AUTOMOTIVE TECHNOLOGY OFFICES

Jacob Phillips  jphillips@nvcc.edu  (703) 257-6619
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Al Hupp  Ahupp@nvcc.edu

DIESEL TECHNOLOGY OFFICE

Jacob Phillips  jphillips@nvcc.edu  (703) 257-6619

WELDING TECHNOLOGY OFFICE

Matt Wayman  mwayman@nvcc.edu  (703) 530-3002

REGISTRATION with NovaConnect
Quick & Easy 24-hour online,  www.nvcc.edu/novaconnect.

ADMISSIONS & FINANCIAL AID FORMS
http://www.nvcc.edu/admissions/forms.htm

COUNSELING  (703) 257-6610
FINANCIAL AID  (703) 257-6613
HEARING IMPAIRED V/TDD  (703) 368-3748
WHY CHOOSE A CAREER IN AUTOMOTIVE TECHNOLOGY?

The automotive industry accounts for about 6% of all employment positions in the global economy. Whether you are looking for a local job, one across the country or around the world, automobiles are there. Qualified people are needed to repair, test, design, sell, and manage all aspects of this industry.

"The profession is being revolutionized," notes ASE President Ronald Weiner. "Brute force has been supplanted by brain power. If you don't think so, just look under the hood of one of today's sport coupes or SUVs. This is rocket science - or very close to it. Today's auto technicians need to be master diagnosticians, well versed in electronics, and have smooth customer service skills." Auto technicians face components and repairs virtually unheard of a generation ago: on-board computers, electronic fuel injection, and antilock brakes, to name but a few advances.

NASCAR says, “Today's cars are complex machines run by sophisticated computer systems. And the people who fix those cars are highly trained, high-tech savvy automotive technicians. For an aspiring automotive technician, education is the key.”

According to the U.S. Bureau of Labor Statistics, 2006-07 Career Guide to Industries and 2006-07 Occupational Outlook Handbook Employment of automotive service technicians and mechanics is expected to increase as fast as the average through the year 2014. Between 2004-2014, demand for technicians will grow as the number of vehicles in operation increases, reflecting continued growth in the number of multi-car families. Growth in demand will be offset somewhat by slowing population growth and the continuing increase in the quality and durability of automobiles, which will require less frequent service. Additional job openings will be due to the need to replace a growing number of retiring technicians, who tend to be the most experienced workers.

Opportunities in the automotive industry should be plentiful in vehicle maintenance and repair occupations, especially for employees with formal automotive service technician training.

<table>
<thead>
<tr>
<th></th>
<th>Entry Level</th>
<th>Average Salary</th>
<th>Experienced Pay</th>
<th>Master Technicians:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$26,000-31,000</td>
<td>$35,000</td>
<td>$55,000</td>
<td>$70,000-100,000</td>
</tr>
</tbody>
</table>

That is where NOVA comes in! We can help you learn about today’s cars, and be ready for the future! All you need to do is have the desire and commitment to learn and succeed! Once you have completed our program, the sky is the limit!

We train you to be a technician, but there are more opportunities available for graduates with an AAS degree in Automotive Technology. Manufacturers like Honda, Daimler, Hyundai-Kia, Chrysler, GM, Mazda, Ford, Nissan, Toyota, and Volkswagen are looking for well-trained people to perform R&D, testing, and fabrications in all areas of the industry. There are Fleet service positions and Management positions available to qualified and well-trained students. In addition, there are many Colleges and Universities that build upon our AAS degree with a Bachelors degree in management or engineering technology!

If you have any questions please feel free to call us or stop in for a tour!
Here is a list of some of the possibilities open to you after completing the program:

- Automotive technicians
- Diagnostic Specialist
- Shop foreman
- Service writer
- Warranty administrator
- Parts counter person
- Service Manager
- Parts Manager
- Shop Owner
- Hotline technical troubleshooter
- Technical Writer
- Manufacturer’s Representative
- Customer Relations Representative
- Insurance Appraiser
- Fleet Manager
- Trainer

In addition to dealerships and franchise stores, careers can be found in Fleet agencies, Government agencies, UPS, USPS, Fed Ex, Automobile manufacturers, aviation support companies, and a host of other opportunities.

The Associate’s degree also opens the door to further educational opportunities! Some colleges offer a Bachelors degree building on NVCC’s Automotive Technology AAS degree.

**Ferris State University** offers a BS degree in Automotive Management, and a BS in Automotive Engineering Technology. These degrees will open the door to Management and Engineering careers in automobile manufacturing, service and sales.

Automotive Technology
708 Campus Drive, Big Rapids, Michigan 49307-2281
E-mail: auto@ferris.edu Phone: (231) 591-2655

**Penn College of Technology** offers a BS degree in Automotive Technology Management, allowing you to pursue a career as a Representative for an Automotive Manufacturer.

Advanced Automotive Technology Center
One College Avenue, Williamsport, Pennsylvania 17701
(570) 321-6730. www.pct.edu

There are many great opportunities, and the AAS in Automotive Technology from NOVA will help you succeed!
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AUTOMOTIVE, DIESEL, & WELDING TECHNOLOGY PROGRAMS

AUTOMOTIVE TECHNOLOGY
DAYTIME PROGRAM

AUTOMOTIVE TECHNOLOGY
AAS DEGREE

EVENING PROGRAMS

AAS DEGREE

AUTOMOTIVE TECHNOLOGY

AUTOMOTIVE TECHNOLOGY
Emissions Specialization

CERTIFICATES

AUTOMOTIVE EMISSIONS
Eligible Students with catalog year 2010-2011 and before only.

AUTOMOTIVE ELECTRICAL TECHNICIAN
Eligible Students with catalog year 2010-2011 and before only.

CAREER STUDIES CERTIFICATE
MAINTENANCE & LIGHT REPAIR

DIESEL TECHNOLOGY

DIESEL MECHANICS TECHNOLOGY
CAREER STUDIES CERTIFICATE

WELDING TECHNOLOGY

WELDING TECHNOLOGY
CAREER STUDIES CERTIFICATE

Students completing the AAS Degree in Automotive Technology are also eligible to receive the following certificates upon completion of AUT 215, AUT 226 and ITE 115:

AUTOMOTIVE EMISSIONS
Eligible Students with catalog year 2010-2011 and before only.

AUTOMOTIVE ELECTRICAL TECHNICIAN
Eligible Students with catalog year 2010-2011 and before only.

AUTOMOTIVE MAINTENANCE AND LIGHT REPAIR
MISSION AND GOALS

Manassas Campus Automotive Program Goal

We will ratchet up your skills to have an impact on your future!

Career and Technical Education

The career and technical education programs are designed to meet the increasing demand for technicians, office workers, paraprofessionals, and skilled crafts persons for employment in industry, business, the professions, and government. These programs, which normally require two years or less of education beyond high school, may include preparation for agricultural, business, engineering, health and medical, industrial, service, and other technical and career fields. The curricula are planned primarily to meet the needs for workers in the region being served by the College, but the State Board for community colleges has centers to serve larger areas of the state in offering expensive and highly specialized career and technical education programs.

NOVA MISSION: The mission of Northern Virginia Community College is to respond to the educational needs of its dynamic and diverse constituencies through an array of comprehensive programs and services that facilitate learning and workforce development in an environment of open access and through lifelong educational opportunities.

Our Vision: To be a learning-centered organization that promotes student success.

To achieve this mission, the following goals are established:

1. To provide programs and courses of instruction, through the associate degree level, encompassing occupational-technical education, college transfer education, general education, developmental education, training for business and government, continuing education and community services, and experience in the work environment.

2. To provide a comprehensive program of student development services.

3. To provide a broad range of instructional methods, materials, facilities, and instructional support services that accommodate students of varied backgrounds, interests, and abilities.

4. To create an educational environment that encourages and supports the highest level of performance.

5. To enhance economic, cultural, and educational partnerships between the College and the community.
### DAYTIME 16 WEEK SCHEDULE

**AUTOMOTIVE TECHNOLOGY**  
**ASSOCIATE IN APPLIED SCIENCE DEGREE**

---

#### FIRST YEAR

**FALL SEMESTER - 1st Year Student**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUT 130</td>
<td>INTRO TO AUTOMOTIVE MECHANICS</td>
<td>3</td>
</tr>
<tr>
<td>AUT 241</td>
<td>AUTOMOTIVE ELECTRICITY I</td>
<td>4</td>
</tr>
<tr>
<td>AUT 141</td>
<td>AUTO POWER TRAINS I</td>
<td>4</td>
</tr>
<tr>
<td>PHY 130 or PHY 101 or MTH 151</td>
<td>PHYSICS or PHYSICS or Math for Liberal Arts</td>
<td>3</td>
</tr>
</tbody>
</table>

*You must enroll in both the class and the lab portion of the physics class*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PED 116</td>
<td>LIFETIME FITNESS &amp; WELLNESS</td>
<td>2</td>
</tr>
<tr>
<td>SDV 100 or SDV ELECTIVE</td>
<td>COLLEGE SUCCESS SKILLS or SDV ELECTIVE</td>
<td>1</td>
</tr>
</tbody>
</table>

**TOTAL 17**

#### SECOND YEAR

**FALL SEMESTER – 2nd Year Student**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUT 265</td>
<td>AUTO. SUSP. &amp; BRAKING SYSTEMS</td>
<td>4</td>
</tr>
<tr>
<td>AUT 122</td>
<td>AUTOMOTIVE FUEL SYSTEMS II</td>
<td>4</td>
</tr>
<tr>
<td>AUT 112</td>
<td>AUTOMOTIVE ENGINES II</td>
<td>4</td>
</tr>
<tr>
<td>HIS 262</td>
<td>US HISTORY OF FILM (or History elective)</td>
<td>3</td>
</tr>
</tbody>
</table>

**TOTAL 15**

#### FIRST YEAR

**SPRING SEMESTER – 1st Year Student**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUT 111</td>
<td>AUTOMOTIVE ENGINES I</td>
<td>4</td>
</tr>
<tr>
<td>AUT 242</td>
<td>AUTOMOTIVE ELECTRICITY II</td>
<td>4</td>
</tr>
<tr>
<td>AUT 266</td>
<td>AUTO ALIGNMENT, SUSPENSION, &amp; STEERING</td>
<td>4</td>
</tr>
<tr>
<td>ENG 131 or ENG 111</td>
<td>TECHNICAL REPORT WRITING or ENGLISH COMPOSITION I</td>
<td>3</td>
</tr>
</tbody>
</table>

**TOTAL 15**

#### SECOND YEAR

**SPRING SEMESTER – 2nd Year Student**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUT 142</td>
<td>AUTO POWER TRAINS II</td>
<td>4</td>
</tr>
<tr>
<td>AUT 245</td>
<td>AUTOMOTIVE ELECTRONICS</td>
<td>4</td>
</tr>
<tr>
<td>PSY 120</td>
<td>HUMAN RELATIONS. (or Social Science elective)</td>
<td>3</td>
</tr>
</tbody>
</table>

**TOTAL 11**

#### SUMMER SEMESTER

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUT 121</td>
<td>AUTOMOTIVE FUEL SYSTEMS I</td>
<td>4</td>
</tr>
<tr>
<td>AUT 236</td>
<td>AUTOMOTIVE CLIMATE CONTROL</td>
<td>4</td>
</tr>
<tr>
<td>CST 110</td>
<td>INTRO TO COMMUNICATION</td>
<td>3</td>
</tr>
</tbody>
</table>

**TOTAL 11**

---

1. Certain non-technical classes may not be offered in an eight-week format. See the current Schedule of Classes or your academic advisor for offerings. The schedule shown is an alternate schedule.
2. History electives may be selected from: HIS 101/102, 111/112, 187, 255, 256, 261, 262.
3. Social Science electives may be selected from: ECON, GEO, HIS, PLS, PSY and SOC
NVCC operates on the academic semester system. We have Fall, Spring and Summer semesters. The majority of automotive courses include 50% lecture and 50% practical lab experience. Semester format may vary for the various courses. Examples of this include English, Mathematics, and Social Sciences, which are typically offered on a sixteen-week basis. It is expected that students will have a basic knowledge of Computer literacy. Students will also need to read and write English.

*First year students* attend automotive classes full-time Monday, Tuesday, and Wednesday during the Fall Semester including Automotive and support classes such as English and Social Sciences. The student may need to select evening courses for the support classes to meet his schedule.

*Second year students* attend classes Wednesday, Thursday and Friday. This scheduling is advantageous as it provides an opportunity for employers to keep work stations filled by sponsoring two students who alternate on the job for each sixteen-week instructional/work period.
RESPONSIBILITIES FOR STUDENTS
Technician Training Program

Northern Virginia Community College:
* Provide instruction in accordance with college and NATEF guidelines.
* Provide academic advisement and counseling.
* Maintain student records.
* Provide student-employer liaison.

Student:
* Maintain a minimum overall GPA of 2.0.
* Actively participate in lab activities, which are scored from 1-5, 5 being excellent. Students are required to achieve a minimum score of 3 on lab activities to earn credit for Lab grades. The Lab tasks are graded as follows:

1. The instructor either through lecture or demonstration taught the information.
2. The student has observed or participated in the task being performed in a group setting. Instructor assistance was needed.
3. The student understands the basics of the task and has personally performed the task with instructor assistance.
4. The student understands the concept and has performed the task at least two times on his own with minimal instructor assistance.
5. The student fully understands the concept and has performed the task three or more times with no assistance and has assisted others in the performance of the task.
* Find employment in the automotive field.
* Maintain reliable personal transportation.
* Maintain a good driving record (this is an employment requirement).
* Adhere to the published automotive lab rules.
* Secure the required tools as soon as possible during your first semester.
* Follow all rules established in the Student Handbook.
* Must have access to a computer to complete work assignments and research projects.
PROGRAM ADMISSIONS PROCEDURES

In order to be accepted into the Daytime program you must follow this checklist:

- Complete the online NVCC application for admission to the college.
- Complete the application for in-state tuition rates (where applicable).
- Complete the Free Application for Federal Student Aid Form (FAFSA)
- Schedule a Counseling session with a faculty or staff member of the automotive program.
- Complete the following placement tests with acceptable scores in both or correct deficiencies through developmental courses.
  - Placement Test for English
  - Placement Test for Math

REGISTRATION:

- Fall semester registration: *
  Internet registration using NOVA Connect on http://www.nvcc.edu/novaconncet/
- Classes begin in late August*.

Note: A valid driver’s license and an acceptable driving record are an employment requirement and to drive the school program cars.

*Dates - See the Schedule of Classes for exact dates and times.
EVENING PROGRAMS
AUTOMOTIVE TECHNOLOGY

The Associate Degree program is designed to provide training essential to individuals interested in pursuing a career in the automotive service industry as an automotive technician, customer service representative, or any of the other closely related occupations. It provides a full range of training in theory, diagnostics, repair, and service on a variety of current vehicle technologies employing the latest in diagnostic procedures and equipment. Additionally, the program provides the student with the general education components essential to rapid career advancement and is appropriate for transfer into selected Baccalaureate programs thereby eliminating unnecessary repetition.

The Certificate programs are designed to provide training for individuals interested in more specific areas. The student may become employable more quickly than in the degree program, and allow him/her to continue working toward an associate degree without duplicating effort.

This program helps students to grow in skills, knowledge, and potential in servicing both domestic and import vehicles. It provides the background necessary for an individual to become professional and competent in the automobile service industry. The general education components of the program add a balance of qualities that are vital to personal success in the workplace and in the community.

Technical classes in these programs are offered primarily in the evening. While employment is not part of this program, the student is encouraged to seek active employment in the automotive field in order to enhance his/her training. Currently, all of our evening students who desire employment in the automotive industry are employed at a dealership or independent repair facility.

Tuition, textbooks, tools, and fees are the responsibility of the student. Included in this booklet is an estimate of program costs, all costs are subject to change. Students may select any brand of tools, and education discounts are available on some complete sets only for program placed full time students. Financial aid is available to eligible students. Allow several weeks for the financial aid process to be completed.

The Associate’s degree also opens the door to further educational opportunities! Many colleges offer a Bachelors degree that builds on NOVA’s Automotive Technology degree.
PROGRAM GRADUATES RECEIVE:

- Associate Degree in Automotive Technology (A.A.S.)
- Instruction in the latest technology
- The training and knowledge necessary to become ASE certified!
  - (National Institute of Automotive Service Excellence)
- Excellent training for employment
- Job placement assistance
- Low tuition (approximately $9,877)
- Factory trained & ASE Certified Instructors
  - (Chrysler, Ford, GM, Hyundai, Nissan, Mazda, Mitsubishi, Toyota, Freightliner and Volkswagen)
EVENING PROGRAM SCHEDULE  
AUTOMOTIVE TECHNOLOGY  
ASSOCIATE IN APPLIED SCIENCE DEGREE

### COURSE CHECKLIST

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall – 1st Year</td>
<td>SDV 100</td>
<td>COLLEGE SUCCESS SKILLS or SDV ELECTIVE</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>AUT 130</td>
<td>INTRO TO AUTOMOTIVE MECHANICS</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>AUT 141</td>
<td>AUTOMOTIVE POWER TRAINS I</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>AUT 241</td>
<td>AUTOMOTIVE ELECTRICITY I</td>
<td>4</td>
</tr>
<tr>
<td>Spring – 1st Year</td>
<td>AUT 111</td>
<td>AUTOMOTIVE ENGINES I</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>AUT 242</td>
<td>AUTOMOTIVE ELECTRICITY II</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>AUT 266</td>
<td>AUTOMOTIVE ALIGNMENT, SUSPENSION, &amp; STEERING</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>ENG 131</td>
<td>TECHNICAL REPORT WRITING I or ENG III</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>PED/RPK</td>
<td>PHYSICAL ED. ELECTIVE</td>
<td>2</td>
</tr>
<tr>
<td>Summer</td>
<td>AUT 121</td>
<td>AUTOMOTIVE FUEL SYSTEMS I</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>AUT 236</td>
<td>AUTOMOTIVE CLIMATE CONTROL**</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>CST 110</td>
<td>INTRO TO COMMUNICATION</td>
<td>3</td>
</tr>
<tr>
<td>Fall – 2nd Year</td>
<td>AUT 112</td>
<td>AUTOMOTIVE ENGINES II</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>AUT 122</td>
<td>AUTOMOTIVE FUEL SYSTEMS II</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>AUT 265</td>
<td>AUTOMOTIVE SUSPENSION &amp; BRAKING SYSTEMS</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>HISTORY</td>
<td>ELECTIVE</td>
<td>3</td>
</tr>
</tbody>
</table>

---

4 See Schedule of Classes for options  
5 History electives can be selected from: HIS 101/102, 111/112, 187, 255, 256, 261, 262.
Spring Semester – 2nd Year

( ) AUT 142 AUTOMOTIVE POWER TRAINS II ................................................................. 4
( ) AUT 245 AUTOMOTIVE ELECTRONICS ................................................................. 4
( ) PHY 130 PHYSICS or PHY 101 INTRO TO PHYSICS
or MTH 151 MATH FOR LIBERAL ARTS (must enroll in physics class and lab) ....3
( ) 6SOCIAL SCIENCE ELECTIVE ............................................................................ 3

DEGREE TOTAL 69

NOTE: This schedule is set up as a checklist; therefore, courses do not always follow this schedule, rather the student is responsible for scheduling the courses in an appropriate order. See your academic advisor for assistance in setting up your schedule. Some courses are only scheduled in alternate years.

---

6 Social Science electives may be selected from one of the following disciplines: ECON, GEO, HIS, PLS, PSY and SOC (see your academic advisor for selection).
Purpose: This curriculum is designed to train technicians for the automotive field. Students completing this program will be ready for full-time employment as automotive technicians. The occupational objectives include line technician, new car make-ready, and customer service representative.

(Courses may not be offered in this order, please see your automotive advisor)

**Two Years**

<table>
<thead>
<tr>
<th>Fall Semester First Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUT 130 Intro. to Automotive Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>AUT 111 Automotive Engines I</td>
<td>4</td>
</tr>
<tr>
<td>AUT 121 Automotive Fuel Systems I</td>
<td>4</td>
</tr>
<tr>
<td>ENG 111 College Composition I or ENG 131 Technical Report Writing I</td>
<td>3</td>
</tr>
<tr>
<td>PHY 130 Survey of Applied Physics or PHY 101 Intro Physics I</td>
<td>3-4</td>
</tr>
<tr>
<td>MTH 151 Math for the Liberal Arts</td>
<td></td>
</tr>
<tr>
<td>SDV Elective</td>
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<tr>
<td><strong>Total 18-19</strong></td>
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<table>
<thead>
<tr>
<th>Spring Semester First Year</th>
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</tr>
</thead>
<tbody>
<tr>
<td>AUT 122 Automotive Fuel Systems II</td>
<td>4</td>
</tr>
<tr>
<td>AUT 215 Emissions Systems Diagnosis/Repair *</td>
<td>2</td>
</tr>
<tr>
<td>AUT 241 Automotive Electricity I</td>
<td>4</td>
</tr>
<tr>
<td>ITE 115 Intro. to Computer Applications &amp; Concepts</td>
<td>3</td>
</tr>
<tr>
<td>CST 110 Intro. to Communication</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total 16</strong></td>
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</table>

<table>
<thead>
<tr>
<th>Summer Semester</th>
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</tr>
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<tbody>
<tr>
<td>AUT 236 Automotive Climate Control</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total 4</strong></td>
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</table>

<table>
<thead>
<tr>
<th>Fall Semester Second Year</th>
<th></th>
</tr>
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<tbody>
<tr>
<td>AUT 141 Auto Power Trains I</td>
<td>4</td>
</tr>
<tr>
<td>AUT 242 Automotive Electricity II</td>
<td>4</td>
</tr>
<tr>
<td>AUT 265 Automotive Suspension and Braking Systems</td>
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<tr>
<td>PED 116 Lifetime Fitness &amp; Wellness I</td>
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<tr>
<td>Social Science Elective</td>
<td>3</td>
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<tr>
<td><strong>Total 16</strong></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Spring Semester Second Year</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AUT 142 Automotive Power Trains II</td>
<td>4</td>
</tr>
<tr>
<td>AUT 226 Advanced ASM Emissions Diagnostics</td>
<td>2</td>
</tr>
<tr>
<td>AUT 266 Automotive Alignment, Suspension &amp; Steering</td>
<td>4</td>
</tr>
<tr>
<td>1 PED/RPK</td>
<td>1</td>
</tr>
<tr>
<td>3 HIS Elective</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total 14</strong></td>
<td></td>
</tr>
</tbody>
</table>

Total credits for the A.A.S. Degree in Automotive Technology with a Specialization in Emissions = 68-69.

1 The PED requirement may be met by one of the following options: PED 116, 2 cr.; or PED 116, 1 cr. plus a PED activities course, 1 cr.; or PED 116, 1 cr. plus RPK activities course. PED 116 is offered as both a 1-credit and a 2-credit course.

2 The social science elective may be selected from the economics, geography, history, political science, psychology, or sociology (includes anthropology) courses listed on page 54.

3 History electives may be selected from: HIS 101/102, 111/112, 187, 255, 256, 261, 262.

*AUT 245 may be substituted for AUT 215
Northern Virginia Community College
AUTOMOTIVE EMISSIONS
Certificate
Eligible Students with catalog year 2010-2011 and before only.

Purpose: This curriculum is designed to provide current theory, experience, and development for those who desire careers as emission control technicians, diagnosticians, and service technicians. Includes recent technical innovations in emission controls, electronics, automatic engine controls, and fuel management.

(Courses may not be offered in this order, please see your automotive advisor)

<table>
<thead>
<tr>
<th>One Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st Semester</strong></td>
<td></td>
</tr>
<tr>
<td>AUT 130 Intro. to Auto. Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>AUT 111 Automotive Engines I</td>
<td>4</td>
</tr>
<tr>
<td>AUT 121 Automotive Fuel Systems I</td>
<td>4</td>
</tr>
<tr>
<td>AUT 241 Automotive Electricity I</td>
<td>4</td>
</tr>
<tr>
<td>ENG 111 College Composition or ENG 131 Technical Report Writing I</td>
<td>3</td>
</tr>
<tr>
<td>SDV Elective</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total 19</strong></td>
<td></td>
</tr>
</tbody>
</table>

| **2nd Semester** | |
| AUT 122 Automotive Fuel Systems II | 4 |
| AUT 226 Advanced ASM Emissions Diagnostics | 2 |
| AUT 242 Automotive Electricity II | 4 |
| 1 Social Science Elective | 3 |
| **Total 13** | |

**Total credits for the Automotive Emissions Certificate = 32.**

1 The social science elective may be selected from the economics, geography, history, political science, psychology, or sociology (includes anthropology) courses listed on page 54.
Northern Virginia Community College
AUTOMOTIVE ELECTRICAL TECHNICIAN
Certificate
Eligible Students with catalog year 2010-2011 and before only.

Purpose: This curriculum is designed for persons who seek full-time employment as entry-level automotive service technicians. The curriculum includes electrical theory and application to advance the student as an automotive electrical technician. Occupational objectives include diagnostician specialist, emission control technicians, and service technicians.

(Courses may not be offered in this order, please see your automotive advisor)

One Year

Courses                                      Credits

1st Semester
AUT 130 Intro. to Auto. Mechanics          3
AUT 111 Automotive Engines I               4
AUT 241 Auto. Electricity I                4
ENG 111 College Composition I or
ENG 131 Technical Report Writing I         3
PHY 130 Survey of Applied Physics          3-4
    or PHY 101 Intro Physics I or MTH 151 Math for the Liberal Arts
SDV Elective                              1
Total 18

2nd Semester
AUT 122 Automotive Fuel Systems II         4
AUT 242 Auto. Electricity II               4
AUT 245 Automotive Electronics            4
Social Science Elective                    3
Total 15

Total credits for the Automotive Electrical Technician Certificate = 33.

MAINTENANCE & LIGHT REPAIR CERTIFICATE
Career Studies Certificate

Purpose: This program is designed to prepare students for entry-level employment as light repair technicians in new car dealerships and after-market service outlets.

(Courses may not be offered in this order, please see your automotive advisor)

AUT 130 Intro. To Automotive Mechanics     3
AUT 111 Automotive Engines                4
AUT 241 Automotive Electricity I          4
AUT 265 Automotive Braking Systems        4
AUT 266 Automotive Alignment, Suspension & Steering 4
    or
AUT 285 Auto Service and Practical Applications Capstone 4
SDV 100 College Success Skills            1
Total Credits = 20

1 The social science elective may be selected from the economics, geography, history, political science, psychology, or sociology (includes anthropology) courses listed on page 54.
YOU CAN AFFORD NVCC

The NVCC program is not out of reach financially. In fact, it's easier to pay for an education at NVCC than at most other high quality colleges and proprietary institutions. The salary you earn from your employment helps defray the cost of your education. Figures show that typical earnings for automotive student apprenticeships are over $12,000. Furthermore, NVCC has a wide range of financial aid programs and scholarships available to eligible students. Contact the NVCC Financial Aid office directly for information, (703) 323-3199, or visit their website at www.nvcc.edu/finance. The process may require several weeks so it is advisable to apply as early as possible.

APPROXIMATE COSTS

<table>
<thead>
<tr>
<th></th>
<th>VIRGINIA RESIDENTS</th>
<th>OUT-OF-STATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TUITION</td>
<td>$153.25 X 68 = $10,421</td>
<td>$350.50 X 68 = $23,834</td>
</tr>
<tr>
<td>TOOLS</td>
<td>$3,700</td>
<td>$3,700</td>
</tr>
<tr>
<td>BOOKS</td>
<td>$700*</td>
<td>$700*</td>
</tr>
<tr>
<td>+ Software Access</td>
<td>$200</td>
<td>$200</td>
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<tr>
<td>INCIDENTALS</td>
<td>$200</td>
<td>$200</td>
</tr>
<tr>
<td></td>
<td>$15,221</td>
<td>$28,634</td>
</tr>
</tbody>
</table>

Please note that all costs are estimates and subject to change. Individual costs may vary. Incidentals used only as an example.

A brief note on tools; Tools do not need to be purchased all at once. **Students need to have a basic set of hand tools during their first semester:** they can add to their tool collection as they complete school. Also, Sears, Lowe’s, and Home Depot have high quality tool sets available at substantial savings, and they are guaranteed!

Ask your instructor for assistance!

*Book pricing based on new books. Used or rental books may be available at a lower rate.
To be eligible for graduation with an Associate in Applied Science degree from NVCC, you must:

1. Select Automotive Technology as your degree plan (major) and certificates.

2. Have fulfilled all the course and credit hour requirements as set forth in either the current college catalog or the one in effect when you declared your major.

3. Have earned a cumulative grade point average of at least 2.0 in all studies attempted which are applicable toward graduation in the curricula.

4. Have formally applied to graduate on or before the dates published in the catalog in effect at the time.

5. Have satisfied all financial obligations to the college.

6. Have met all curriculum requirements.
RECOMMENDED TOOL LIST

Safety Glasses –required - no exceptions!
Leather shoes required – steel toe recommended

REQUIRED TOOLS
Socket Sets
3/8” drive deep and shallow 6 point 7-19mm with ratchets and extensions
Spark plug sockets, universal socket, Torx drive bit set
Wrenches
Combination 6-24mm
Hammers
Ball Peen
Plastic tip
Rubber mallet
Pliers – assorted slip joint, diagonal, needle, adjustable, vise grip
Screwdrivers – assorted flat head and Phillips
Tire chuck
Tire pressure gauge

RECOMMENDED TOOLS
Socket Sets
1/2” drive deep and shallow 6 point 12-24mm with ratchets and extensions
1/4” drive deep and shallow 6 point 4-19mm with ratchets and extensions
Wrenches
Flare nut set – metric
Allen wrench set - metric
Chisels – assorted with holder
Punches – assorted with holder
Brass Drift
Files – assorted with handle
Air Blow Gun
Brake tools
Tire tread depth gauge
Tire & Schrader Valve core remover
Battery terminal cleaner
Tape measure
Wire brush
Feeler gauge
Spark plug gapper
Hacksaw and blades
Utility Knife
Flashlight
Inspection mirror
Pick up magnet
Grabber tool
Pry bars
Scrapers
Toolbox
Logic Probe – High Impedance.

This is a short list of tools – you will need to add to this list as you go through the program.
Students receive discounts from Matco, Sears, and Snap-on. Good Quality Tools can also be purchased from Home Depot and Lowe’s.
**TOOL DEALERS**

*Craftsman Tools www.craftsman.com*
Local Sears store – Join the Craftsman Club for a 10% discount

*MATCO Tools*
To order please call Calvin D. Jones
calvin.jones@matcotools.com
443-964-8489 office
412-780-4489 cell
www.matcotools.com/votech

*SNAP-ON Tools*
To order please call: Pete Lemieux
301-855-4928
Peter.w.lemieux@snapon.com

*Lowe’s www.lowes.com & www.kobalt tools.com*
Tools Unlimited www.toolsunlimited.com
(800) 537-1993

*Home Depot www.homedepot.com*
Husky tool
DESCRIPTION OF COURSES

AUT 130  Introduction to Auto Mechanics 3 cr.
Introduces auto mechanics, covering auto shop safety, tool identification and use. Explains automobile system theory and function. Stresses quality work practices and job opportunities. Lecture 1-2 hours. Laboratory 3 hours. Total 4-5 hours per week.

AUT 111 – 112  Automotive Engines I - II 4 cr.- 4 cr.
Prerequisite for AUT 112 is AUT 111. Presents analysis of power, cylinder condition, valves, and bearings in the automotive engine to establish the present condition, repairs or adjustments. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

AUT 113  Cylinder Block Service 3 cr.
Studies basic cylinder block reconditioning, including boring, resleeving, line-boring, and deck resurfacing. Includes repair techniques for damaged block and cylinder head castings to include cold welding, brazing, welding, and epoxy. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

AUT 114  Cylinder Head Service 3 cr.
Prerequisite AUT 113. Studies cylinder head reconditioning, including valve seat grinding, refacing valves, servicing valve guides, valve seat inserts, cutting for valve seals and spring, thread repair and resurfacing mating surfaces. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

AUT 120  Intro To Automotive Machine Shop 3 cr.
Prerequisite or corequisite for all other machinist courses. Introduces automotive machining operations emphasizing shop safety and the safe use of machine shop tools. Surveys basic machining operations and specialized auto machining techniques necessary for reconditioning engine and chassis components. Requires basic set of machinist's hand tools. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

AUT 121 – 122  Automotive Fuels Systems I – II 4 cr.- 4cr.
Analyzes major domestic and foreign automotive fuel systems to include carburetors and fuel injection systems. Includes detailed inspection and discussion of fuel tanks, connecting lines, instruments, filters, fuel pumps, superchargers, and turbo chargers. Also includes complete diagnosis, troubleshooting, overhaul, and factory adjustment procedures of all major carbureted and fuel injection systems. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

AUT 136  Automotive Vehicle Inspection 2 cr.
Presents information on methods for performing automotive vehicle safety inspection. Lecture 1 hour. Laboratory 2 hours. Total 3 hours per week.

AUT 141 – 142  Automotive Power Trains I – II 4 cr.– 4cr.
Presents operation, design, construction, and repair of power train components, standard and automatic transmissions. Includes clutches, propeller shaft, universal joints, rear axle assemblies, fluid couplings, torque converters, as well as, 2, 3, and 4 speed standard, overdrive, and automatic transmissions. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.
AUT 215  Emissions Systems Diagnosis and Repair  2 cr.
Prerequisite is AUT 111 or AUT 241 or program approval. Presents logical diagnostic paths to identify vehicle HC-CO, O2 and NOx failure areas. Teaches a progression of failure detection from most likely to more complex causes. Emphasizes use of infrared analyzer and manufacturer’s specified adjustments. Lecture 2 hours per week.

AUT 225  Automotive Emissions Inspection  1 cr.
Provides training for certified inspectors in the Virginia State Emissions Inspection Program. Emphasizes current legislation and inspection techniques using industry standard emission analyzers. Lecture 1 hour per week.

AUT 226  Advanced ESM Emissions Diagnostic  2 cr.
Presents logical diagnostic strategies to identify and correct vehicle HC, CO and Nox emissions failures. Specifically addresses the technologies and techniques required for successful diagnosis and repair of vehicles failing Acceleration Simulation Mode (ASM) and Two-Speed Idle Mode Tests. Current ASM diagnostic equipment will be introduced, discussed and usage demonstrated. Lecture 2 hour per week.

AUT 236  Automotive Climate Control  4 cr.
Prerequisite is AUT 241. Introduces principles of refrigeration, air conditioning controls, and adjustment and general servicing of automotive air conditioning systems. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

AUT 241 – 242  Automotive Electricity I – II  4 cr.– 4cr.
Introduces electricity and magnetism, symbols and circuitry as applied to the alternators, regulators, and starters, lighting systems, instruments and gauges and accessories. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

AUT 245  Automotive Electronics  4 cr.
Prerequisite is AUT 241. Introduces field of electronics as it applies to the modern automobile. Emphasizes basic circuit operation, diagnosis, and repair of digital indicator and warning systems. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

AUT 265  Automotive Braking Systems  4 cr.
Presents operation, design, construction, repair, and servicing of braking system, including Anti-Lock Brake Systems (ABS). Explains uses of tools and test equipment, evaluation of test results, estimation of repair cost for power, standard and disc brakes. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

AUT 266  Automotive Alignment, Suspension, and Steering  4 cr.
Introduces use of alignment equipment in diagnosing, adjusting, and repairing front and rear suspensions. Deals with repair and servicing of power and standard steering systems. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.
Receive College Credit for Passing ASE Certification Tests!

College Credit May Be Available for Your ASE Certifications!

The American Council on Education's (ACE) Commission on Educational Credit and Credentials has recommended that credit be granted to those technicians who have passed ASE certification tests and have the required work experience.

What is the American Council on Education?
ACE is the major organization that reviews and recommends credit for experience to colleges and universities in America. Its Center for Adult Learning and Educational Credentials is the pioneer in evaluating learning gained from non-campus sources. ACE CREDIT connects workplace learning with colleges and universities by helping adults gain access to academic credit at colleges and universities for formal courses and examinations taken in the workplace or other settings outside traditional higher education.

How Do I Get College Credit?
Technicians seeking college credit should first contact their school, or the institution in which they plan to enroll, to determine if the ACE credit recommendations will be considered. Neither ASE nor ACE awards college credit. This is the sole decision of the individual institution.

How Much Does It Cost?
Once your chosen institution has decided to grant college credit for ASE certifications, you may request that ASE forward a transcript of your ASE record directly to the institution. The fee is $7.50 per transcript request to ASE.

To Request a Transcript (For Technicians ONLY) You will need to fill out college forms and ASE forms.

Please mail a request including:

School Data:
Northern Virginia Community College,
Counseling Dept.
6901 Sudley Road,
Manassas Va 20109

Personal Data: Technician's Name, ASE I.D. Number, Address, Telephone Number, Signature.

Mail your request with a check or money order for $7.50 to:

ASE Transcript Service
National Institute for AUTOMOTIVE SERVICE EXCELLENCE
101 Blue Seal Drive, SE, Suite 101
Leesburg, VA 20175

www.ASE.com
1-888-ASE-TEST (1-888-273-8378)
ASE Help Desk 1-800-390-6789 or asehelp@ase.com
NVCC will grant college credit for the following ASE Certification Tests, which have been recommended by the American Council on Education. To have a transcript evaluated students should request that an official transcript be sent to Admissions & Record, NVCC, 6901 Sudley Road, Manassas, VA 20109-2399, as well as, complete and submit a Request for Evaluation of Transcripts form to the Admissions and Records office.

Please contact one of the instructors to assist you!

**AMERICAN COUNCIL ON EDUCATION**
The Center for Adult Learning and Educational Credentials

Credit Recommendations of the American Council on Education Commission on Educational Credit and Credentials

<table>
<thead>
<tr>
<th>Automobile Test Series</th>
<th>ACE Panel Recommendation</th>
<th>Minimum Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine Repair (A1)</td>
<td>AUT 112</td>
<td>Pass</td>
</tr>
<tr>
<td>Automatic Transmission/Transaxle (A2)</td>
<td>AUT 142</td>
<td>Pass</td>
</tr>
<tr>
<td>Manual Drivetrain and Axles (A3)</td>
<td>AUT 141</td>
<td>Pass</td>
</tr>
<tr>
<td>Suspension and Steering (A4)</td>
<td>AUT 266</td>
<td>Pass</td>
</tr>
<tr>
<td>Brakes (A5)</td>
<td>AUT 265</td>
<td>Pass</td>
</tr>
<tr>
<td>Electrical Systems (A6)</td>
<td>AUT 241</td>
<td>Pass</td>
</tr>
<tr>
<td>Heating and Air Conditioning (A7)</td>
<td>AUT 236</td>
<td>Pass</td>
</tr>
<tr>
<td>Engine Performance (A8)</td>
<td>AUT 111</td>
<td>Pass</td>
</tr>
<tr>
<td>Advanced Engine Performance Specialist (L1)</td>
<td>4 credits**</td>
<td>Pass</td>
</tr>
</tbody>
</table>

**The L1 test may be used as credit for either AUT 121, 122, or the AUT 215 & 226 combination. The student is responsible for having his/her ASE transcript showing certification sent to NVCC. The student must meet the 2-year work experience requirement imposed by ASE.**

NOVA requires 25% of all courses must be completed at NOVA.
**AUTOMOTIVE TECHNOLOGY**

**DUAL ENROLLMENT**

***SUBJECT TO CHANGE PLEASE SEE A COUNSELER***

Dual Enrollment for Automotive Technology

Between

Northern Virginia Community College

And

C.S. Monroe Technology Center

Arlington Career Center

**DUAL ENROLLMENT**

Dual enrollment is an enrichment opportunity that allows eligible and qualified high school students to take courses in high school and college at the same time. College courses are offered through NOVA; students earn college credit and possibly receive high school credit for these courses. Always talk with your high school counselor before moving forward with dual enrollment options. Many students, with prior approval from their high school principal, may be able to use some NOVA college courses to fulfill Virginia high school graduation requirements.
Northern Virginia Community College

WELDING PROGRAM
MANASSAS CAMPUS

FOR ADDITIONAL INFORMATION PLEASE CONTACT: 703-530-3002
Matthew Wayman – mwayman@nvcc.edu

WELDING: BASIC TECHNIQUES
Career Studies Certificate

Purpose: This curriculum is designed for persons wishing to obtain fundamental skills for immediate entry-level positions in the welding trade as welding apprentices or welding laboratory assistants. Its structure allows students to pursue these courses on a part-time basis. All courses will apply to the Welding certificate program.

One Year Program

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>ENG/SPD Elective</td>
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<tr>
<td></td>
<td>WEL 120 Introduction to Welding</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>WEL 121 Arc Welding</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>7</td>
</tr>
<tr>
<td>2nd</td>
<td>WEL 122 Welding II (Electric Arc)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>WEL 150 Welding Drawing and Interpretation</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>6</td>
</tr>
<tr>
<td>3rd</td>
<td>WEL 130 Inert Gas Welding</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>WEL 160 Semi-Automatic Welding Processes</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>6</td>
</tr>
</tbody>
</table>

Total credits for the Welding: Basic Techniques Career Studies Certificate = 19.
All first-time students must take a one-credit Student Development (SDV) course prior to enrolling in their 16th credit at NVCC.

TOOLS & SAFETY EQUIPMENT

- Welding helmet, #10 or #11 lens
- Wire brush
- Thick cotton or wool long sleeve shirt or welding leathers or flame resistant chore coat
- Leather shoes or boots, preferably steel toe, NO TENNIS SHOES
- Impact resistant safety goggles or glasses Z.87 approved
- Gauntlet gloves (Gloves with cuffs)
- Chipping hammer
- Weld fillet gage (Optional)
- Hearing protection (ear muffs preferably)
DESCRIPTION OF WELDING COURSES

**WEL 120 – INTRODUCTION TO WELDING (2 CR.)**
Introduces history of welding processes. Covers types of equipment, and assembly of units. Stresses welding procedures such as fusion, non-fusion, and cutting oxyacetylene. Introduces arc welding. Introduces MIG welding. Emphasizes procedures in the use of tools and equipment. Lecture 1 hour. Laboratory 2 hours. Total 3 hours per week. (Oxyfuel, Stick & Mig)

**WEL 121 - ARC WELDING (2 CR.)**
Studies the operation of AC and DC power sources, weld heat, polarities, and electrodes for use in joining various alloys by the SMAW process. Covers welds in different types of joints and different welding positions. Emphasizes safety procedures. Lecture 1 hour. Laboratory 3 hours. Total 4 hours per week. (Stick)

**WEL 122 - WELDING II (ELECTRIC ARC) (3 CR.)**
Teaches electric arc welding, including types of equipment, selection of electrodes, safety equipment and procedures, principles and practices of welding. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week. (Stick)

**WEL 126 – PIPE WELDING I (3 CR.)**
Teaches metal arc welding processes including the welding of pressure piping in the horizontal, vertical, and horizontal fixed positions in accordance with Section IX of the ASME Code. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

**WEL 130 - INERT GAS WELDING (3 CR.)**
Introduces practical operations in the uses of inert-gas-shield arc welding. Discusses equipment, safety operations, and practices welding with various equipment and appropriate applications in manual and semi-automatic welding. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week. (TIG)

**WEL 150 – WELDING DRAWING and INTERPRETATION (3 CR.)**
This course will instruct the student in how the welding blueprint is developed and how it is used to fabricate various products. The course will cover the basic weld symbols and how they are applied to the welding blueprint. The student will learn the various joints and their application to the welding process. Lecture 3 hours per week.

**WEL 160 - SEMI-AUTOMATIC WELDING PROCESSES (3 CR.)**
Introduces semi-automatic welding processes with emphasis on practical application. Includes the study of filler wires, fluxes, and gases. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week. (MIG)
Northern Virginia Community College
DIESEL MECHANICS TECHNOLOGY
MANASSAS CAMPUS

For additional information please contact:
Jacob Phillips  703-257-6619
jphillips@nvcc.edu

STEEL TOED SHOES ARE REQUIRED – NO EXCEPTIONS
See instructor for a tool list

DIESEL MECHANICS TECHNOLOGY
Career Studies Certificate

Purpose: The Diesel Mechanics Technology Career Studies Certificate curriculum is designed to introduce the fundamentals of diesel equipment repair and provide instruction in hydraulic systems, diesel engine overhaul and tune-up, electrical circuits, power train maintenance and fuel injection. The Diesel Mechanics Technology program will give graduates a practical background in basic diesel equipment technology principles. The curriculum provides practical training and the option of on-the-job experience through cooperative education. The demand for trained diesel mechanic personnel and technicians is increasing.


CURRICULUM

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Lecture</th>
<th>Laboratory</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDV EE</td>
<td>College Composition I</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>ENG 111</td>
<td>or Technical Report Writing</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>DSL 111</td>
<td>Introduction to Diesel Engine</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>DSL 141</td>
<td>Transportation Electrical Systems I</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>DSL 153</td>
<td>Diesel Power Trans I</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>DSL 155</td>
<td>Steering and Suspension</td>
<td>2</td>
<td>2</td>
<td>3</td>
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<tr>
<td>Semester Total</td>
<td></td>
<td><strong>10</strong></td>
<td><strong>8</strong></td>
<td><strong>14</strong></td>
</tr>
<tr>
<td>WEL120</td>
<td>Intro to Welding</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>DSL150</td>
<td>Mobile Hydraulics/Pneumatics</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>DSL 123</td>
<td>Diesel Engine Systems I</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>DSL 143</td>
<td>Diesel Truck Electrical Systems</td>
<td>2</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>DSL 160</td>
<td>Air Brake Systems</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Semester Total</td>
<td></td>
<td><strong>8</strong></td>
<td><strong>10</strong></td>
<td><strong>13</strong></td>
</tr>
</tbody>
</table>

Total Minimum Credits for Certificate in Diesel Mechanics Technology 27
DESCRIPTION OF DIESEL COURSES

DSL 111 - Introduction to Diesel Engine (2cr.)
Studies the modern diesel engine, including its fuel, cooling, induction, and exhaust systems. Covers construction, fabrication, maintenance, tune-up, and minor repair and adjustment. Lecture 1 hour. Laboratory 2 hours. Total 3 hours per week.

DSL 123 – DIESEL ENGINE SYSTEMS I (2 CR.)
Studies basic operational theory of the two and four-stroke cycle diesel engine used in public transportation vehicles. Covers the construction and function of the diesel engine and the major components as they relate to air, exhaust, and fuel systems. Emphasizes diesel engine tune-up and troubleshooting theory. Lecture 2 hours

DSL 141 - TRANSPORTATION ELECTRICAL SYSTEMS I (2 CR.)
Studies basic operational theory of electrical systems used in public transportation vehicles. Covers electrical symbols, schematics, troubleshooting procedures, as well as the function, construction, and operation of the electrical system and its components. Lecture 2 hours per week.

DSL 143 - DIESEL TRUCK ELECTRICAL SYSTEMS (4 CR.)
Studies the theory and operation of various truck and tractor electrical systems. Covers preheating, starting, generating, and lighting systems. Uses modern test equipment for measurement, adjustment, and troubleshooting. Lecture 2 hours per week. Laboratory 4 hours. Total 6 hours per week.

DSL 150 – Mobile Hydraulics/Pneumatics (3 CR.)
Introduces the theory, operation and maintenance of hydraulic/pneumatic systems and devices used in mobile applications. Emphasizes the properties of fluid, fluid flow, fluid states and application of Bernoulli's equation. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.3 credits

DSL 153 – POWER TRAINS I (3 CR.)
Focuses on manual, hydrostatic, and heavy-duty automatic transmissions. Examines various types of power trains and their components, such as multidisc clutch, multi-speed transmissions, torques, drive lines, and differentials. Includes disassembly and assembly of various components. Part I of II. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

DSL 155 – HEAVY DUTY SUSPENSION AND SERVICE (3 CR.)
Examines suspensions used on heavy-duty trucks and teaches preventative maintenance and service procedures. Includes nomenclature, theory of operation and services, and repair of heavy-duty truck suspension systems including tires and wheels and steering gear and connecting linkage. Provides opportunity for preventative maintenance inspections and service procedures on heavy-duty vehicles. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

DSL 160 - AIR BRAKE SYSTEMS (3 CR.)
Studies the basic operational theory of pneumatic and air brake systems as used in heavy-duty and public transportation vehicles. Covers various air control valves, test system components, and advanced air system schematics. Teaches proper service and preventative maintenance of systems. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.
MEC 161 - BASIC FLUID MECHANICS - HYDRAULICS/PNEUMATICS (4 CR.)
Introduces theory, operation and maintenance of hydraulic/ pneumatics devices and systems.
Emphasizes the properties of fluids, fluid flow, fluid statics, and the application of Bernouli’s equation.
Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

WEL 120 – INTRODUCTION TO WELDING (2 CR.)
Introduces history of welding processes. Covers types of equipment, and assembly of units. Stresses welding procedures such as fusion, non-fusion, and cutting oxyacetylene. Introduces arc welding.
Introduces MIG welding. Emphasizes procedures in the use of tools and equipment. Lecture 1 hour.
Laboratory 2 hours. Total 3 hours per week

TOOLS & SAFETY EQUIPMENT
- Steel Toe Shoes/Boots, NO TENNIS SHOES
- Impact resistant safety goggles
- 400 + Piece Profession Mechanic’s Tools Set including
  - 21 ¼-in, 22 3/8-in and 19 ½-in Deep sockets, plus a complete assortment of hex, Torx and screwdriver bit sockets.
  - 55 combination wrenches and 14 nut drivers
- 1 – 16 oz dead blow hammer
- 1 – 16 oz hammer
- 1—16 oz rubber mallet
- 1 – set of slip jaw pliers
- 1 – set of locking pliers
INSTRUCTOR RESUMES

1. **Gary Phares**, “The Contender”
   Enginies Instructor & Trainer I; Mr. Phares has two AAS Automotive Technology degrees, and two certificates in Automotive Technology from NOVA; and a Certificate from Hunter Engineering in Advanced Alignment Technology. He has worked for NOVA for over 35 years and teaches the machine shop courses. He serves on the advisory board for three High Schools. He is an avid racecar driver, and has won many awards and Championships. He has a rail and a ‘67 Camaro. He is an academic counselor and advisor for the students of the Automotive Program. He is an ASE Certified Master Automobile Technician, ASE Certified Master Machinist and an ASE L1 Advanced Level Specialist.

2. **Tim Godfrey**, “Sgt. Major”
   Mr. Godfrey has two AAS Automotive Technology degrees from NOVA; BA & BS degrees from Virginia Polytechnic Institute and State University. He was an automotive technician for 6 years. He has been an Instructor at NOVA since 1991. He is an academic counselor and advisor for the students of the Automotive Program. He is an active member of the US Army Reseve. He is an ASE Certified Master Automotive Technician. He has deployed to Afghanistan and Iraq. Tim has walked away from multiple attempts at destroying U.S. government property.

3. **Myles Embrey**, Cool Cat Assistant Professor
   Mr. Embrey has an AAS Automotive Technology degree from NOVA; BS Automotive & Heavy Equipment Management degree from Ferris State University in Michigan; and an M. ED. Education Degree from Marymount University in Arlington VA. He was a technician for 4 years and a service manager for 7 years with Toyota and Goodyear. He has been teaching at NOVA since 1997. He is an academic counselor and advisor for the students of the Automotive Program. He is currently restoring a 1930 Model A Coupe. He is an ASE Certified Master Automobile Technician, and an ASE L1 Advanced Level Specialist.

4. **John Hicks**, “Big John”
   Instructor & Trainer I; John has two AAS Automotive Technology degrees and two certificates in Automotive Technology from NOVA. “Big John” started teaching part time in 2003 and full time in 2007! He worked for Sheehy Nissan-Mitsubishi of Manassas for over 7 years. He is an ASE Master Automotive Technician, ASE L1 Advanced Level Specialist, Mitsubishi Master Elite Technician, Nissan Senior Technician, VA State Inspector, Emission Inspector and a Certified Emission Repair
Technician. He is an academic counselor and advisor for the students of the Automotive Program.

5. **Al Hupp “The New Guy”**
Instructor; Al has two AAS Automotive Technology degree’s, and multiple certificates in Automotive Technology from NOVA. He has over 20 year’s employment as an automotive technician in the field with 10 plus years of self employment. He has also done vehicle customizing, drag racing, and enjoys riding ATV’s as well. He holds a VA state inspectors license, emission repair license, ASE Master Technician, and ASE L1 Advanced Level Specialist.

6. **Rod Oke**
Adjunct Instructor, he has a BA Business Administration from Harrington University, in London England. He was a Territory Manager with Hunter Engineering Inc for 8 years, an Area Group Manager with Merchants Tire, a Service Manager with Goodyear, and several other independent repair facilities! He has taught at NOVA since 2000. He is an avid race car enthusiast, and races his vintage ’75 Pontiac Firebird!

7. **Matthew “Sparky” Wayman**
Matt joined NVCC as the Welding Department Head and our full time Welding Instructor in 2011. Matt is a graduate of Newport News Shipbuilding School and has been welding for over 25 years. He was a maintenance mechanic/welder for International Paper Corporation for 7 years and service technician/welder. Matt also worked for Cummins-Wagner for 7 years as a welder. He has been teaching at NOVA since 2011. Matt is also an academic counselor for the welding students.

8. **Carrie (Worden)Rossi, “Little Lady Welder”**
Welding Instructor; Mrs. Rossi has an AAS degree and Welding Career Certificate from NOVA and is going on to achieve a BS through the University of Phoenix online. She has held welding certifications for Shielded Metal Arc Welding (SMAW) and Gas Tungsten Arc Welding (GTAW) over the 10 years of work experience in the welding industry. She worked a year as an apprentice blacksmith to enhance her artistic talents with metals. Carrying on her father’s legacy of teaching welding excellence, she started teaching at NOVA in 2007. She is an academic counselor for the students in the welding program.
9. **Paul Cupka, “Mr. C” (Adjunct Instructor)**

Works full time as a Maintenance Instructor with MV Transportation, training over 60 technicians and 30 utility personnel. Spent 32 years with Robinson Terminal Warehouse and Trucking Company (a Washington Post company), starting as a technician and working his way to Equipment/Facility Maintenance Manager. He also served as Safety Compliance Manager for RTWC after accruing over 80 hours of OSHA training. He is an ASE Master Certified Transit Bus Technician and at the present time holds 4 Medium/Heavy Duty ASE Certifications. He has a 608 (Universal) EPA A/C Certification, along with a 609 EPA A/C Certification. He holds a proctorship through Pennsylvania State University to train and test for the EPA 608 A/C Certification. He has a Business Information Technology Certificate from NVCC. He is currently a member of the American Trucking Association’s Technology and Maintenance Council and is a member of the Virginia Trucking Association’s Safety Council.

10. **Derek Bryant (Adjunct Instructor)**

Derek Bryant is a graduate of NVCC & has two AAS Automotive Technology degrees and two certificates in Automotive Technology from NOVA. He has worked in Ford dealerships for four years before going over to local government fleet with the County of Fairfax. He is an emission repair tech & state inspector for the state of Virginia. Derek is an ASE master technician, L1 technician, along with having certifications in the ASE heavy truck & school bus series. He enjoys spending time with his family & riding his motorcycle.
11. **Bonnie and Clyde,**
Faculty Mousers. Bonnie and Clyde both hold Certificates from MET (Mouse Extermination Technologies), and S&ST (Scrapping and Sparring Technologies). They have worked for NOVA since 2007. They are currently conducting research for SERTA Perfect Sleepers, STP Oil Absorbents, and Victor Mousing Technologies.
Emissions Inspectors & Certified Repair Technicians

NOVA offers courses in conjunction with DEQ to train technicians to be Emissions Inspectors or Certified Repair Technicians.

The English and Math placement tests are not necessary for these specific courses.

**Course for Emission Inspectors:**

**AUT 225 AUTOMOTIVE EMISSIONS INSPECTION** (1.00 CR.)
Provides training for certified inspectors in the Virginia State Emissions Inspection Program. Emphasizes current legislation and inspection techniques using industry standard emission analyzers. Lecture 4 hours per week for four weeks.

**Courses for Certified Repair Technicians:**

**AUT 226 The 1st night an opt-out test is given. If you get 80% or higher you can opt out of the course or continue. If you score 40% or below we highly recommended that you take AUT 215 before taking AUT 226.**

**AUT 226 ADVANCED ASM EMISSIONS DIAGNOSTICS** (2.00 CR.)
Presents logical diagnostic strategies to identify and correct vehicle HC, CO, and NOx emissions failures. Specifically addresses the technologies and techniques required for successful diagnosis and repair of vehicles failing Acceleration Simulation Mode (ASM) and Two-Speed Idle Mode Tests. Current ASM diagnostic equipment will be introduced, discussed, and usage demonstrated. Lecture 4 hours per week for eight weeks.

**AUT 215 EMISSIONS SYSTEMS DIAGNOSIS AND REPAIR** (2.00 CR.)
Prerequisite is AUT 111 or AUT 241 or program approval. Presents logical diagnostic paths to identify vehicle HC-CO, O2, and NOx failure areas. Teaches a progression of failure detection from most likely to more complex causes. Emphasizes use of infrared analyzer and manufacturer's specified adjustments. Lecture 4 hours per week for eight weeks.

**Registration Information**
Apply for admission online at [www.nvcc.edu/novaconnect](http://www.nvcc.edu/novaconnect) or fill out Form 125-30 and submit it to the college.

Once you are admitted you can enroll in the courses you need.
Web – [www.nvcc.edu/novaconnect](http://www.nvcc.edu/novaconnect)
Telephone – (703)323-3770, Prince William County – (703)330-3770

**Virginia Department of Environmental Quality Requirements**
9VAC5-91-390. Qualification requirements for emissions inspector licenses.
A. Applications to qualify for emissions inspector licenses shall be filed with the department and the issuance of the licenses shall be administered by the department. Applications for such licenses shall be completed on forms provided by the department. Before an applicant may be given a license, he must comply with the requirements of this section. The department will notify applicants of the evaluation requirements prior to testing.

B. An applicant shall demonstrate the ability to operate the certified analyzer systems properly and perform testing as required by this chapter.

C. No emissions inspector license shall be issued unless it is shown to the satisfaction of the director that the emissions inspector has the ability and resources to perform emissions inspections without causing a violation of the applicable provisions of this chapter and the Virginia Motor Vehicle Emissions Control Law.

D. Any applicant whose license has been revoked shall make a showing to the director that the condition causing the revocation has been corrected to the satisfaction of the director.

E. An applicant shall bear a valid motor vehicle driver's or operator's license and shall present proof of such license to the department at the time of application.

F. An applicant shall demonstrate knowledge, skill, and competence concerning the conduct of emissions inspections. Such knowledge, skill and competence shall be demonstrated by completing training courses approved by the department and by passing a qualification test (scoring 80% or higher) which may include, but not be limited to, knowledge of the following:

1. Operation and purpose of emissions control systems.
2. General relationship of hydrocarbon, oxides of nitrogen (NO\textsubscript{x}), and carbon monoxide emissions to timing and air-to-fuel ratio control.
3. General information regarding adjustment and repair based on manufacturers' specifications.
4. This regulation (9VAC5-91-10 et seq.).
5. General information regarding contemporary diagnostic and engine tune-up procedures.
6. The provisions of the Emissions Control Systems Performance Warranty pursuant to §207(b) of the federal Clean Air Act as it applies to this chapter.
8. Operation of and proper use, care, maintenance, and gas span checking of certified analyzer systems.
9. Proper use of and distribution of motor vehicle inspection reports, certificates of emissions inspection, and supplemental documents.
10. Inspections for visible smoke emissions.
11. Functional testing of the evaporative emissions control system as required in the enhanced emissions inspection program.
12. Safety and public health as it applies to the Virginia Vehicle Emissions Control Program.
13. Public relations as it applies to the Virginia Vehicle Emissions Control Program.