Automotive Technology I & II

Hampton Campus
Course # 8506 & 8507
Two Year Courses

If You Like:
• Tearing Down, Repairing, Rebuilding vehicle engine and assemblies
• Repairing and servicing AC, heating and electrical systems
• Using mechanical tools and instruments
• Using computerized diagnostic devices
• Troubleshooting and Problem solving

About Auto Technology:
• Currently over 750,000 automotive technician jobs in the U.S.
• Growing need for qualified technicians provides strong employment opportunities.
• Students can earn 19 college credits through dual enrollment with TNCC.
• Summer mentorship opportunities provide paying jobs, real world experience, and a good learning environment that can lead into careers after graduation.

Automotive Technology students study:
• Engine repair
• Automatic transmissions and transaxles
• Manual drive train and axles
• Suspension and steering
• Brakes
• Electrical/electronic systems
• Heating and air conditioning
• Engine performance
• Auto maintenance and light repair

Credentials:
• National Automotive Technician’s Education Foundation (NATEF)
• Automotive Youth Educational Systems (AYES)
• Automotive Service Excellence (ASE)

Entry Employment:
• Automotive technician ($25,000-$56,000)
• Aviation mechanic ($20,000-$51,000)
• NASCAR mechanic ($45,000-$65,000)

Pathways:
• Master Technician ($34,000-$77,000)
• Service manager ($34,000-$121,000)
• Independent shop owner ($71,000-$131,000)
Auto Collision Repair and Refinishing

Hampton Campus
Course # 8676/8677/8678
One Year Course

If You Like:

- Restoring or modifying vehicles
- Sanding and prepping body parts for repair
- Fitting and welding replacement vehicle parts
- Priming and painting automobiles
- Problem solving and analysis
- Demonstrating artistic ability and designs

About Auto Collision:

- National and State employment growth rate is between 9% and 13%
- Prepares in the use of the latest technologies and equipment
- Provides practical hands-on experiences and students allowed to work on personal.
- Students become familiar with the latest finishes, from single-stage to multi-stage finishes.
- Selected students may be eligible for work experiences at local repair facilities.
- Successful students may be invited to return for Auto Collision Repair and Refinishing III.

Areas of study:

- Installation of vehicle parts and accessories
- Preparation of compounds and solution
- Structural Repair
- Painting and Refinishing
- Damage Analysis
- Estimating

Credentials:

- NATEF Certification

Entry Employment:

- Collision Repair Assistant ($20,000 – $40,000)
- Painter Helper ($20,000 - $40,000)

Pathways:

- Collision Repair Technician ($45,000 – 120,000)
- Claims Adjuster ($45,000 – $65,000)
- Management/Shop Foreman ($40,000 – $75,000)
- Painter ($45,000 – $110,000)

Important to Note:
This course is not recommended for students with respiratory or allergy problems. Students must wear uniforms, safety glasses and leather work shoes. Students must also use any other safety equipment designated by the program.
Building Construction
Newport News Campus
Course #8601/8602/8603
One Year Program

If you Like:
- Lucrative career opportunities
- Opportunity to own your own business
- Planning and constructing buildings
- Renovating and creating revitalized spaces
- Using your hands and mind to solve problems
- Demonstrating creativity and innovation
- Using technology to build

About Building Construction:
- Prepares for employment as entry level carpenter or construction worker.
- Prepares students to pursue postsecondary education in multiple construction fields such as construction management, design and mechanical fields.
- Employment opportunities strong with 5% to 8% growth with average salary of $42,000 in Hampton Roads

Construction students study:
- Interpreting blueprints, schematics, digital designs
- Construction Industry Standards
- Pre-Construction planning and estimating
- OSHA safety standards and tool usage
- Constructing foundation, flooring, wall, ceiling, roofing systems
- Installing windows, doors, decks, exterior siding
- Integration of technology into construction

Credentials:
- NOCTI Carpentry Examination
- OSHA 10 Safety Credential

Entry Employment:
- Skilled Trade Profession
  Carpenter, Roofer, Drywall Installer, etc. – ($28,324 - $71,977)

Pathways:
- Construction Estimator ($35,536 - $85,832)
- Safety Manager ($48,399 - $110,929)
- Project Foreman ($35,069 - $81,635)
- Project Management ($43,487 - $114,689)
- Building Information Modeling Manager ($48,759 - $101,477)
Electricity and Renewable Energy

Woodside Lane Campus
Course # 8533 & 8534
One Year Program

If You Like:
• Opportunity to own your own business
• Installing, troubleshooting, and repairing electrical systems
• Interpreting technical schematics and prints
• Learning about alternative power systems
• Diagnosing problems and creating solutions

About Electricity and Renewable Energy:
• Teaches skills to install, maintain and repair residential and commercial wiring, equipment and fixtures, and use of the National Electrical Code Book.
• Study of alternative renewable energy sources includes installing hydrogen fuel cells, solar panels and communication cable and wiring.
• Employment opportunities strong with average salary of $47,000

Electricity Students Study:
• Electrical Theory
• Electrical Code
• Renewable Energy Systems
• Power Systems

Credentials:
• Electrical Construction Technology Assessment
• Electrical Construction Wiring Examination

Entry Employment:
• Electrician ($30,360 - $68,000)
• Pipe Fitters and Steam Fitters ($32,111 - $93,674)
• Electrical Engineering Technician ($39,580 - $87,611)

Pathways:
• Electrical Foreman ($41,757 - $88,158)
• Project Manager ($51,865 - $111,858)
• Cost Estimator ($38,979 - $94,624)
• Building Code Inspector ($32,984 - $75,823)
HVAC
(Heating, Ventilation, Air-Conditioning & Refrigeration)
Hampton Campus
Course #8503 & 8504
One Year Program

If You Like:
• Designing and constructing mechanical systems
• Troubleshooting and problem solving
• Creating climate control systems

About HVAC:
• Students learn to install and maintain the operating conditions of heating and cooling systems.
• Students also learn EPA regulations and energy management techniques.
• Strong employment opportunities with average salary in Hampton Roads being $45,000

HVAC Students Study:
• Installing heating and cooling systems
• Service and repair HVAC systems
• Reading technical plans and schematics
• EPA regulations
• Leak detection, evacuation, recovery, charging
• Air properties and distribution
• Fabricating, assembling, and installing duct work
• Refrigerant transition and recovery
• Sizing, installing, testing water systems

Credentials:
• EPA Technician Examinations

Entry Employment:
• HVAC/R Technician Helper ($20,110 - $44,450)
• Sheet Metal Apprentice ($22,000 - $50,000)

Pathways:
• HVAC/R Technician & Installer ($29,000 - $67,000)
• HVAC/R Estimator ($35,646 - $81,950)
• Facilities Maintenance ($22,010 - $60,660)
• Construction Project Management ($74,079 - $121,942)
Mechatronics
Hampton Campus
Course #8554/8555/8556
One Year Program

If You Like:
• Repairing, installing or adjusting equipment
• Mechanical and electrical troubleshooting
• Electronic controls and circuits
• Computer controls and diagnostics
• Computer programming

About Mechatronics:
• Special one-year course limited to 16 students: TNCC Mechatronics program taught at NHREC Butler Farm Campus.
• Students earn 22 dual enrollment credits (free), College Certificate of Studies while earning high school diploma, and Siemen Certification.
• Mechatronics prepares students for advanced mechanical/electrical industry technician jobs that design, install, maintain, repair, or troubleshoot manufacturing systems.
• High demand high growth employment (16% growth to 2024) with Cannon North America and other manufacturing companies.

Mechatronics students study:
• Engineering Design
• Electronic Circuits
• Robotics Programming
• Materials & Processes
• Fluid Mechanics
• Pneumatics and Hydraulics
• Programmable Logic Controls

Credentials:
• NOCTI National Occupational Competency Testing Institute Certification
• Siemens Mechatronics Systems Certification

Entry Employment:
• Industrial Engineering Technician ($33,520 - $86,430)
• Mechanical Engineering Technician ($34,030 – $82,810)
• Electrical Engineering Technician ($34,030 - $82,810)

Pathways:
• Mechanical Engineering ($54,420 - $131,350)
• Industrial Engineering ($54,070 - $129,390)
• Electrical Engineering ($59,720 - $149,040)
Welding

Hampton and Newport News Campus
Course #8672/8673
Two Year Program

If You Like:
- Designing, layout, and fabricating items
- Building structures like ships, planes and trucks
- Great paying career and opportunities
- Brazing, burning, cutting, assembling using torches and flames
- Creativity and Innovation

About:
- The NHREC’s two year welding program prepares and links students to employment with local manufacturers i.e. Newport News Shipbuilding, Liebherr, Arconic, Master Machines.
- Virginia has over 7,000 welders, earning between $36,000 and $60,000 before overtime. The Hampton Roads area has the highest number and paying jobs for welders in Virginia.
- Statewide welding has a very good job growth rate and employment opportunity on the Peninsula.

Welding students study:
- Welding Theory
- Shielded Metal Arc Welding (SMAW) & Gas Metal Arc Welding (GMAW)
- Tungsten Inert Gas (TIG) Welding & Flux Core
- Welding with Carbon Steel, Stainless Steel, aluminum
- Brazing, Oxy acetylene burning, Carbon arcing and Plasma Cutting

Credentials:
- AWS (American Welding Certification)
- NOCTI (National Occupational Competency Testing Institute Certification)
- OSHA – 10 hr. Card Certification

Entry Employment:
- Aluminum Welder ($28,737 - $66,253)
- Fabrication Welder ($25,732 - $54,090)
- Fabricator ($25,946 - $54,816)
- Fitter/Welder ($27,109 - $65,440)
- Mig Welder ($28,724 - $64,936)

Pathways
- Welding Foreman ($38,618 - $86,213)
- Welding Engineer ($52,398 - $117,512)
- Welding Inspector ($41,138 - $108,585)