Eastern West Virginia
Community and Technical College

Program Review
Certificate in Automotive Technology (C.A.S.)
2017

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Approved by Assessment Committee: 10/06/2017
Approved by LOT Committee: 10/16/17
Approved by Cabinet: 10/24/17
Approved by Board of Governors: 12/13/17

Certificate in Automotive Technology (C.A.S.)
CIP Code: 22470604
Eastern West Virginia Community and Technical College

Program Overview

The Automotive Technology (ATT) CAS program provides a technical education at the certificate degree level. Through instruction and practical application, students gain knowledge and skills required of the modern automotive technician. Successful completion of the ATT CAS 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, trouble shoot, and repair today's complex vehicles.

The ATT 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.

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. Eastern has designed the courses not only to teach the basics and fundamentals, but also to help students understand why they need to learn these functions. The program incorporated multiple instructional methods to address diverse learning styles.

The thirty hours of ATT instruction is designed to allow a student to obtain a certificate-level education; students select classes from the following course sequence in the ATT CAS program:

First Year—Fall Semester			First Year—Spring Semester		
Dept.		**Course Title**	**Sem. Hrs.**	**Dept.**		**Course Title**	**Sem. Hrs.**
ATT	103	**Engine Repair**	4	ATT	124	**Automotive Electricity/Electronics I**	4
ATT	105	**Braking Systems**	4	ATT	128	**Automotive Heating and Air Conditioning**	4
ATT	107	**Suspension & Steering**	4	ATT	205	**Automotive Electricity/Electronics II**	4
ENL	101	**English Composition I**	3	Elective		Mathematics Elective (MTH 115 or higher)	3
Total Semester Hours			*15*	*Total Semester Hours*			*15*

Upon completion of this degree, graduates will be able to:
1. Apply accepted safety and health practices in the workplace.
2. Use proper tools and instrumentation to diagnose, troubleshoot and repair braking systems.
3. Use proper tools and instrumentation to diagnose, troubleshoot and repair automotive suspension and steering systems.
4. Use proper tools and instrumentation to diagnose, troubleshoot and repair automotive engines.
5. Use proper tools and instrumentation to diagnose, troubleshoot and repair automotive electrical and electronic systems and components.

6. Use proper tools and instrumentation to diagnose, troubleshoot and repair automotive heating systems.
7. Use proper tools and instrumentation to diagnose, troubleshoot and repair automotive air conditioning systems.
8. Apply effective written communication and computation skills.
9. Demonstrate computer literacy.

Synopsis of Significant Findings: Meeting Learning Outcomes

Fourteen Course Assessment reports were submitted between Spring 2013 and Spring 2016. Of these, 12 (86%) showed that 75% or more of their learning outcomes had been met. Full data from submitted Course Assessment reports can be found in Appendix A.

The two reports, which showed that the benchmark had not been met, were distributed as follows:

ENL 101 – 1
MTH 115 – 1

ENL 101: English Composition I

- The next Course Assessment report is due Fall 2017.
- The combined pass rate of the four sections offered in Fall 2016 was 96%.

MTH 115: Business Math

- The last Course Assessment report was completed in Fall 2016, where 1 of 4 outcomes was met at 75% or greater. The next Course Assessment report is due Fall 2018.
- The pass rate of the one section offered in Fall 2016 was 70%.

In the absence of current Course Assessment reports, the most recent examination of the last available results suggest that the above courses are currently functioning adequately, and immediate investigation and intervention is not needed. Writers of the next Course Assessment reports for these courses should, as a matter of course, review previous reports and continue to address Learning Outcomes that have not been met to the 75% benchmark.

Plans for Program Improvement

The program was developed with the help of local industries throughout Eastern'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 were involved in original discussions, and more importantly, were involved in continuing advisory committee meetings.

Eastern has spent considerable time and resources marketing this program in the past and expected to see increased enrollment as a result. Unfortunately, enrollment has been consistently low over the past five years; additionally, the ATT program is and 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 as well in order to attract qualified faculty.

The improvement plan for the ATT program begins with centering on Eastern's program review process itself. Generating strategies to institutionalize the use of assessment data to improve student learning and support curriculum improvement has already begun with the creation of annual program-level assessment reports, an adjunct assessment project, a hybrid full-time faculty/assessment facilitator position, and the adoption of Blackboard Data Analytics (BBDA) as a data tracking system. Eastern's Annual Program Assessment Reports will review at least three program outcomes over designated years, which will help Eastern generate more qualitative data. The piloted adjunct assessment project has recruited part-time faculty to conduct Master Course Record reviews, chart general education outcomes, create course-level assessments, and generate specific course assessment plans. Also, Eastern's recent adoption and training in BBDA will provide Eastern staff access to useable data, which will help analyze whether initiatives are effective.

Although Eastern follows the standard, state-wide cycle for program-level assessment and program review in its Assessment of Student Academic Achievement Report, the feasibility of creating annual program level assessments for all programs is a daunting task considering the lack of full-time faculty in certain content areas and the fact that Eastern currently has only two division chairs. Altering the program assessment cycle, by giving time to collect data, could refine the assessment process.

Identification of Weaknesses/Deficiencies

One of the weaknesses identified in Eastern's ATT program included the lack of embedded certifications or any kind of nationally recognized exit test. Beginning in December 2015, as a requirement of graduation, ATT graduates were required to take the National Occupational Competency Testing Institute (NOCTI) for Automotive Technicians. Table 1 compares Eastern's student scores with NOCTI's post-secondary national averages.

Table 1: NOCTI Automotive Technician Subscores

	NOCTI Outcomes	Student 1	2	3	4	5	6	7	8	9	Eastern's Students (Average)	NOCTI National (Average)
1	**NOCTI Brakes**	60.9	78.3	60.9	73.9	95.7	78.3	52.2	56.5	65.2	**69.1**	**70.4**
2	**Electrical/Electronic Systems**	45.2	54.8	56.0	44.0	64.0	68.0	44.0	44.0	60.0	**53.3**	**66.4**
3	**Engine Performance**	46.0	75.7	61.8	61.8	64.7	85.3	29.4	26.5	55.9	**56.3**	**59.1**
4	**Suspension/Steering**	66.7	72.2	76.9	69.2	69.2	76.9	38.5	30.8	69.2	**63.2**	**68.3**
5	**Customer Relations/Shop Procedures**	64.7	88.2	70.0	70.0	75.0	85.0	60.0	20.0	55.0	**65.3**	**70.4**
6	**NOCTI Auto Core**	54.0	72.2	66.9	58.1	75.0	82.0	45.9	33.1	56.4	**60.4**	**64.4**
	Average/ Student	**56.2**	**73.5**	**65.4**	**62.8**	**73.9**	**79.2**	**45.0**	**35.1**	**60.2**	**61.2**	**66.5**

Eastern ATT CAS student scores are below the national average, based on a small sample size, and future program reviews will extrapolate and analyze data based on student NOCTI scores to help improve program deficiencies. Eastern will also develop guided pathway graphic organizers for its ATT program, which allows students to easily visualize their degree pathway to career success.

Another concern with the ATT program centers on enrollment. Enrollment has been erratic from Fall 2012 through Fall 2016 as seen in Table 2; additionally, the loss of the full-time automotive

instructor position has further contributed to low enrollment resulting in the cancellation of most ATT courses in Fall 2017.

Table 2: 5 Year Trend Data on Graduates and Majors

Semester	Headcount	FTE	Full-Time (%)	Graduates
Fall 2012	6	6.5	5 (83%)	
Spring 2013	4	3.9	3 (75%)	**2012-2013:** 0
Fall 2013	3	2.1	1 (33%)	
Spring 2014	2	1.7	1 (50%)	**2013-2014:** 6
Fall 2014	0	0	0 (0%)	
Spring 2015	0	0	0 (0%)	**2014-2015:** 3
Fall 2015	0	0	0 (0%)	
Spring 2016	4	4.5	4 (100%)	**2015-2016:** 3
Fall 2016	9	8.3	7 (78%)	
TOTAL	28	27	21 (75%)	**Fall 2012-Spring 2016:** 12

Summary of Assessment Model and Utilization for Program Improvement

Eastern's assessment plan consists of three levels: entry level assessment (ACCUPLACER, SAT, ACT), active enrollment assessment (course and program assessment, student satisfaction surveys, etc.), and post-graduation assessment (employment satisfaction survey, alumni survey, employment and salary data, etc.). Since December 2014, ATT students participated in NOCTI, which delivers a battery of assessments for students studying career and technical programs at technical colleges in the United States. IDEA Short Form Reports (i.e. course evaluation surveys) are administered each semester in all course sections with enrollment of six or more students. Course completion rates and student tracking studies are used as a measure of overall program success. All courses are assessed on a cyclical basis, and recommendations for improvements are funneled into the feedback loop so that future Course Assessment reports will address any course shortcomings. A summary of Course Assessment reports is provided in Appendix A. Of all the technical programs, the ATT program has consistently compiled Course Assessment reports throughout this program review cycle with 100% of ATT classes meeting 75% or more of their learning outcomes.

Data on Student Placement

From Fall 2012 through Spring 2016, 12 students graduated with an ATT CAS major. Of these 12 students, student placement data has been collected on 8 students (57% of cohort). No information was available on 4 graduates:

- 6 students (50%) are employed full-time
- 2 students (16%) are employed part-time
- 1 student (8%) is currently enrolled in a B.A. program
- 0 students (0%) are currently enrolled in M.A. programs
- 1 student (8%) graduated with a baccalaureate degree

Final Recommendations

The recommendation is to discontinue offering the ATT CAS program in its current format. Similar to Eastern's AAS Nursing program, ATT classes should be offered on a two-year cohort model, where technical core classes are only offered once every two years.

The following issues will be addressed during the next program review cycle:

1. By engaging adjunct faculty and full-time faculty in assessment of ATT courses, measures of student learning could be continually assessed and revised. Faculty are the key to curriculum improvement, so professional development opportunities for faculty should center on assessment training. Holding annual assessment workshops or retreats would streamline the assessment process and emphasize Eastern's commitment to closing the feedback loop. Currently, there are two professional development sessions planned for course-level assessment in May and December of 2017. A program assessment plan was also created for the ATT program in July 2017.
2. A focus on curriculum improvements based on assessment data would help overcome classic barriers to conducting meaningful assessment. Course mapping, the creation of rubrics or task sheets, and a data analysis of NOCTI scores are examples of how Eastern's assessment process could be improved.
3. By utilizing Blackboard Data Analytics (BBDA) in the program review process, Eastern can identify and overcome barriers to student success and keep learners on track for graduation. Implementing BBDA in future program reports will institutionalize the use of assessment data and improve student learning. Creating periodical BBDA monitoring reports could help track program deficiencies and serve as an early alert system for needed curriculum revisions.
4. To increase existing enrollment figures, Eastern will need a cross-discipline marketing strategy, which includes an on-going recruitment effort, utilizing the resources at hand (i.e. faculty, staff, advisory committees, recent ATT graduates), and increasing program awareness within the Potomac Highlands region.

Appendix A: Summary of Course Level Assessments for All Participating Students

Semester	Course Assessed	# of Students	Outcomes Met at 75% or above	
			#	%
Spring 2013	ATT 128	5	10 of 10	100
Spring 2013	ATT 226	5	11 of 11	100
Fall 2013	ATT 105	9	10 of 10	100
Fall 2013	ATT 107	9	14 of 14	100
Spring 2014	ATT 124	9	15 of 15	100
Spring 2014	ATT 205	9	10 of 10	100
Fall 2014	ATT 103	7	15 of 15	100
Fall 2014	MTH 115	10	2 of 4	50
Spring 2015	ATT 128	5	10 of 10	100
Spring 2012 –Spring 2015	ENL 101	235	17 of 24	70.8
Fall 2015	ATT 105	3	10 of 10	100
Fall 2015	ATT 107	3	14 of 14	100
Spring 2016	ATT 124	8	15 of 15	100
Spring 2016	ATT 205	8	10 of 10	100