occupation | Median Salary | Education |
|---|-----------------|---------------------------------|
| Welders, Cutters, Solderers, & Brazers | \$47,540 | HS Diploma or Equivalent |

Occupational Outlook Handbook. (2023). U.S. Bureau of Labor Statistics. <https://www.bls.gov/oo/>

Industry Credentials:

Industry Craft Skills

National Construction Career Test: National Center for Construction Education & Research (NCCER)

Course Descriptions

Welding I

Grades 9-12, 1 Credit

Welding is required by a wide variety of industries anywhere fusible materials and high heat are needed to manufacture, repair, or alter tools and products. Students in Welding I are taught to use manual welding, cutting, and electrical arc welding processes to fabricate and join metal parts according to diagrams, blueprints, and specifications. Students will also learn all safety-related practices and techniques, including earning the OSHA 10 card.

Welding II

Grades 9-12, 1 Credit

This course teaches advanced welding students how to fine-tune their craft and to perform welds in various positions, using multiple welding processes. Welding is required by a wide variety of industries anywhere fusible materials and high heat are needed to manufacture, repair, or alter products. Professional welders are in high demand and can earn accordingly.

Marketing Management or Merchandising



Marketing



START

Digital & Social Media Marketing

Fashion Marketing

Advanced Fashion Marketing

Strategic Marketing

Principles of Business & Marketing

Marketing Management

Real Estate

Industry Credential(s):

Workplace Readiness Skills

Career Options

| Occupation | Median Salary | Education |
|--|---------------|--------------------------|
| Advertising, Promotion, & Marketing Managers | \$138,730 | Bachelor's Degree |
| Advertising Sales Agent | \$58,450 | HS Diploma or Equivalent |
| Sales Manager | \$130,600 | Bachelor's Degree |
| Public Relations and Fundraising Manager | \$125,620 | Bachelor's Degree |
| Purchase Managers, Buyers, & Purchasing Agents | \$75,120 | Bachelor's Degree |
| Fashion Designers | \$76,700 | Bachelor's Degree |
| Real Estate Brokers and Sales Agents | \$52,030 | HS Diploma or Equivalent |
| Property, Real Estate, & Community Association Manager | \$60,670 | HS Diploma or Equivalent |

Course Descriptions

Advanced Fashion Marketing

Grades 9-12, 1 Credit

This advanced-level course prepares students for a career in the global fashion industry. Students gain deeper knowledge of the field and apply skills in marketing. Students explore sustainability, social responsibility, entrepreneurship, technology applications, buying, portfolio development, and careers. Academic skills related to the content are part of this course.

Digital and Social Media Marketing

Grades 9-12, 1 Credit

This course introduces students to digital and social media marketing. Students explore principles, strategies, tools, and tactics related to consumers, branding, advertising, and promotions. Students explore how success is measured in a digital and social media marketing campaign. This course emphasizes ethics, laws, and security. Students also investigate business and marketing plans, as well as careers in digital and social media marketing. This course reinforces mathematics, science, English, and history and social science Standards of Learning. Computer/technology applications and DECA activities enhance the course. DECA, the co-curricular student organization, offers opportunities in leadership, community, and competitive events.

Fashion Marketing

Grades 9-12, 1 Credit

This course leads students into the exciting and ever-changing world of fashion. Students gain knowledge of marketing as it relates to the fashion industry. From brick-and-mortar retail establishments to online retail and social media marketing, students will explore aspects such as trends, technology, the buying process, visual merchandising, the nature and history of fashion and fashion designers, and the global impact of the fashion industry on the economy. Academic skills related to the content are part of this course.

Marketing

Grades 9-12, 1 Credit

Students examine activities in marketing and business important for success in marketing employment and postsecondary education. Students will learn how products are developed, branded, and sold to businesses and consumers. Students will analyze industry trends and gain hands-on experience in the marketing of goods, services, and ideas. Topics will include professionalism in the workplace, product planning and positioning, promotion, pricing, selling, economic issues, and the impact of technology on the marketplace. Computer /technology applications and DECA activities enhance the course. DECA, the co-curricular student organization, offers opportunities in leadership, community, and competitive events.

Course Descriptions

Marketing Management

Grades 9-12, 1 Credit

This course is designed for high school students who plan to attend college with a concentration in marketing, business, or management and/or who have plans to manage or own a business. Students will be exposed to all aspects of marketing and management, including branding, digital marketing, promotion, communication, and career opportunities in marketing. This course will prepare students for industry certifications (including the College Level Examination Program [CLEP] examination, which may lead to them earning college credit at many accredited colleges and universities across the country).

Principles of Business & Marketing

Grades 9-12, 1 Credit

Students discover the roles of business and marketing in the free enterprise system and the global economy. Students examine basic financial concepts of banking, insurance, credit, taxation, and investments to provide a strong background for making sound decisions as consumers, wage earners, and citizens. The real-world effects of technology, effective communication, and interpersonal skills is evident throughout the course. This course also supports career-development skills and explores career options.

Real Estate

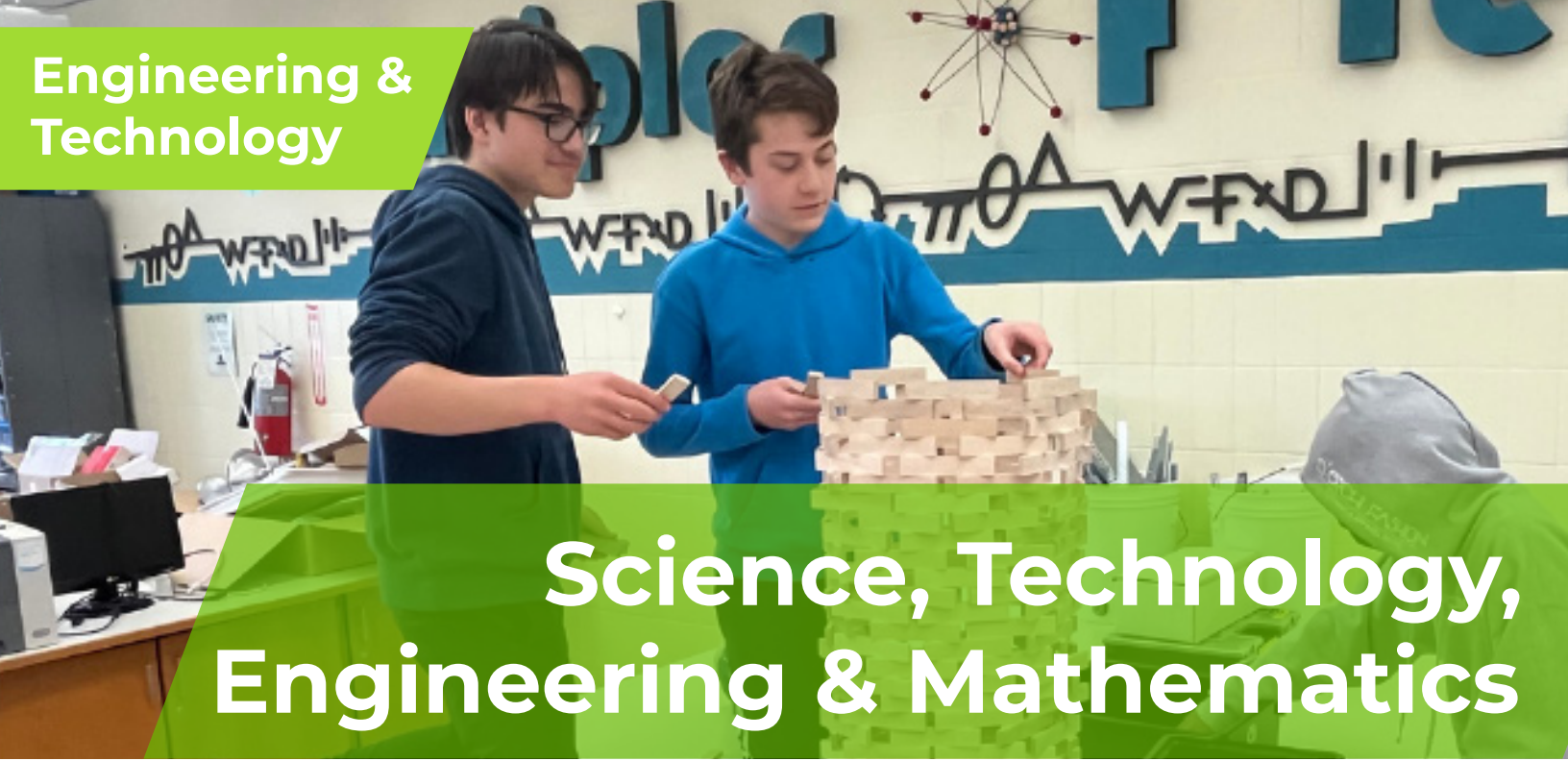
Grades 9-12, 1 Credit

Students learn to apply real estate principles such as sales, real estate financing, ownership rights, investments, ethics, and laws. This course also meets the Virginia Department of Professional and Occupational Regulation's (DPOR's) required 60 class/clock hours of real estate salesperson pre-license education. Upon successful completion of the course students are eligible to take the Virginia real estate salesperson licensing exam.* Correspondence with the Virginia Department of Education's marketing specialist will be required to obtain a letter of approval from the Real Estate Board to submit with the testing application. Academic skills (mathematics, science, English, and history/social science) related to the content are a part of this course. Students use computer/technology applications in support of course objectives. Work Based learning opportunities are suggested for this course. *Individuals must be 18 years of age and have a high school diploma before applying for licensure as a real estate salesperson in Virginia. Additionally, those interested in pursuing licensure should be aware of the costs involved (e.g., application fee, testing fee, continuing education fees).

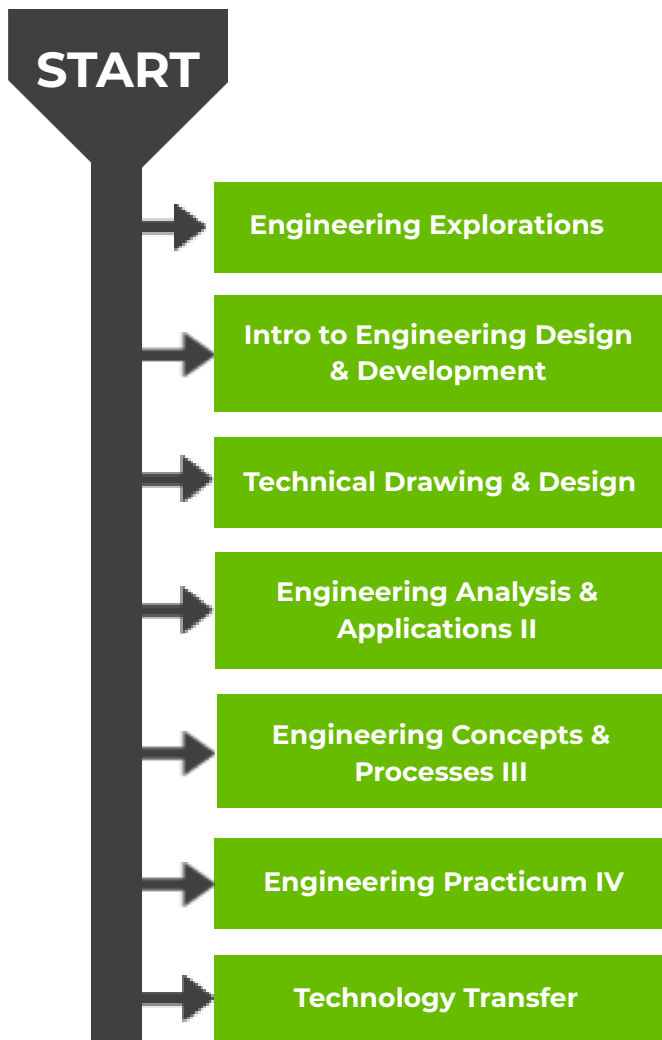
Strategic Marketing

Grades 9-12, 1 Credit

Students build on knowledge gained in a prior Marketing course. Students participate in supervisory and management activities focusing on the marketing mix, purchasing, financing, human resources, global marketing, pricing, and emerging technologies. Students will prepare for advancement in marketing careers and postsecondary education. Computer/technology applications and DECA activities enhance the course. DECA, the co-curricular student organization, offers opportunities in leadership, community, and competitive events.



Science, Technology, Engineering & Mathematics



| Career Options | | |
|----------------------|---------------|-------------------|
| Occupation | Median Salary | Education |
| Electrical Engineers | \$104,610 | Bachelor's Degree |
| Civil Engineers | \$89,940 | Bachelor's Degree |
| Mechanical Engineer | \$96,000 | Bachelor's Degree |

Occupational Outlook Handbook. (2023). U.S. Bureau of Labor Statistics. <https://www.bls.gov/ooh/>

Industry Credentials:

Workplace Readiness Skills Auto Desk Certified
 Professional Examination Auto Desk Certified
 Users Examination

Course Descriptions

Engineering Analysis and Applications II

Grades 9-12, 1 Credit

The second of a possible four-course sequence that will allow students to apply the engineering design process to areas of the designed world, explore ethics in a technological world, and examine engineering systems. Students will participate in STEM-based, hands-on projects as they communicate information through team-based presentations, proposals, and technical reports.

Engineering Concepts and Processes III

Grades 9-12, 1 Credit

The third course of a four-course sequence that will enable students to solve real-world problems. This course focuses on building an engineering team, working with case studies, managing projects, delivering formal proposals and presentations, and examining product and process trends. In addition, students continue to apply their engineering skills to determine what postsecondary education engineering pathway they want to follow. Students will participate in STEM-based, hands-on projects as they communicate information through team-based presentations, proposals, and technical reports.

Engineering Design & Development

Grades 9-12, 1 Credit

In this capstone course in Project Lead the Way (PLTW), teams of students, guided by community mentors, work together to research, design, and construct solutions to engineering problems. Students synthesize knowledge, skills, and abilities through an authentic engineering experience. Students are expected to develop and formally present an independent-study project and a team-oriented project that are critiqued by an evaluation committee.

Engineering Explorations

Grades 9-12, 1 Credit

In Engineering Explorations I, students examine technology and engineering fundamentals in relation to solving real-world problems. Students investigate engineering history, including major engineering achievements, and they examine the principal engineering specialty fields and their related careers. Students practice engineering fundamentals, using mathematical and scientific concepts, and they apply the engineering design process through participation in hands-on engineering projects. Students communicate project-related information through team-based presentations, proposals, and technical reports.

Course Descriptions

Engineering Practicum IV

Grades 9-12, 1 Credit

This course will enable students to examine technology and engineering fundamentals related to solving real world problems. Students examine ethics and intellectual property and design a practicum project, a culmination of knowledge and skill gained in the previous engineering courses. In addition, students continue to investigate a variety of engineering specialty fields and related careers to determine whether they are good candidates for postsecondary educational opportunities in engineering.

Technical Drawing & Design

Grades 9-12, 1 Credit

In this foundation course, students learn the basic language of technical drawing and design, and they design, sketch, and make technical drawings, models, or prototypes of real design problems. The course is especially recommended for future engineering and architecture students.

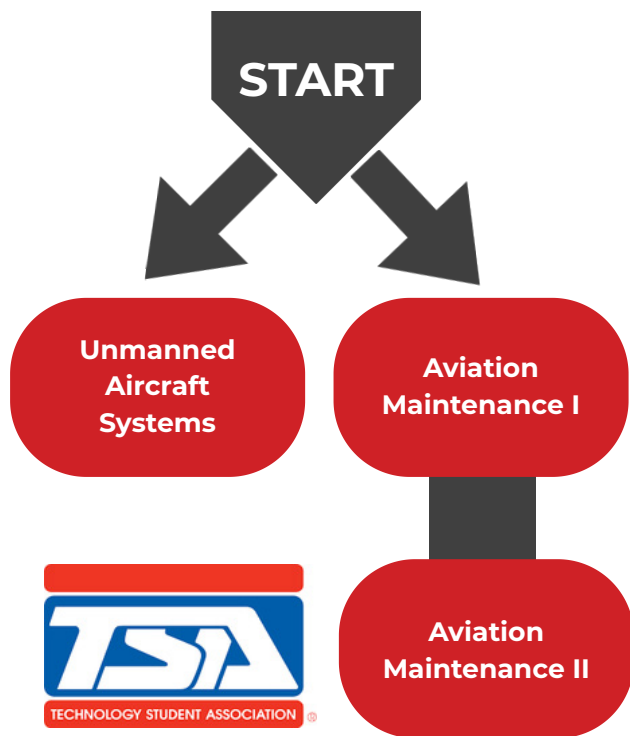
Technology Transfer

Grades 9-12, 1 Credit

Students learn how existing technologies developed for one purpose can be applied to a different function. Groups work together, applying science, technology, engineering and mathematics (STEM) concepts to projects. Students engage in hands-on activities to learn that the transfer of a technology from one society to another can cause cultural, social, economic, and political challenges.



Transportation, Distribution & Logistics



Industry Credential(s):
 Workplace Readiness Skills
 FAA Remote Pilot Small Unmanned Aircraft Systems Certification Examination

| Career Options | | |
|------------------------------|---------------|---|
| Occupation | Median Salary | Education |
| Aircraft Mechanic Technician | \$65,550 | FAA Approved Aviation Maintenance Technician School |
| Pilot | \$134,630 | Bachelor's Degree and Flight Training School |
| Flight/Aerospace Engineer | \$122,270 | Bachelor's Degree |
| Service Technician | \$65,550 | FAA Approved Aviation Maintenance Technician School |

Occupational Outlook Handbook. (2023). U.S. Bureau of Labor Statistics. <https://www.bls.gov/ooh/>

Course Descriptions

Aviation Maintenance Technology I

Grades 9-12, 1 Credit

Students will work with airframe and control surfaces, power plants, and basic aviation electricity, and perform ground operations and servicing procedures, as specified by Federal Aviation Administration (FAA) requirements. Students will also practice lab and tool safety, apply science and mathematics principles to aviation maintenance tasks and research and use maintenance publications, forms, and records. Contextual instruction and student participation in co-curricular career and technical student organizations (CTSO) activities will develop leadership, interpersonal, and career skills. High-quality work-based learning (HQWBL) will provide experiential learning opportunities related to students' career goals and/or interests, integrated with instruction, and performed in partnership with local business organizations.

Aviation Maintenance Technology II

Grades 9-12, 1 Credit

Students will explore design features of aircraft through drawings and blueprints. Students will investigate aircraft materials and process, weight and balance procedures, and fluid lines fittings. Additionally, students will learn care and maintenance. Techniques (such as how to identify and correct corrosion), practice lab and tool safety, and apply academic principles while working with aircraft. Contextual instruction and student participation in co-curricular career and technical student organizations (CTSO) activities will develop leadership, interpersonal, and career skills. High-quality work-based learning (HQWBL) will provide experiential learning opportunities related to students' career goals and/or interests, integrated with instruction, and performed in partnership with local business organizations.

Unmanned Aircraft Systems

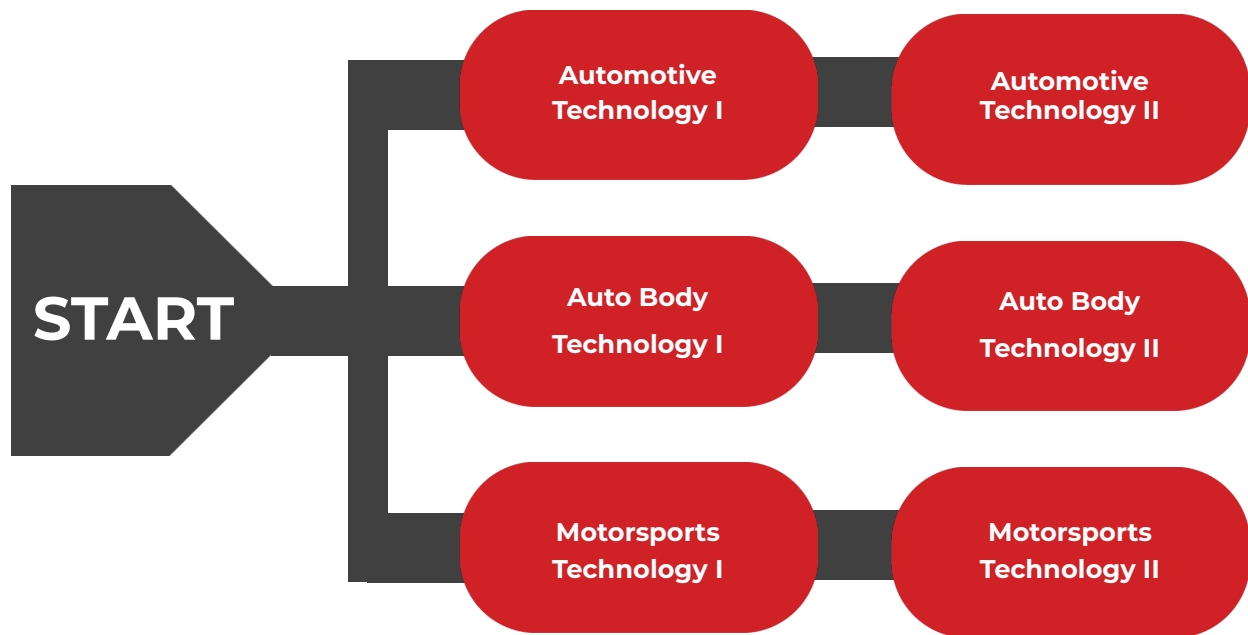
Grades 9-12, 1 Credit

Unmanned Aircraft Systems prepares students to fly drones under the Federal Aviation Administration's (FAA) Part 107 guidelines. Students get an overview of the national airspace system, FAA regulations, and the design and operation of small drones, and performance of small drones and coordinate flight operation logistics. They perform administrative tasks, train to fly, and finally fly small unmanned aircraft systems (SUAS). Contextual instruction and student participation in co-curricular career and technical student organizations (CTSO) activities will develop leadership, interpersonal, and career skills. High-quality work-based learning (HQWBL) will provide experiential learning opportunities related to students' career goals and/or interests, integrated with instruction, and performed in partnership with local business organizations.

Facility & Mobile Equipment Maintenance



Transportation, Distribution & Logistics



Career Options

| Occupation | Median Salary | Education |
|--|---------------|-------------------------------|
| Automotive Service Technicians & Mechanics | \$46,970 | Postsecondary Nondegree Award |
| Automotive Body & Glass | \$47,270 | HS Diploma or Equivalent |

Industry Credential(s):

Workplace Readiness Skills ASE Entry Level I-8 Certification ASE Student Certification Virginia Motor Vehicle Safety Inspection Program Exam

Occupational Outlook Handbook. (2023). U.S. Bureau of Labor Statistics. <https://www.bls.gov/ooh/>



Course Descriptions

Auto Body Technology I & II

Grades 9-12, 1 Credit

In the global automobile collision repair industry, there is a growing demand for qualified auto body technicians. In this course, students are taught damage analysis, estimating, customer service, nonstructural analysis, damage repair, and welding. Students work with a variety of materials, using metal finishing and body filling techniques to prepare surfaces and repair panels. Students who successfully complete this program sequence may be eligible to take an industry recognized certification exam. Auto Body Technology I is closely aligned with the 2022 ASE Education Foundation collision repair and refinish program standards.

In the global automobile collision repair industry, there is a growing demand for qualified auto body technicians. In this course, students are taught painting and refinishing techniques that include surface preparation, spray gun and related equipment operation, paint mixing, matching, and applying, and final vehicle detailing. Students who successfully complete this program sequence may be eligible to take an industry recognized certification exam. Auto Body Technology II is aligned with the 2022 ASE Education Foundation collision repair and refinish program standards.

Automotive Technology I & II

Grades 9-12, 1 Credit

In this course, students explore, handle, and perform basic functions in engine repair, automatic transmission and transaxle, manual drivetrain and axles, suspension and steering systems, and brakes. Students who successfully complete the Automotive Technology program may be eligible to take the Automotive Service Excellence (ASE) Student Certification examination. The ASE Student Certification is the first step in building a career as a service professional in the automotive industry. Automotive Technology I and II are closely aligned with the 2017 ASE Education Foundation automobile program standards for Maintenance and Light Repair (MLR).

In this course, students build upon their basic knowledge of automotive technology, exploring more advanced tasks in engine repair, automatic transmission and transaxle, manual drivetrain and axles, suspension and steering systems, and brakes. They also learn about electrical, electronic, and HVAC systems in automobiles. Upon successful completion of the course, students may be eligible to take the Automotive Service Excellence (ASE) Student Certification examination. Automotive Technology I and II are closely aligned with the 2017 ASE Education Foundation automobile program standards for Maintenance and Light Repair (MLR).

Motorsports Technology I & II

Grades 9-12, 1 Credit

Motorsports Technology I provides a foundation in the principles of race car fabrication and all facets of the racing industry. Technical aspects of the course include skill development in vehicle assembly using specialty tools and welding. Students explore the motorsports technology industry and identify careers in the field.

Motorsports Technology II further develops students' skills in race car fabrication as they explore the motorsports technology industry. Students gain experience in chassis preparation, vehicle assembly, and engine assembly and disassembly. Additional focus areas include racing protocol and regulatory compliance in the motorsports field.

Career Projections (Now-2032)

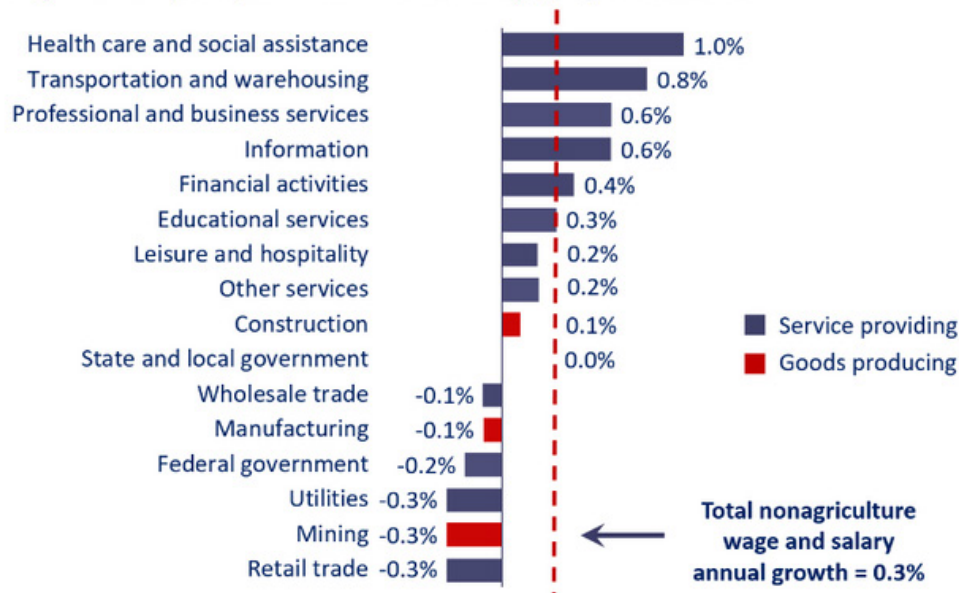
Top 10 Fastest Growing Occupations

| | Percent change, projected 2022–32 | Employment change, projected 2022–32 (in thousands) | Median annual wage, May 2022 |
|--------------------------------------|-----------------------------------|---|------------------------------|
| Wind turbine service technicians | 44.9% | 5.0 | \$57,320 |
| Nurse practitioners | 44.5% | 118.6 | \$121,610 |
| Data scientists | 35.2% | 59.4 | \$103,500 |
| Statisticians | 31.6% | 10.5 | \$98,920 |
| Information security analysts | 31.5% | 53.2 | \$112,000 |
| Medical and health services managers | 28.4% | 144.7 | \$104,830 |
| Epidemiologists | 26.7% | 2.7 | \$78,520 |
| Physician assistants | 26.5% | 39.3 | \$126,010 |
| Physical therapist assistants | 26.1% | 26.3 | \$62,770 |
| Software developers | 25.7% | 410.4 | \$127,260 |

Note: Wage data are from the Occupational Employment and Wage Statistics program, U.S. Bureau of Labor Statistics.

Projected Annual Rate of Change in Industry Employment, 2022–32

Wage and salary compound annual rate of change, projected 2022–32



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