

Post-Audit Review

For Occupational Programs Implemented Under the Provisions of Series 37 West Virginia Council for Community and Technical College Education

Institution: Eastern West Virginia Community and Technical College
Program (Degree and Title): Automotive Associate in Applied Science Degree
CIP Code: 47.0604

I. Introduction

The Automotive Technology (ATT) program provides a technical education at the associate degree level. Through instruction and practical application, students gain knowledge and skills required of the modern automotive technician.

Successful completion of the Automotive Technology program will allow graduates to enter the workforce at the technician level. They are prepared to apply the knowledge and skills developed in lectures and laboratories to diagnose, troubleshoot and repair today's complex vehicles.

Students learn to comply with personal and environmental safety practices associated with clothing; eye protection; hand tools; power equipment; proper ventilation; and the handling, storage and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations.

The Automotive Technology curriculum prepares graduates to work in dealerships, independent repair facilities, automotive suppliers, distributorships and sales. The graduate is prepared to become self-employed in the automotive repair field. Typical salaries for automotive technicians in our area range from \$12 to \$18 dollars per hour. In addition, most larger maintenance shops include medical benefits.

The first year is designed to allow a student to obtain a certificate level education; the second year completes the AAS degree and will provide additional education to students in advanced maintenance areas.

Eastern has spent considerable time and resources marketing this program in the past year. We expect to see increased enrolment as a result. The automotive program is an expensive technical program with a small student to instructor ratio. This will make it very difficult to be a self sufficient program relying purely on tuition. Instructor salaries are higher in order to attract qualified faculty.

Approved by Assessment: 7/25/12
Approved by LOT: 9/17/12 with revisions
Approved by Cabinet: 9/25/12
Approved by Board of Governors: 10/17/12

II. Goals and Objectives

Program Goals

The program was developed with the help of local industries throughout Eastern WVCTC's six county service district. The goals of the program were to educate individuals to help them move to higher level positions within automotive repair shops, and to help supply future needs for automotive technicians. Discussions of having "people in the pipeline" were a constant thread throughout the meetings and course development. Automotive technician employers throughout our district have been involved in our original discussions and more importantly our continuing advisory meetings.

Program Need

The Potomac Highlands Region of West Virginia does not offer a post secondary program in Automotive Technology that prepares its graduates to enter the highly technical and competitive automotive industry. Emphasis will be directed to preparing the graduates to pass ASE industry recognized certification tests. These certifications will enable the program graduates to obtain jobs that pay an average wage of \$12.00 to over \$18.00 per hour. The closest similar automotive training degree programs are at Allegany College of Maryland and Blue Ridge Community College in Weyers Cave, Virginia. Many of the Career and Technical Education adult and secondary students in Eastern's service region traveled out-of-state to specialty schools to obtain the skills to be able to pass the rigid ASE national certification exams required for the technicians working in the better repair shops. Recent graduates of the South Branch Career and Technical Center have spent between \$25,000.00 and \$35,000.00 per student to obtain this advanced training at schools such as:

- College of Technologies at the University of Northwestern Ohio, Lima, Ohio
- Wyoming Technical Institute, Pennsylvania
- Universal Technical Institute, Inc., Mooresville, North Carolina
- Advance Technical Institute, Norfolk, Virginia

This program will is now offered on the EWVCTC Technology Center located in Petersburg, WV.

III. Assessment

Program Level Assessment

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The assessment of the Certificate and Associate in Applied Science degree programs in Automotive Technology will follow assessment instruments and standards to discern student academic achievement and course effectiveness in meeting the certificate goals and course outcomes.

- Completion Rate/course level: At least 80% of students enrolling in the certificate will successfully complete the course(s). This will be determined after registration each semester based on enrollment numbers. At least 80% of the students will demonstrate mastery of the course outcomes by earning at least a 70% average in each course through a variety of classroom assessments.
- Drop Rate: Beginning in Spring 2009 the drop rate for Certificate in Automotive Technology will be tracked. Beginning in Spring 2010 the drop rate for the Associate in Applied Science degree program will be tracked.
- Course-level effectiveness: Course outcomes for all of the Automotive Technology courses will be assessed. At least five outcomes from each course will be assessed. Exam questions linked to course learning outcomes will be included in the final exam.
- Persistence Rate: Students in Automotive Technology will be tracked throughout their course of study to determine persistence of completion in the Certificate and AAS degree programs.
- Graduation Rate: At least 70% of students enrolling in the Certificate and AAS degree programs in Automotive Technology will successfully complete the certificate within a reasonable time based on full-time or part-time implementation. This will be measured by the number obtaining a Certificate and/or AAS degree.
- Syllabus Analysis: Syllabus analysis will be conducted on an annual basis to assure consistency of outcomes with Mater Course Record Forms and among sections of specific courses.
- Transcript Analysis: Transcript analysis will be conducted as triggered by deficiencies in course level assessment activities.
- Advisory Committee Review: Annual advisory committee review will provide qualitative evaluation of program effectiveness in meeting regional paraprofessional educator needs.
- Course evaluation surveys will be used as indirect assessment measures of student success and satisfaction.

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- Graduate Placement Rate: Tracking of students completing the Certificate and AAS degree programs in Automotive Technology will be done by a survey to determine the number of graduates obtaining employment in their field of study. The survey will include questions to collect data on location, salary, job preparedness, and reasons why graduates are not working in their field if applicable.

All technical courses are assessed on a two year cycle. Student observation task sheets serve as the data source for course learning outcome assessment. Results in two course assessment reports (ATT 105, ATT 107, ATT 207) identified a learning outcome not being satisfactorily met at the minimum performance standard. As a result, course materials were reviewed and amended to place more emphasis and allow more application time in the lab portion of these courses. Results of this change will be monitored through the next assessment cycle. Based on recommendations from the faculty the program has been changed to require that all courses in the major must be completed with a 2.0 or grade of C or better.

IV. Curriculum

- A. Include a summary of degree requirements (including entrance standards and exit standards) and provide commentary on significant features of the curriculum.
- B. Provide a list of courses along with the number of credit hours required for each course. Include specific course titles and numbers. Label as Appendix I.
- C. Submit a listing of the course delivery modes.

A. Summary of Degree Requirements

The Automotive AAS program requires students to be capable of computations in Algebra as well as reading comprehension and communications skills. Significant features of the ATT program are the actual hours of “hands on” experience. Many of the students entering this degree program are tactile learners and tend not to do as well in lecture only courses. We have designed the courses to not only teach basics and fundamentals, but to help students understand why they need to learn these functions. The program incorporated multiple instructional methods to address diverse learning styles.

- B. The courses lists with credit hours are listed in Appendix I.

C. Course Delivery Modes

These courses all have a lecture and a laboratory component where students get hands on experience working on systems and equipment. Computerized trainers are incorporated throughout the curriculum to enhance the learning opportunities. All trainers can be programmed to provide additional emphasis on specific technical skills as deemed

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appropriate through assessment or advisory committee recommendations. Students learn all areas of automotive basic maintenance. The following are skills emphasized by the Automotive Technology Advisory Committee:

- Apply accepted safety and health practices in the workplace.
- Use proper tools and instrumentation to diagnose, troubleshoot and repair braking systems.
- Use proper tools and instrumentation to diagnose, troubleshoot and repair automotive suspension and steering systems.
- Use proper tools and instrumentation to diagnose, troubleshoot and repair automotive engines.
- Use proper tools and instrumentation to diagnose, troubleshoot and repair automotive electrical and electronic systems and components.
- Use proper tools and instrumentation to diagnose, troubleshoot and repair automotive heating systems.
- Use proper tools and instrumentation to diagnose, troubleshoot and repair automotive air conditioning systems.
- Use proper tools and instrumentation to diagnose, troubleshoot and repair manual drive trains and axles in automobiles.
- Use proper tools and instrumentation to diagnose, troubleshoot and repair automobiles with automatics transmissions and transaxles.
- Develop scientific knowledge and mathematical analytical skills and techniques.
- Demonstrate an appreciation and awareness of human and cultural diversity in life as well as the workplace.
- Apply effective written and oral communication skills.
- Demonstrate computer literacy.

V. Faculty

Submit information on the total number of full-time and part-time faculty utilized per year to deliver the program. Use Appendix II forms. The narrative should summarize points relating to faculty teaching courses within the major (percentage of faculty holding tenure, extent of use of part-time faculty, level of academic preparation, etc.) Data on part-time faculty may be abbreviated, but should minimally include academic degree held and list of courses taught.

The Automotive Program currently utilizes two instructors. Mr. Swick is our full time faculty, who teaches all first year courses. He is talented and holds nine ASE certifications. Our second faculty member is Mr. Byard who is an adjunct faculty. Mr. Byard is employed in the automotive industry and is currently a shop manager. Data on individual instructors, their education and courses taught are contained in Appendix II. All of our instructors have many years of professional experience ranging from 7 – 30 years in industry and 2 to 20 years in educational settings.

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VI. Enrollment and Graduates

- A. Submit data indicating the headcount and full time equivalency (FTE) enrollment along with the number of graduates for each year the program has been in existence. Label as Appendix III.

Data on headcount and graduates is contained in Appendix III.

Automotive students are in many cases non traditional learners. Most have families and obligations. As such they cannot attend full time classes, which is very typical in a community college. Unfortunately many take several years to complete the certificate program, and in many cases, obtain jobs and elect not to continue to obtain the two year AAS Degree. Many students begin by declaring an interest in the two year AAS program, but later find employment opportunities and opt to change to the CAS program.

- B. Provide information on graduates in terms of places of employment, starting salary ranges, and number employed in the field of specialization. Include evidence and results of follow-up studies of graduates and employers. The studies should indicate graduate and employer satisfaction with the effectiveness of the educational experience. A summary of the results to be included should indicate the number of individuals surveyed or contacted and the number of respondents.

Students graduating in the ATT AAS Degree program are trained in automotive maintenance and safety. Their salary ranges in local shops range from \$12-\$18/hour. Most without additional experience will begin at the lower end of the pay scale. Some graduates have elected to drive or to move to larger cities to obtain a higher salary.

Current employers are Jenkins Automotive, Keyser WV, Steven Toyota, Harrisonburg VA. Wimer Automotive, Moorefield WV and Gary's Auto Repair also in Moorefield WV.

- C. Present information on the success of graduates in achieving acceptance into baccalaureate programs.

To date students have not continued their education beyond our programs to pursue a baccalaureate degree. This program was designed as a terminal degree program and targeting employment opportunities. It has not been designed as a 2+2 however, some courses are transferable.

VII. Financial

- A. Indicate the annual total expenditures to deliver the program and source(s) of funding for the program. Include departmental resources, state appropriated funds, grants and contracts, state funds and student fees.

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Currently the faculty salaries are being paid as part of Eastern's annual budget. Originally salaries were part of grant funding, which has expired for salary use. There is some funding remaining for additional equipment. As we have met with advisors it was clear that we needed some additional equipment. The automotive program, as many technical programs, will find it difficult to completely fund the operation of the program purely through tuition. Student to instructor ratios are low, typically less than 12 students per class, which makes it difficult to fund. A total of nearly \$ 600,000 in grant funding was obtained by Eastern in establishing the Automotive program.

Currently the cost of instruction, annual fees and consumables equate to nearly \$55,000. The cost of the facility is not included in this calculation. Looking at a planned enrolment of 10 first year and 6 second year full time students the annual tuition collected would be \$ 39,000. Leaving a yearly deficit of \$16,000

We have spent considerable time and resources to market our program throughout our district and beyond. This fall registration will help us understand how well the marketing had done to attract students. Eastern does lease a separate facility for the technical programs, which is an additional expense shared by the Electromechanical, Wind Technician, CDL truck driving, and Adult Basic Education. The facility is on a lease to own agreement with the Grant County Development Authority costing \$60,000 per year.

- B. Identify projection of future resource requirements and source of funding. Funding to operate this program. Future operation of the program looks promising with increases in enrolment, but will not be sufficient to pay salaries and facility expenses. The wind program, electromechanical program, the CDL trucking program and the Adult Basic Education programs will all share in the facility expenses and overall will help support the ATT program.

VIII. Advisory Committee

List all advisory committee members. Provide information on how the advisory committee has been utilized for program improvement.

Grover Duling	Potomac HighlandsTech Prep Coordinator/Eastern WVCTC Wind Energy Consultant
Jed Metzler	South Branch Career and Technical Center
Paul Clem	Hampshire County Career and Technical Center
Jeff Byard	Potomac Valley Transit Authority

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Royce Heare	NAPA Auto Parts
Darwin Keplinger	Service Manager Petersburg Motor Company
C.J. Roberts	Parts and Service Manager Markwood Automotive
Chris Brake	Automotive parts and service Jenkins Automotive

The advisory committee has been instrumental in determining the curriculum and overall content. The advisory committee was integrally involved in all levels of program development from the initially conceptualization of the program, needs assessment and curriculum content. With implementation, the program courses are continually assessed and changed at the recommendation of both the faculty and the advisory committee. Students who are working in the field have also provided recommendations to strengthen the curriculum.

IX. Accreditation

Is an accreditation process available in this field of study? If so, what is the accreditation status of the program?

The primary certifications in Automotive areas are the ASE Certifications. Students may elect to take these certification exams to obtain ASE recognition but this is not required as part of our program.

The Automotive Technology program is not currently accredited through National Automotive Technicians Educational Foundation (NEATEF); however, application for this accreditation this is currently under review.

APPENDIX I Required Courses

The Certificate in Automotive Technology will include the following courses:

General Education:

- CIS 108 – Computer Fundamentals 3 credit hours
- ENL 115 – Technical Communications 3 credit hours
- ENL 101 – English Composition I 3 credit hours
- SSC 147 – Understanding Human Diversity 3 credit hours
- Social Science Elective 3 credit hours
- Mathematics Elective 3 credit hours
- Science Elective 3 credit hours

Required Technical Courses:

- ATT100 – Intro to Automotive Technology 1 credit hours
- ATT 103 – Engine Repair 4 credit hours
- ATT 105 – Braking Systems 4 credit hours
- ATT 107 – Suspension & Steering 4 credit hours
- ATT 124 – Automotive Electricity/Electronics I 4 credit hours
- ATT 126 – Engine Performance I 4 credit hours
- ATT 128 – Auto Heating and Air Conditioning 4 credit hours
- ATT 205 – Automotive Electricity/Electronics II 4 credit hours
- ATT 207 – Engine Performance II 4 credit hours
- ATT 224 – Manual Drive Train & Axles 4 credit hours
- ATT 226 – Automatic Transmissions & Transaxles 4 credit hours
- ATT 276 – Automotive Technology Capstone 4 credit hours

This AAS degree requires 62 credit hours.

The AAS program was recently reviewed to meet Series 11 guidelines. The total credit hours for the AAS was reduced to 62 credits from the original 65 credits. Additionally a grade of C or better is now required in all Automotive courses in order to continue to the next course or to graduate.

**APPENDIX II
Faculty Data**

Name Douglas Swick Rank Full Time Faculty
Full-time X Part-time _____ Adjunct Graduate Asst. _____
Highest Degree Earned _____ Date Degree Received _____

Conferred by _____

Area of Specialization: Automotive Technology

Professional registration/licensure Career Technical Education Certificate

- ASE Master Technician Certifications
- ASE Certification in Engine Repair
- ASE Certification in Automatic Transmission/Transaxle
- ASE Certification in Suspension and Steering
- ASE Certification in Braking Systems
- ASE Certification in Electrical/Electronic Systems
- ASE Certification in Heating and Air Conditioning
- ASE Certification in Engine Performance
- ASE Certification in Manual Drive Train/Transaxle
- National Automotive Technicians Education Foundation (NATEF) certification
- WV Vocational Teaching Certificate in Automotive Technology

Yrs of employment at present institution 3

Yrs of employment in higher education 3

Yrs of related experience outside higher education 25

Non-teaching experience: Mr. Swick has operated a private automotive repair business for more than 25 years

To determine compatibility of credentials with assignment:

- (a) List courses you taught this year and those you taught last year: (If you participated in team-taught course, indicate each of them and what percent of courses you taught.) For each course include year and semester taught, course number, course title and enrollment.

Mr. Swick teaches all of the ATT courses for the first year of the program in addition to the Capstone course. Enrollment information is included in Appendix III.

- (b) If degree is not in area of current assignment, explain.
- Mr. Swick has worked in the Automotive industry for over thirty years, currently owning and operating his own maintenance shop. He also taught Automotive Technology at the South Branch Career and Technical Center prior to joining the Eastern Team. He was a faculty member at South Branch for 12 years.

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Name Jeff Byard Rank_____

Check one:

Full-time_____ Part-time_____ Adjunct X Graduate Asst._____

Highest Degree Earned: Automotive Technology AAS Date Degree Received: August 4,
1995_____

Conferred by__ WVU Institute of Technology

Area of Specialization Automotive Technology

Professional registration/licensure

- ASE Master Technician Certifications
- ASE Certification in Engine Repair
- ASE Certification in Automatic Transmission/Transaxle
- ASE Certification in Suspension and Steering
- ASE Certification in Braking Systems
- ASE Certification in Electrical/Electronic Systems
- ASE Certification in Heating and Air Conditioning
- ASE Certification in Engine Performance
- ASE Certification in Manual Drive Train/Transaxle
- Ford ASSET, 2 year Certificate
- Ford Senior Master Technician

WV Vocational Teaching Certificate in Automotive Technology

Yrs of employment at present institution 2

Yrs of employment in higher education 2

Yrs of related experience outside higher education 14

Non-teaching experience_____

To determine compatibility of credentials with assignment:

- (a) List courses you taught this year and those you taught last year: (If you participated in team-taught course, indicate each of them and what percent of courses you taught.) For each course include year and semester taught, course number, course title and enrollment.

Mr. Byard teaches second year AAS courses. Enrollment information is included in Appendix III.

- (b) If degree is not in area of current assignment, explain.

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APPENDIX III
Headcount and Statistics on Graduates

	Headcount	FTE	Full Time	Graduates
Fall 2009	16	15.1	16	0
Spring 2010	13	14.0	13	0
Fall 2010	13	12.9	12	0
Spring 2011	17	15.1	12	0
Fall 2011	17	16.6	15	0
Spring 2012	17	15.5	13	1
Total	93	89.2	81	1

	Spring 2009	Fall 2009	Spring 2010	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Total HC	Total FTE
Courses Taught by Mr. Swick									
ATT 100: Intro to Automotive Technology (1 Cr.)	1	8	4	6	3	3	7	32	2.13
ATT 103: Engine Repair (4 Cr.)		11		8		9		28	7.47
ATT 105: Braking Systems (4 Cr.)		11		8		9		28	7.47
ATT 107: Suspension and Steering (4 Cr.)		11		9		9		29	7.73
ATT 124: Automotive Electricity/Electronics I (4 Cr.)	7		12		10		10	39	10.4
ATT 128: Automotive Heating and Air Conditioning (4 Cr.)	7		11		10		9	37	9.87
ATT 205: Automotive Electricity/Electronics II (4 Cr.)		5	11		10		10	36	9.6
ATT 276: Automotive Capstone (3 Cr.)						2	2	4	.8
Courses Taught by Mr. Byard									
ATT 126: Engine Performance 1 (4 Cr.)	7			3		5		15	4
ATT 207: Engine Performance II (4 Cr.)				3		5		8	2.13
ATT 224: Manual Drive Train & Axles (4 Cr.)			5		5		6	16	4.27
ATT 226: Automatic Transmissions & Transaxles (4 Cr.)			5		5		6	16	4.27
Total								288	70.14

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