



**Internal Program Review  
Self-Study Report**

**Program Name**  
Automotive Technology

**Credentials Offered**  
Associate of Applied Science in Automotive Technology 63 Credits

**Self-Study Completed by:**  
Dave Jones, Automotive Instructor  
Tammy Burke, Trades Division Chair

**Date Completed:**  
2019-2020

**A. Introduction** - The Automotive Technology curriculum consists of eight areas of study as defined by the National Institute for Automotive Service Excellence (ASE). This non-profit corporation is dedicated to improving the quality of automotive service and repair as well as assisting in training and program development throughout the nation. The eight content areas of study, along with the College's general education requirements, are structured into four groups with all eight areas of study being offered during a two-year period. Students in this program are also placed into work-based learning experiences for on the job training during their two-year college experience separate from their curriculum. Successful completion of this program prepares students to enter the automotive job market.

**B. Alignment with Mission, Strategic Goals and Core Themes –**

The Helena College mission states that Helena College is a comprehensive two-year college which provides access to and support of high quality lifelong educational opportunities for our diverse community.

The Automotive Technology Program Mission Statement states that the Helena College Automotive Technology Program provides an educational environment for students to acquire entry level skills for success in the automotive repair field and other related industries. The Automotive Technology Program Mission aligns with the Helena College-UM Mission through the provision of access to educational opportunities throughout the College service area. The Automotive Technology Program prepares entry-level technicians automotive maintenance, diagnosis, and repair.

The strategic goals of Helena College are listed below:

- Strategic goal #1 – promote student success and achievement
- Strategic goal #2 – advance academic excellence and scholarship
- Strategic goal #3 – build community engagement and partnerships
- Strategic goal #4 – model and foster equity, inclusion, and cultural competency 1.
- Strategic goal #5 – ensure institutional integrity

The Strategic Goals of the Automotive Technology Program align with the strategic goals above in the following ways:

1. Collaborate with business, industry, and the community as partners to provide a quality learning experience that gives graduates the best opportunity to gain employment. Helena College will maintain relationships with area dealerships and independent business owners to provide work-based learning experiences for all students in the automotive program.
2. Solicit input from our constituents including, students, graduates, advisory board members, business, industry, faculty, staff, and administration concerning the operation and improvement of the program and career tracks which align with ASE standards.
3. Assess student and program performance through the use of outcomes assessment, Program Review and Evaluation Process, job placement rates, employer and graduate surveys.
4. Increase enrollment through recruiting efforts including; business, industry, government, professional organizations, and high schools



Helena College has the following core themes:

1. Student Access and Success
2. High Quality Education
3. Community Enrichment

Automotive Technology Goals are perfectly aligned with Helena College Core Themes as follows:

1. Helena College will provide access and support to a high-quality educational programs.
2. Helena College strives to be the premier Montana 2-year program in Automotive Technology
3. Helena College will maintain a rigorous program of study
4. Helena College curriculum will align with ASE standards and prepares students for ASE exams
5. Helena College will ensure a program of integrity, quality and reliability.

Alignment with Core Themes –

#### High Quality Education

Helena College strives to be the premier Montana 2-year program in Automotive Technology. This is accomplished by innovative design with work-based learning/apprenticeships for each student. We maintain a very rigorous program of study in which students are required to successfully pass eight ASE exams in addition to curriculum which aligns with ASE standards.

#### Student Access and Success

This program has now moved to a morning start beginning at 7:00 a.m. and ending at 1:00 p.m. This allows students to attend a work-based learning experience in the afternoon. By providing students with this type of schedule they are able to work and attend school making their academic experience one of affordability and one that increases retention and completion in the program.

#### Community Enrichment

Helena College is partnering with local independent business owners, local dealerships and the Montana Auto Dealer's Association to connect the automotive community with the Helena College community as well as the high school community. By engaging with the high school students Helena College is creating a pipeline of workforce for the local industry, the State of Montana and the Nation.

#### **C. Alignment with Community Needs (Academic Programs Only)**

According to the Montana Research & Analysis Bureau/Bureau of Labor Statistics (2017-2027 Projections). US DOL (2016-2026 Projections) <http://lmi.mt.gov/Projections> there will be 369 annual openings for automotive and related occupations. Over the last five years Helena College has had an average placement rate of 94%. We are hoping to see this increase to 100% due to the addition of work-based learning experiences for all students. (see attached graphic information in Appendix).

#### **D. Student Participation and Success**

Helena College has had a fall to fall retention rate of 53% for automotive students. With the addition of the work-based learning experiences we are hoping to see this number increase to at least 70% or greater. Helena College has also struggled with a 5-year average graduation rate of 20%. This is also predicted to improve as Helena College is working specifically on AAS completion rates by removing barriers for students and increasing on the job training experiences.

#### **E. Student Learning Outcomes and/or Program Goals**

Upon successful completion of the program, students will be able to:

Demonstrate safe shop practices and hazardous material handling

Diagnose and repair automotive electrical systems to ASE standards

Diagnose and repair automotive engine performance, fuel, and emission control systems to ASE standards

Diagnose and repair automotive brakes systems to ASE standards

Diagnose suspension and steering systems to ASE standards

Diagnose and repair automotive internal combustion engine systems to ASE standards

Diagnose and repair automotive powertrain systems (manual and automatic transmission/transaxles and drive axles) to ASE standards

Diagnose and repair automotive heating and air conditioning systems as to ASE standards

Assessment of student learning outcomes occurs within individual program courses and all student learning outcomes are assessed through assessment using ASE certification examinations.

#### **F. Curriculum and Instruction (Academic Programs Only) –**

Helena College has recently undergone a thorough overview in order to align curriculum with industry standards and ASE requirements. As a result students will complete curriculum which will then prepare them for sitting for the ASE exams after each block of instruction. Throughout the two year time period students will take eight ASE exams which will then fast track their work progression to achieve Master Technician status in the workforce. This technical skills attainment will be valuable to industry. The automotive program has also partnered with local industry to place each student in a work-based learning experience starting in their first semester. Students will be placed as interns/apprentices in local businesses to gain up to 1000 hours of work-based learning while they are attending college. This experience should in turn increase retention and completion in the automotive program. Hybrid technology has also been added into the two year curriculum (see new degree plan sheet below).

Course #	Course Title	CR	Pre - Requisites
<b>First Semester (19 Credits)</b>			
AST 103	Automotive Mechanics Core	2	Co-requisite M111T
AST 130	Introduction to Automotive Electronics	6	
AST 230	Electrical/Electronic Systems	6	
M 111T	Technical Mathematics	3	
<b>Second Semester (17 Credits)</b>			
AST 108	Manual Drivetrains	5	Prerequisite AST103, AST 130, AST 230
AST 114	Automotive Brakes	5	Prerequisite AST103, AST 130, AST 230
AST 220	Automotive Steering and Suspension	5	Prerequisite AST103, AST 130, AST 230
WRIT 121 T	Technical Writing	3	WRIT 096 as corequisite if testing indicates
<b>Third Semester (18 Credits)</b>			
AST 160	Automotive Engine Repair	6	Prerequisite AST103, AST 130, AST 230
AST 262	Engine Perform I	6	Prerequisite AST103, AST 130, AST 230
AST 264	Engine Performance II	6	Prerequisite AST103, AST 130, AST 230
<b>Fourth Semester (17 Credits)</b>			
AST 270	Auto Transmission	6	AST 104, AST 130, AST 230, AST 262
AST 172	Heating A/C	5	AST 104, AST 130
AST 274	Introduction to Hybrid Vehicle Technology	3	AST 130, AST 130, AST 230, AST 262
COMX 106	Communicating in a Dynamic Workplace	2	

**G. Faculty/Staff Profile – Helena College employs one full-time tenured faculty.**

**Dave Jones, M.S. Automotive Technology Instructor**

Certified Advanced Level Specialist ASE Master Certified Technician B.T., Northern Montana College M.S., Montana State University – Northern. Employed with Helena College since fall 1994

**H. Fiscal and Physical Resources –**

Helena College adequately supports the automotive program with an annual budget. Perkins Grant funding is also used to supplement the annual budget in the way of upgrading equipment and providing professional development. Please see appendix for additional fiscal data.

**I. Recommendations and Preliminary Implementation Plan-**

The automotive program was placed in moratorium during the 2018-2019 academic year. During this time a major curriculum revision was completed; and the addition of industry partnerships was completed. Currently the enrollment is on an every other year basis; however, it is the goal of the program to take in students every year and to have two full-time instructors.

**J. Program Review Data Summary**

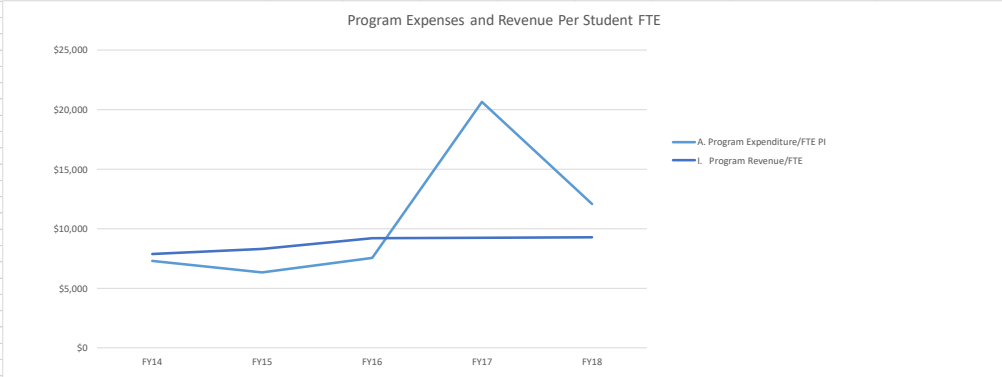
Please see attached under appendix.

## K. Appendix (Additional data or exhibits)

Automotive Technology 2013-2018								
Program Review Data Summary								
Fiscal and Physical Resources								
Data Definition: Instructional costs include program personnel and operating expenses	FY14	FY15	FY16	FY17	FY18	5 Year Ave	Program Notes	Source
A. Program Expenditure/FTE PI	\$7,284	\$6,325	\$7,546	\$20,633	\$12,087	\$10,775		Institutional Research/Finance
B. Average HC Program Expenditure/FTE	\$5,032	\$4,881	\$5,354	\$6,512	\$8,252	\$6,006		Institutional Research/Finance
C. Program Expenditure/Completion	\$30,592	\$25,301	\$36,221	\$67,057	\$43,816	\$40,597		Institutional Research/Finance
D. Average HC Program Expenditure/Completion	\$13,353	\$18,071	\$12,712	\$16,356	\$15,599	\$14,101		Institutional Research/Finance
E. Student Program Fees-Fund Balance	\$3,041	\$3,215	\$3,048	\$2,501	\$3,206	\$3,002	H60280	Institutional Research/Finance
F. Student Program Fees-Fund Expenditures	\$7,910	\$0	\$183	\$0	\$7,176	\$3,054	H60280	Institutional Research/Finance
G. Total Program Expense	\$152,961	\$177,104	\$181,106	\$268,228	\$175,263	\$190,932	Personnel+Operating	Institutional Research/Finance
H. Total Program Revenue	\$165,526	\$157,823	\$220,800	\$119,977	\$120,640	\$156,953	State Approp+Tuition	Institutional Research/Finance
I. Program Revenue/FTE	\$7,882	\$8,308	\$9,200	\$9,229	\$9,280	\$8,554	Total Revenue/FTE	Institutional Research/Finance
KPI or PI	Key Performance Indicator or Performance Indicator for Program Effectiveness under Strategic Enrollment Planning/Management							

Program Expenses and Revenue Per Student FTE



Fiscal Year	A. Program Expenditure/FTE PI	I. Program Revenue/FTE
FY14	\$7,284	\$7,882
FY15	\$6,325	\$8,308
FY16	\$7,546	\$9,200
FY17	\$20,633	\$9,229
FY18	\$12,087	\$9,280

**Automotive Technology 2013-2018**

**Program Review Data Summary**

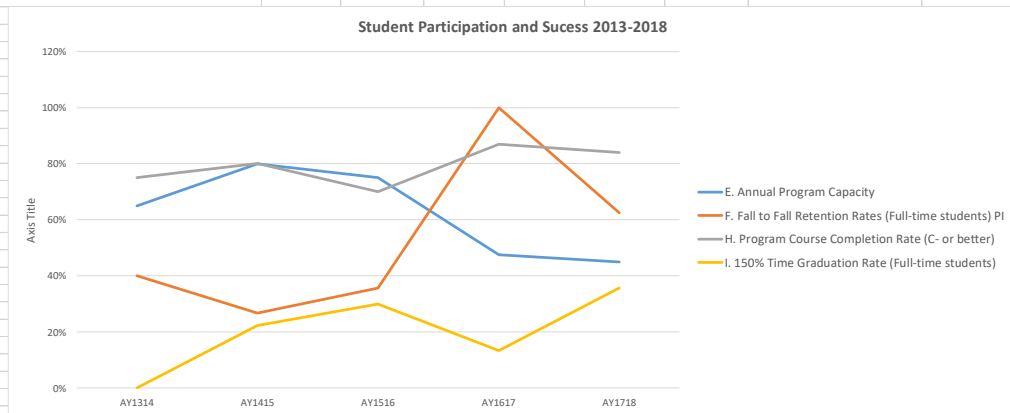
**Student Participation and Success**

Data Definition:	AY1314	AY1415	AY1516	AY1617	AY1718	5 Year Ave	Program Notes	Source
A. Transfer rates to 4-year colleges (AA/AS)	N/A	N/A	N/A	N/A	N/A	N/A		Institutional Research
B. Program Capacity (Headcount)	40	40	40	40	40	40		Institutional Research
C. Annual Headcount Enrollment (Unduplicated)	26	32	30	19	18	25		Institutional Research
D. Annual FTE Enrollment <b>PI</b>	21	28	24	13	15	20		Institutional Research
E. Annual Program Capacity	65%	80%	75%	48%	45%	63%		Institutional Research
F. Fall to Fall Retention Rates (Full-time students) <b>PI</b>	40%	27%	36%	100%	63%	53%	Fall 2013-2017 Cohorts	Institutional Research
G. Fall to Fall Retention Rates (Part-time students) <b>PI</b>	N/A	0%	N/A	N/A	N/A	0%	Fall 2013-2017 Cohorts	Institutional Research
H. Program Course Completion Rate (C- or better)	75%	80%	70%	87%	84%	79%	Fall+Spring Semester/2	Institutional Research
I. 150% Time Graduation Rate (Full-time students)	0%	22%	30%	13%	36%	20%	Fall 2011-2015 Cohorts	Institutional Research
J. 150% Time Graduation Rate (Part-time students)	N/A	0%	N/A	0	N/A	0%	Fall 2011-2015 Cohorts	Institutional Research
K. Annual Degree & Certificate Completions	5	7	5	4	4	5		Institutional Research
L. Degree Production Rates – proportion of degrees/certificates granted per 100 FTE <b>PI</b>	24	25	21	31	28	26		Institutional Research
M. Pass Rates on Occupation/industry Specific Licensing or Certification Exams (as applicable) <b>PI</b>								

Denotes Items that are Core Theme Indicators for Helena College

KPI or PI

Key Performance Indicator or Performance Indicator for Program Quality and/or Effectiveness under Strategic Enrollment Planning/Management



Automotive Technology 2013-2018								
Program Review Data Summary								
Alignment with Community Needs (CTE Only)								
Data Definition:	Current MT	Projected MT	Current U.S.	Projected U.S.			Program Notes	Source
A. Provide the total number of projected job openings from related occupations for Montana and the U.S.	3,681	3,878	749,000	795,800			Projected annual openings MT: 369 Projected annual openings US: 75,600	Montana Research & Analysis Bureau/Bureau of Labor Statistics (2017-2017 Projections). US DOL (2016-2016 Projections) <a href="http://lmi.mt.gov/Projections">http://lmi.mt.gov/Projections</a>
B. Provide percent change in job openings for related occupations for Montana and the U.S.		+5%		6%				Montana Research & Analysis Bureau/Bureau of Labor Statistics (2017-2017 Projections). US DOL (2016-2016 Projections)
C. Provide the median hourly wage or annual salary for related occupations	\$37,870		\$39,550				Starting Salary Range (2013-2017): \$26,364 - \$29,885	Montana Research & Analysis Bureau/Bureau of Labor Statistics (2017-2017 Projections). US DOL (2016-2016 Projections)
Data Definition:	AY1213	AY1314	AY1415	AY1516	AY1617	5 Year Ave	Program Notes	Source
D. Provide 5 years of job placement rates for all program graduates PI	100%	100%	71%	100%	100%	94%	% of graduates employed at least 1 quarter following graduation	OCHE & Bureau of Labor Statistics <a href="https://www.mus.edu/data/WorkforceTool/default.asp">https://www.mus.edu/data/WorkforceTool/default.asp</a>
E. For applied programs with program admission provide five years of student application totals	N/A	N/A	N/A	N/A	N/A	N/A		<a href="https://www.careeronestop.org/toolkit/careers/occupations/Occupation-profile.aspx?keyword=Automotive+Master+Mechanics&amp;onetcode=49302301&amp;location=UNITED+STATES">https://www.careeronestop.org/toolkit/careers/occupations/Occupation-profile.aspx?keyword=Automotive+Master+Mechanics&amp;onetcode=49302301&amp;location=UNITED STATES</a>
F. For applied programs with program admission provide five years of students accepted totals	N/A	N/A	N/A	N/A	N/A	N/A		
Denotes Items that are Core Theme Indicators for Helena College								
KPI or PI Key Performance Indicator or Performance Indicator for Program Effectiveness under Strategic Enrollment Planning/Management								