

WSU Five-Year Program Review
Self-Study

Cover Page

Department/Program: Automotive Technology

Semester Submitted: Fall 2016

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Brief Introductory Statement

Weber State University (WSU) is one of the few select schools in the country whose automotive students are actively recruited by most of the major automobile manufacturers in the world.

Our partnerships with Chrysler, Ford, General Motors, Honda and Toyota help our students to be better prepared for a variety of careers in the automotive industry.

WSU graduates are well known in the automotive industry holding service, technical support, advanced technical, marketing, management, sales, and teaching positions all across the country.

Standard A - Mission Statement

The mission of the Automotive Technology Department is to prepare graduates to be competent in the technical theory and application of the automobile. Associate degree graduates will be prepared for careers in the automotive repair industry as an automotive technician. Bachelor degree graduates will be prepared for careers in the automotive industry as field service engineers, product engineers or many other corporate level positions at the various automotive manufacturers and suppliers. Automotive Service Technology graduates will possess industry recognized certifications, the ability to communicate and solve problems efficiently and will have developed a lifelong skill as an effective vehicle diagnostician.

Standard B - Curriculum

Curriculum Map

Curriculum Map – NOTE: Courses highlighted in yellow will be evaluated for the 16/17 academic year

Core Courses in Department/Program	Department/Program Learning Outcomes							
	Proper Safety	Service Information	Theory of Operation	Tool Handling	Diagnosis	Repair Procedure	Repair Verification	Presentation
AUSV 1000 Introduction to Automotive Service	I,E,U,A	I,E,U,A	I,E	I,E	I,E			
AUSV 1010 Automotive Orientation	I,E,U,A	I,E						I,E
AUSV 1021 Automotive Braking Systems 1	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E	I,E,U,A	I,E,U,A	
AUSV 1022 Steering and Suspension Systems 1	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E	I,E,U,A	I,E,U,A	
AUSV 1023 Automotive Braking Systems 2	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	U,A	I,E,U,A	I,E,U,A	
AUSV 1025 Steering and Suspension Systems 2	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	U,A	I,E,U,A	I,E,U,A	
AUSV 1120 Automotive Engines 1	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E	I,E,U,A	I,E,U,A	
AUSV 1124 Automotive Engines 2	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	U,A	I,E,U,A	I,E,U,A	
AUSV 1220 Manual Drivetrain Systems	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	
AUSV 1300 Technical Mathematics	I		I,A		I,E			
AUSV 1320 Automotive Electrical 1	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E	I,E	I,E	
AUSV 1323 Automotive Electrical 2	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	E,U,A	E,U,A	E,U,A	
AUSV 2020 Automotive Engine Control	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	
AUSV 2120 Automotive Electrical/Body Control Systems	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	
AUSV 2320 Automotive Climate Control Systems	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	
AUSV 2520 Automatic Transmissions	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	

Core Courses in Department/Program	Department/Program Learning Outcomes							
	Proper Safety	Service Information	Theory of Operation	Tool Handling	Diagnosis	Repair Procedure	Repair Verification	Presentation
AUSV 2860 Shop Practice	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	
ATTC 3000 Introduction to Automotive Technology	I,E,U,A							I,E,U
ATTC 3020 Introduction to Safety Management and Hazardous Materials	I,E,U,A							I,E,U,A
ATTC 3260 Advanced Electrical System	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A
ATTC 3520 Fleet Management	I,E,U,A	I,E,U,A						I,E,U,A
ATTC 3760 Advanced Automotive Technologies	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A			I,E,U,A	I,E,U,A
ATTC 3880 Cooperative Practicum	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A
ATTC 4560 Advanced Propulsion Systems	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A
ATTC 4720 Capstone Project	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A
ATTC 4760 Alternate Fuel Systems	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A
ATTC 4860 Automotive Standards, Laws, and Regulations	I,E,U,A	I,E,U,A	I,E,U,A	I,E,U,A			I,E,U,A	I,E,U,A

Note^a: Define words, letters or symbols used and their interpretation; i.e. 1= introduced, 2 = emphasized, 3 = mastered or I = Introduced, E = Emphasized, U = Utilized, A = Assessed comprehensively; these are examples, departmental choice of letters/numbers may differ

Note^b: Rows and columns may be transposed as required to meet the needs of each individual department

Standard C - Student Learning Outcomes and Assessment

Measurable Learning Outcomes

At the end of their study at WSU, students in this program will

1. Students will demonstrate the proper use of safety equipment when performing any type of vehicle repair.
2. Students will locate and utilize vehicle electronic service information for all repair procedures.
3. Students will explain the theory of operation of vehicle systems and components.
4. Students will demonstrate the proper use of special service tools and hand tools when performing any type of vehicle repair.
5. Students will apply a proper diagnostic approach when analyzing a vehicle system fault.
6. Students will apply a proper repair procedures when repairing a vehicle fault.
7. Students will demonstrate a proper repair verification procedure when a vehicle has been prepared.
8. Students will be able to present and explain information summarizing advanced vehicle systems.

Five-year Assessment Summary

The automotive department has undergone significant changes over the last five years. In the past the department focused primarily on the manufacturer specific training programs. These programs were designed to train dealership technicians for several of the vehicle manufacturers. The majority of the resources of the department were focused on these programs. The local need for these technicians is not very consistent. The local area would often become too saturated with these dealer specific technicians. The demand for more resources from these manufacture partners also became somewhat challenging to meet. Three out of the four manufacturer programs have been eliminated. This change has allowed us to better allocate the teaching and financial resources of the department.

The department still has resources dedicated to training automotive technicians for the local area. Students are now trained to work on multiple makes and models of vehicles. This change has allowed us to better manage the students and curriculum with our limited number of faculty and staff. This change has also allowed us to better allocate resources for our bachelor degree program. The department has implemented a recruiting program for out of state students. The program focuses on community colleges with automotive technology programs. These out of state schools have a more diverse student body. We anticipate an increase in the number of students that are taking the BS degree courses. We also anticipate a more diverse group of students graduating from the program.

One of the major issues identified by previous program reviews was a deficiency in the advisement of students. With the individual nuances of each manufacturer program, advising was very challenging. Advisement of students also lacked consistency. In order to address this problem, the department created a staff student adviser position. This position has had a significant impact on student retention and success.

One of the other major issues identified in the previous program review was that the department did not have adequate assessment tool to measure student learning outcomes. Students learning outcomes were being measure in each individual course, but there was no real clear way to gather and analyze the data. We were able to find a third-part test that could more accurately assess the students learning in the program. We implemented this test in the Fall of 2015. We will be able to use the data gathered from this assessment tool to make appropriate adjustments to curriculum.

In conjunction with the assessment tool we have also formed a department curriculum review committee. The committee is tasked with reviewing the content of specific courses each year. The committee will review all of the content found in a specific course. The committee will present their finding to the industry advisory board. The advisory board will review the material and make recommendations. We have already found success in this review process. The committee reviewed the electrical curriculum last year. They along with the advisory committee recommended an additional electrical course be added to the curriculum. The electrical course was developed and is currently going through the curriculum review process. The department curriculum committee will also be determining the best way to gather and evaluate artifacts from students.

Standard D - Academic Advising

Advising Strategy and Process

Initial student contact is handled by the Administrative Assistant Bree Conlin. She meets with students first and answers any basic questions about the program. She also handles our program application. Students who are interested in the program must fill out an application with the department. The application helps to better organize the incoming students and allows the department to facilitate advisement prior to attending any courses.

We have recently implemented a cohort system, through the registrar's office, that has allowed us to better assist students in the registration process. Students are required to meet with the department adviser, Jessica Slater, prior to being added to a cohort. This initial meeting allows Jessica to outline the requirements of the program and highlight any areas that students have struggled with in the past. The cohort system and mandatory advisement has impacted student retention and student success in the program.

All AAS students are currently being advised by Jessica Slater. She has implemented several important changes to advisement of students. She has set up an appointment system that allows both on campus and online students to select a specific time to meet and discuss any concerns that they have.

All BS students are advised by both Jessica and Scott Hadzik. This change was implemented this academic year. Our department has seen an increase in transfer students with an AAS from another institution.

Effectiveness of Advising

The required advisement through the application process and cohort system has been very effective. The data that we gather from the application helps us to track the students' progress through enrollment at the University and registration of courses. We also gather a list of students who have an interest in the program, but may lack the appropriate understanding of the admissions process.

The cohort system has also had a positive impact on successful advisement of students. We have seen an increase in the retention of current students. Students are also less likely to take the wrong sequence of courses and increase the number of semesters to completion of the program.

Due to the complex nature of our block courses, we currently don't utilize the college adviser.

Past Changes and Future Recommendations

The faculty in the department were the advisers for the students until we hired a full-time staff member to advise students. The faculty were familiar with the automotive courses, but most did not have a thorough understanding of the general education requirements. Jessica was able to

attend adviser training. This training allowed her to better assist students in general education requirements.

Advising every student in the program is challenging. The demands of the department adviser are significant. She also has many other responsibilities. As we continue to increase the number of students, we may need to add another staff or faculty member to advise students. With an appropriate amount of training and release time, a faculty member could help advise students.

Standard E - Faculty

Faculty Demographic Information

The Automotive Department faculty is made up of five Caucasian males from the North American geographical area. We currently have two Caucasian females from the North American geographical area teaching as adjunct instructors. We also have one Malay male from Malaysia teaching as an adjunct.

Programmatic/Departmental Teaching Standards

All faculty members must adhere to the National Automotive Technicians Educational Foundation (NATEF) curriculum requirements and standards. The NATEF requirements outline the specific technical background and requirements for faculty members. Faculty member must take a minimum of 20 hours of vehicle technical update training every year in order to meet the accreditation standard. Instructors must pass and recertify in the eight industry certification tests in order to teach the NATEF course. The courses designed by the faculty must also comply with the learning outcomes developed by NATEF for each automotive subject.

Faculty Qualifications

Each Faculty member brings a unique set of qualifications and experience to the Automotive Department. These qualifications make each faculty member better prepared to teach about any specific automotive manufacturers (Chrysler, Honda, General Motors, Ford, and Toyota) and integrate the training in the independent shop program. The following is a list of the qualifications for each faculty member:

Scott Hadzik

Education:

- M.S. in Instructional Technology and Learning Sciences - Utah State University
- B.S. in Automotive Technology - Weber State University
- A.A.S. – Chrysler CAP - Weber State University
- A.A.S. - Computer Science - Weber State University

Certifications:

- [ASE](#) Master Automobile Technician Certification
- EPA Clean Air Act - Section 609 Refrigerant Handling Certification
- Chrysler Master Technician

Background:

- 2015-Present - Automotive Department Chair Weber State University
- 2012-Present - Assistant Professor Weber State University
- 2010-2014 - Lead Instructor in the Chrysler CAP Program at Weber State University
- Summer 2010 - Intern Quality Assurance Electrical, Toyota Motor Sales, Torrance, CA
- 2008-2010 - Chrysler Technician, Quality Chrysler Jeep and Dodge, Tooele, UT

3 years USAF Aircraft technician

- Specialized in hydraulic systems for the Boeing KC-135 Stratotanker
- Achieved journeyman skill level 5

Memberships/Affiliations:

- ASE
- Member of Society of Automotive Engineers
- National Association of Automotive Universities (NAAU) Board Member
- Journal of Automotive Technology Educators (JATE) Editor
- Association of Unmanned Vehicle Systems International

Accomplishments:

- Honorable Discharged United States Air Force
- Air Force Achievement Medal with cluster

John Kelly

Education:

- 1998 - Master of Education in Curriculum and Instruction - Weber State University
- 1993 - Bachelor of Science in Electronic Engineering Technology - Weber State University
- 1991 - Associate of Applied Science in Automotive Service - GM ASEP - Weber State University
- 1990 - Associate of Applied Science in Electronic Technology - Weber State University
- 1980 - Graduate of Box Elder High School - Brigham City, Utah; Howard Gittens, Auto Shop Teacher

Certifications:

- [ASE](#) Master Automobile Technician Certification (1988-today), expires 12-31-2018
- ASE A9 Light Vehicle Diesel Certification (2009 - today), expires 06-30-2019
- ASE L1 Advanced Engine Performance Specialist Certification (1994-today), expires 06-30-2019
- ASE L2 Electronic Diesel Engine Diagnosis Specialist (2009-today), expires 12-30-2019
- ASE L3 Light Duty Hybrid/Electric Vehicles (2015-today), expires 06-30-2020

- ASE F1 Light Vehicle Compressed Natural Gas Certification (2010–today), expires 12-30-2019
- ASE G1 Maintenance and Light Repair Certification (2013–today), expires 12-31-2018
- [General Motors](#) World Class Master Technician Certification (2002–today)
- [Toyota](#) Certified Master Level Technician (2009–today)
- Toyota Certified TTEI Instructor in Chassis, Drivetrain, Electrical, Engine and Hybrid (2012–today)
- [Chrysler](#) Level 4 certifications in Automatic Transmissions, Brakes and Climate Control Systems
- [Honda](#) Master Technician Certification and Civic Natural Gas Vehicles Certification
- EPA Clean Air Act - Section 609 Refrigerant Handling Certification (1991–today)
- Hybrid-Electric Vehicle Training Certifications from:
 - Chrysler Two-mode (2008)
 - Ford Focus, Escape, Fusion (2006–today)
 - General Motors Two-Mode, BAS, E-Assist, Volt (2008–today)
 - Honda Insight, Civic, Accord and CRZ (2001–today)
 - Toyota Prius Family, Camry HV, Highlander HV (2001–today)
- Electric Vehicle (EV) Training Certification - Fully trained on the Chevrolet Volt from the General Motors Training Center, Burbank, CA (2011–today)

Background:

36 years in the automotive industry

- 2014–today - Professor in the Automotive Technology Department at Weber State University
- 2010–2015 - Program Manager of the Automotive Technology Department at Weber State University
- 2009–2014 - Associate Professor in the Automotive Technology Department at Weber State University
- 2006–2010 - Chairman of the Automotive Technology Department at Weber State University
- 2005–2006 - Manager of the Automotive Technology Program at Weber State University
- 2004–2009 - Assistant Professor in the Automotive Technology Program at Weber State University
- 1991–2004 - 13 years as an instructor at the General Motors Training Center at Weber State University
- 1989–1991 - Adjunct Instructor for the Automotive Program at Weber State University
- 1979–1991 - 12 years as an automobile technician working for independent repair shops (George's Goodyear Tires and Parson's Texaco) and various General Motors Dealerships (Hansen Motor Company, Freeway Oldsmobile-Cadillac, and John Watson Chevrolet in Utah; Hagen Chevrolet in San Diego, California)

Memberships/Affiliations:

- Member of the [Utah Clean Cities Coalition](#) Electric Vehicle Task Force (2013–today)
- Member of the Utah Clean Cities Coalition Technical Advisory Committee (2012–today)
- Member of Society of Automotive Engineers ([SAE International](#)) (2002–today)
- Member of the Weber State University Parking Committee (2010–today)
- Member of the Weber State University Faculty Senate (2007–2010)
- Member of the Weber State University Academic Resources and Computing Committee (ARCC) (2007–2008)
- Advisory Committee member of the [Job Corps](#) automotive program - Clearfield, UT (2007–today)
- Member of and Certified Test Proctor for the Automatic Transmission Rebuilders Association ([ATRA](#))
- Member of and Certified Test Proctor for the Mobile Air Conditioning Society ([MACS](#))

Accomplishments:

- 2015 - Jan. 14 - Participated in the new [ASE](#) L3 Light Duty Hybrid/Electric Vehicle Specialist Pilot exam
- 2015 - Jan. 5 - Interviewed by Fox 13 TV News (Salt Lake City, Utah) regarding vehicle cold start emissions <http://fox13now.com/2015/01/05/experts-bust-myths-about-idling-cars-in-winter/> This news segment was picked up in other markets across the United States including: Milwaukee, WI; Greensboro, NC; Harrisburg, PA; Richmond, VA and Fort Smith, AR.
- 2015 - Jan. 1 -The [WeberAuto Youtube Channel](#) hit 4.4 Million Views with over 18,400 subscribers.
- 2014 - Aug. 15 - Interviewed for Bottom Line Personal Magazine "The right way to pump gas" <http://www.bottomlinepublications.com/content/article/home-a-family/the-right-way-to-pump-your-gas>
- 2014 - June 16–18 - Presenter at Utah State Office of Education Summer Conference - "Hybrid Vehicle Diagnosis and Service"
- 2014 - Feb. 26 - Speaker - Hybrid and Electric Vehicles, "What you can do to minimize your personal contribution to Utah's air quality problem" at Weber State University Union Building - Fireplace Lounge <http://www.standard.net/Business/2014/02/27/WSU-auto-tech-professor-preaches-long-term-economy-of-hybrids-electric-cars.html>
- 2014 - Feb. 1 - Speaker - Annual Utah Association of Career and Technical Educators Conference - West Lake, UT - Hybrids and Electric Vehicles in Education
- 2014 - Contributing editor for Motor Age Magazine - See the January 2014 print issue or online at <http://www.searchautoparts.com/motorage/undercar-service-repair/whats-new-hybrid-systems>

- 2013 - Sept. 14 - The [WeberAuto Youtube Channel](#) hit 2 million views with over 5,600 subscribers.
- 2013 - Contributing editor for Motor Age Magazine - See the August 2013 print issue or online at <http://www.searchautoparts.com/motorage/undercar-service-repair/automatic-transmission-servicing>
- 2013 - Contributing editor for Motor Age Magazine - See the March 2013 print issue or online at: <http://www.searchautoparts.com/motorage/electrical/hybrid-horsepower-hybrid-ev-racing-technology>
- 2013 - Contributing editor for Motor Age Magazine - See the January 2013 print issue or online at: <http://www.searchautoparts.com/motorage/undercar-service-repair/practical-hybrid-service-tips>
- 2013 - Jan. 19. The [WeberAuto Youtube Channel](#) hit 1 million views with over 1,700 subscribers.
- 2012 - Contributing editor for Motor Age magazine - See the June 2012 print issue or online at: <http://www.searchautoparts.com/motorage/undercar-service-repair/bad-automotive-vibes?cid=95876>
- 2011 - Chevrolet Volt #6111 owner for electric vehicle research
- 2011–2012 - Developed and taught Hybrid and Alternate Fueled Vehicle workshops for non-WSU students
- 2011 - Overhauled and updated the Weber State University Automotive Technology department website
- 2010 - Created the WSU Automotive Transmission Lab, teaching specialty classes in automatic transmissions and manual drivetrain. Visit www.youtube.com/weberauto for more information and demonstrations.
- 2010 - Feb. 3 - Interviewed as part of ABC Channel 4 Utah television news story about the troubles with Toyota unintended acceleration problems <http://youtu.be/JdeXk0ZNbXw>
- 2010 - Completely renovated and repainted most of the automotive shops at Weber State University
- 2009 - Nov. 28. Created the [WeberAuto Youtube Channel](#) to store and share automotive videos I create with my students and other schools

William Speigle

Education:

- M.S. in Instructional Technology and Learning Sciences - Utah State University
- B.S. in Automotive Technology - Weber State University
- B.S. in Technical Sales - Weber State University
- A.A.S. - GM ASEP - Weber State University

Certifications:

- [ASE](#) Master Automobile Technician Certification

- ASE A9 Light Vehicle Diesel Certification
- ASE L1 Advanced Engine Performance Specialist Certification
- EPA Clean Air Act - Section 609 Refrigerant Handling Certification
- Ford Chassis Master

Background:

- 2008–present - Lead Instructor in the Independent Shop / Ford MLR Program at Weber State University
- 2006–2008 - Ford Training Specialist, General Physics Corporation, Troy, MI
- 2004–2006 - Ford Service Engineer, TAC Automotive, Allen Park, MI
- 2002–2003 - Technician, Audreys Auto Service, Ogden, UT
- 1999–2001 - Technician , Petersen Motors Co, Riverdale, UT

Memberships/Affiliations:

- Member of Society of Automotive Engineers
- Advisory Committee member of the [Job Corps](#) automotive program
- Member of and Certified Test Proctor for the Automatic Transmission Rebuilders Association

Accomplishments:

- ASE tests A1 through A8, re-certified Master Technician
- ASE A9 Light Vehicle Diesel Certification
- ASE L1 Advanced Engine Performance
- Developed training materials, provided classroom electrical training as well as on the job training for launch of 2008 Town Car at St. Thomas Assembly Plant in St. Thomas, Ontario
- Developed and delivered repair training for the 2008 Focus at Wayne Stamping and Assembly Plant in Wayne, Michigan
- Developed and provided training for 6F50 and 6F35 transmissions at the Van Dyke transmission plant in Stearling Heights, Michigan
- Developed Updated Data Entry system for Launch of 2009 F150 at Dearborn Truck Plant in Dearborn, Michigan
- Provided on-the-job electrical repair training for the Econoline at Avon Lake Assembly in Avon Lake, Ohio
- Supported 2007 Expedition/Navigator launch, developed job aids, and updated Quality Leadership System (QLS) data entry system at Michigan Truck Plant in Wayne, Michigan
- Provided training for 6T70 transmission for General Motors at the Warren Transmission Plant in Warren, MI
- On launch team for Ford 6F50 and 6F35 Transmissions at Van Dyke transmission Plant, Stearling heights, Michigan. Extensive knowledge of all Ford electrical systems

Blair Newbold

Education:

- B.S. Automotive Technology, Field Service Operations - Weber State University
- B.S. Technical Sales - Weber State University

- A.A.S. – ATEP - Weber State University

Certifications:

- ASE Master Automobile Technician

Background:

- Aug. 2015-Present – ATEP Instructor Weber State University
- 2006 - July 2015 – Lead Technician at MSN Automotive servicing BMW, Mini, SAAB

Scott Holland

Education:

- B.S. Automotive Technology (In Progress)
- A.A.S. – ASEP - Weber State University

Certifications:

- ASE Master Automobile Technician

Background:

- 2009— 2015 Technician Auto Repair / Diagnostics, Hansen Motors, Brigham City UT
- 10/2003 – 12/2009 Technician Auto Repair /Diagnostics, Murdock, Tremonton UT Full Line technician, working in all facets of automotive diagnostics and repair. Served as backup service manager.
- 10/2002 --- 5/2003 Technician Auto Repair, Pearson Tire, Ephraim, UT Tire tech / and light auto repair, also performed some work running service truck.

Be sure to include this (completed) summary graphic:

Faculty & Staff (current academic year)

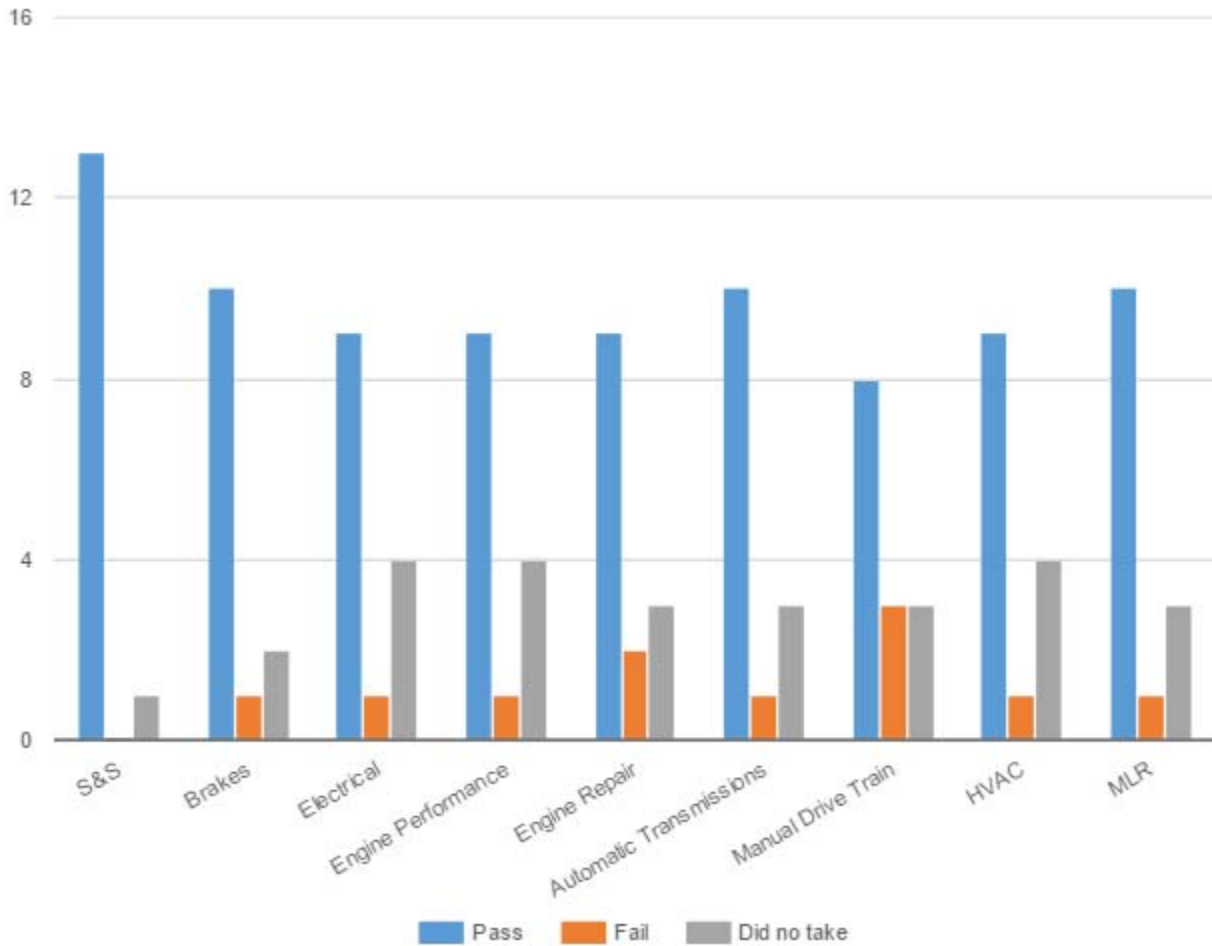
	Tenure	Contract	Adjunct
Number of faculty with Doctoral degrees	0	0	0
Number of faculty with Master's degrees	3	0	2
Number of faculty with Bachelor's degrees	0	1	1
Other Faculty		1	
Total	3	3	3

Evidence of Effective Instruction

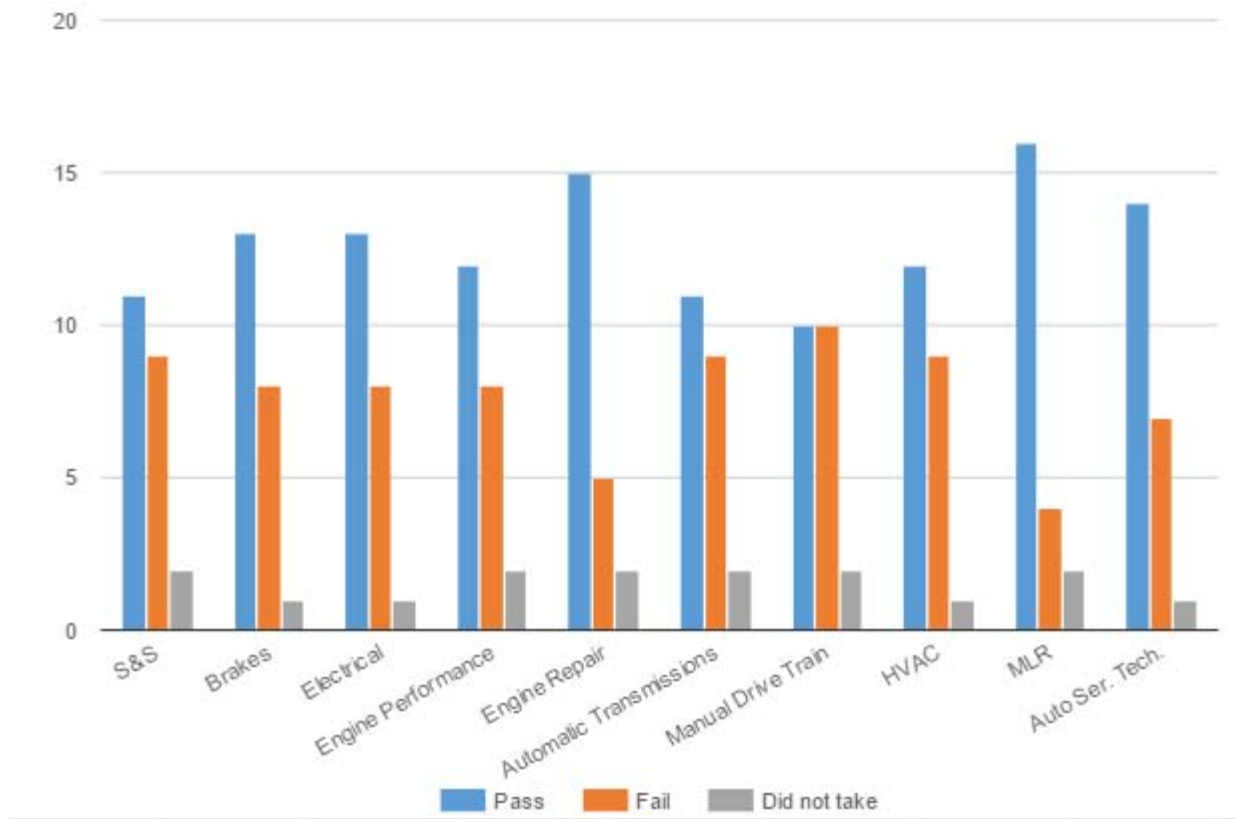
The automotive department has implemented an entrance and exit exam for students. The exams are from Automotive Service Excellence (ASE), an industry recognized organization. Students take

the entrance exam as part of the first course that they are enrolled in. They take a series of 9 tests. Students complete the exit exam in the last course of their AAS degree. The student ASE exams cover all of the topics found in the AAS degree. They evaluate 7 out of the 8 department student learning outcomes. The entrance exam was first implemented in the Fall of 2015. Students who finished the program in the Spring of 2016 took the exit exam. The test has not been offered long enough for the department to gather an entrance exam and an exit exam from the same cohort of students. In the Spring of 2017 the cohort that started in the Fall of 2015 will be the first students to complete both the entrance exam and the exit exam.

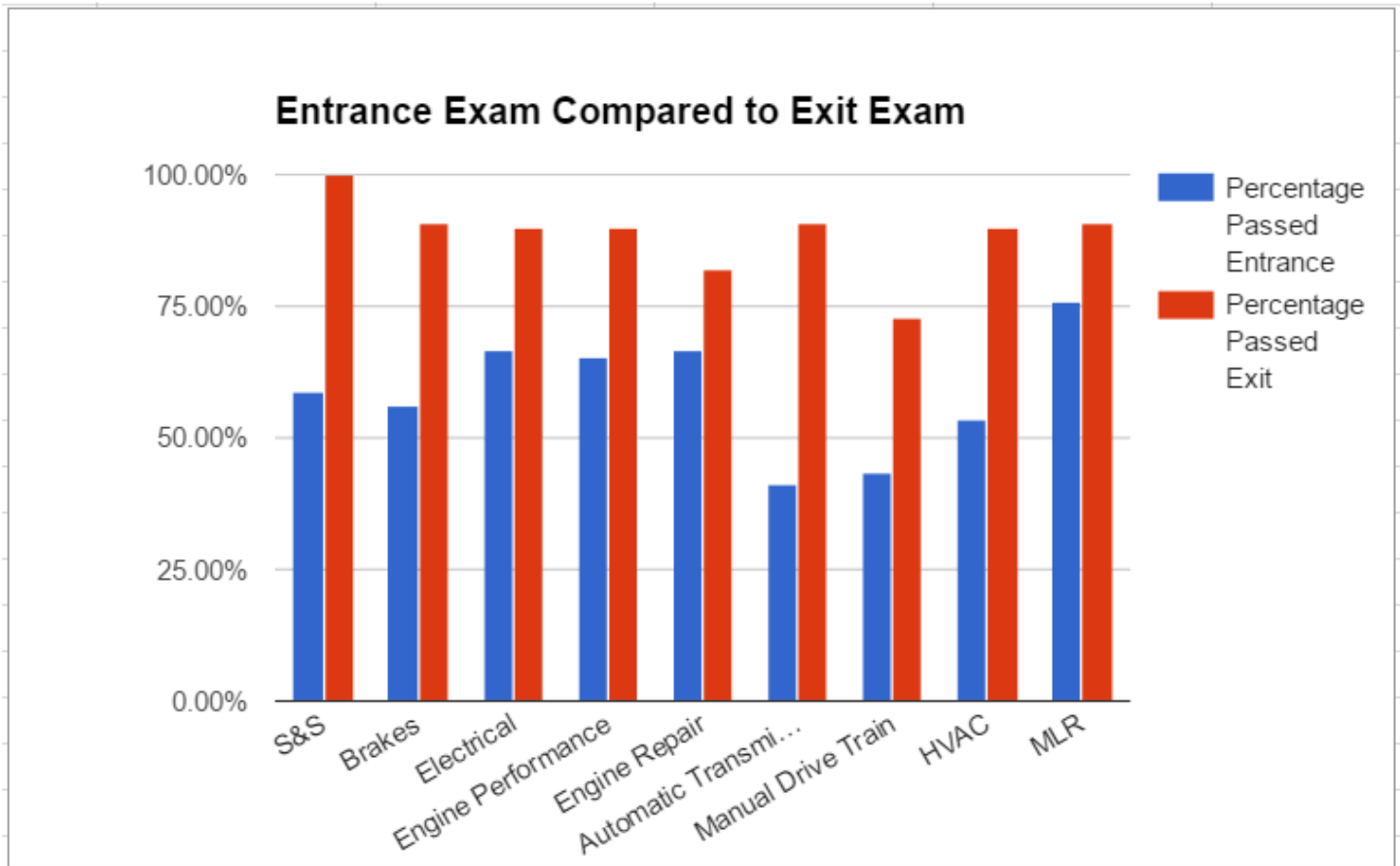
Exit Exam Fall 2014 Cohort – EXAM Taken Spring 2016 (No Entrance Data)



Entrance Exam Fall 2015 Cohort (Exit Data Available Spring 2017)









All Students -- Entrance Exam Compared to Exit Exam



	Percentage Passed Entrance	Percentage Passed Exit	Percentage Increase
S&S	58.62%	100.00%	41.38%
Brakes	56.25%	90.91%	34.66%
Electrical	66.67%	90.00%	23.33%
Engine Performance	65.52%	90.00%	24.48%
Engine Repair	66.67%	81.82%	15.15%
Automatic Transmissions	41.38%	90.91%	49.53%
Manual Drive Train	43.33%	72.73%	29.39%
HVAC	53.33%	90.00%	36.67%
MLR	76.00%	90.91%	14.91%

The Automotive Technology BS degree students are assessed by a written and verbal report at the end of each course. A rubric is used to evaluate the quality of the report and presentation. Here is an example rubric from the ATTC 4720 Senior Capstone course.

Final Deliverables   			
Criteria	Ratings		Pts
Planning Steps	Full Marks 50.0 pts	No Marks 0.0 pts	50.0 pts
Test Procedure	Full Marks 50.0 pts	No Marks 0.0 pts	50.0 pts
Data Gathering	Full Marks 50.0 pts	No Marks 0.0 pts	50.0 pts
Data Analysis	Full Marks 50.0 pts	No Marks 0.0 pts	50.0 pts
Findings	Full Marks 50.0 pts	No Marks 0.0 pts	50.0 pts
Conclusions	Full Marks 50.0 pts	No Marks 0.0 pts	50.0 pts
			Total Points: 300.0

Presentation   			
Criteria	Ratings		Pts
Presentation Visuals	Full Marks 50.0 pts	No Marks 0.0 pts	50.0 pts
Presentation Audio (narration, explanation, etc.)	Full Marks 50.0 pts	No Marks 0.0 pts	50.0 pts
Professionalism	Full Marks 50.0 pts	No Marks 0.0 pts	50.0 pts
Overall style and flow of presentation (clarity of points made, order of topics presented, etc.)	Full Marks 50.0 pts	No Marks 0.0 pts	50.0 pts
			Total Points: 200.0

Faculty Scholarship

Scholarship activities for faculty members is strongly encouraged. Department resources and faculty loads are adjusted to meet the needs of faculty scholarship interests. The department has a plan in place to increase both funding and involvement in undergraduate research. The following is a sample of the some of the faculty scholarship activities:

- Noise Vibration and Harshness (NVH) diagnoses. Using a combination of computer hardware and software to identify NVH problems on a vehicle
- Universal Joint (U-Joint) Application and History. Identifying the changes and design modification made to the U-Joint in order to improve reliability and improved handling of the vehicle.
- Autonomous Vehicle Systems. Categorizing and examining the hardware and software used to autonomously control vehicle systems.
- Advanced Emissions Research. Cold Start, Catalytic converter efficiency, Air Quality, and CO2 emissions

- Sustainable Electric Vehicle Conversion with Solar Charging Station. Build an electric vehicle that has a 100 mile range and can be charged overnight with solar panels and battery bank.

Mentoring Activities

The automotive department does not have a formal mentoring process in place. Mentoring activities occur on an as needed basis. Newer faculty members or faculty members who need to teach an area of automotive technology in which they are not fully trained are cross-trained with a more experienced faculty member. Other mentoring activities include attending the factory training centers of the automotive manufacturers for which we have partnerships (Chrysler, Honda, General Motors, Ford, and Toyota).

The department faculty agreed to participate in a peer review of all teaching members of the department. Each faculty member will observe and comment on at least one course taught by another faculty member. This will allow the reviewer to observe alternate teaching strategies. It will also allow the faculty member being observed to get feedback on their teaching effectiveness. Fall of 2016 is the first year that this plan has been implemented. There is currently nothing to report as to the effectiveness of this program.

Diversity of Faculty

Diversity is currently a weak area for our department. We have put extra emphasis on recruiting faculty with a more diverse background. The automotive industry as a whole is struggling with hiring a more diverse workforce. We have increased out of state student recruiting in areas that have a more diverse population. This recruiting effort will hopefully in turn produce qualified candidates for the faculty positions that we hope to add in the future. We have been somewhat successful getting more diverse adjunct instructors.

Ongoing Review and Professional Development

Each faculty member is required to attend at least 20 hours of update training per year. In reality, most faculty members attend over 100 hours of update training per year. Our programs are reviewed every 2.5 years by NATEF and also reviewed annually by each automotive manufacturer we have partnerships with. Industry advisory members give input on the appropriate courses that the faculty should be current on. Faculty members are encouraged to take any additional University courses that might have an impact on their teaching areas. Several faculty members have taken Computer Science courses in order to increase their understanding of the logic found in the modern vehicle.

Standard F – Program Support

Support Staff, Administration, Facilities, Equipment, and Library

Adequacy of Staff

i. Ongoing Staff Development

Staff are encouraged to pursue training that is available through Training Tracker. The administrative assistant is currently taking the '7 Habits of Highly Effective People' course offered by the University. The shop foreman took a machining course in Spring 2016 and is taking a welding course in Fall 2016. The department adviser will begin a Master's Degree in the Fall of 2017.

Adequacy of Administrative Support

We have excellent support from the College Dean. Dr. Ferro has encouraged both improvements in teaching and undergraduate research. He has helped to facilitate cross-department collaboration. Through funding and encouragement he has made it possible to improve the quality of research projects completed by undergraduate students. The dean has been ready and willing to help facilitate development activities and has made resources available to the department in our efforts to increase the number of scholarships we offer our students.

Adequacy of Facilities and Equipment

Through Perkins money and other grant opportunities we have been able to keep the majority of our equipment up to date and well maintained. We currently have all of the equipment required for teaching the individual systems found on our current fleet of vehicles. We were able to obtain a new hybrid vehicle through Perkins funds this year. We could use more vehicles with hybrid or electric powertrains. Our shop foreman currently works for us part time. A full time position would allow us to better keep up on the maintenance and inspection of our equipment.

The building is showing significant signs of use. We have been able to make use of the space given to us, but the building layout is not ideal for instruction in the lab. Multiple times a year we have some type of HVAC system failure. Classrooms and lab space has been unusable during these failures. A new building would have a very strong impact on our teaching and lab work.

Adequacy of Library Resources

The library resources are adequate for our department needs. The librarian sends us monthly updates of automotive related resources in the library and offers to obtain anything else we need in the library.

Standard G - Relationships with External Communities

Version Date: April, 2016

Description of Role in External Communities

We have educational partnerships with Chrysler, General Motors, Ford, and Toyota. We provide technicians for local dealerships and independent repair facilities. We also provide all the major automotive manufacturers with BS degree students to serve in roles of management and product service. These partnerships open up internship and employment opportunities for our students.

We also have a partnership with the Davis Applied Technology Center (DATC) to allow their Heavy-Duty Truck students to transfer to WSU to complete their AAS degree. This partnership gives us access to Mack and Volvo Heavy Duty Truck training, service information, vehicles, and training components. This partnership opens up additional internship and employment opportunities for our students

We partner with both Ogden Weber Applied Technology College and the DATC automotive programs. Students can complete nearly a year of their degree at these institutions. We also have a similar arrangement with the Northern Utah high schools that participate in concurrent enrollment.

We are a founding member of the National Association of Automotive Universities (NAAU). We along with five other Universities are able to collaborate on curriculum and other common issues that bachelor degree automotive programs face. NAAU is also able to lobby the vehicle manufacturers for components, training, vehicles, and other necessary training items.

We recently started to offer Fiat Chrysler Automobiles (FCA) web based training in partnership with a certification organization called NC3. NC3 is the liaison between Weber and FCA. NC3 also helps us to make the right connection with local dealerships in order to pair our students with mentors at the FCA dealerships.

Summary of External Advisory Committee Minutes

We have separate external advisory committees for each of the automotive partnerships we have in the Automotive Department. The advisory committees are comprised of business owners, service managers, shop foremen, current students, program graduates, High School district Career and Technical Education representatives, and manufacturer representatives. The committees meet twice per year and visit the school once per year to tour the facility and make suggestions for improvement. The committees also help make decisions regarding major purchases; scholarships, hiring interns and fulltime employees, common pay for new hires, and curriculum changes. The committee also reports on industry changes or trends they are experiencing that would be relevant to the curriculum we deliver.

The advisory committee met in the Spring of 2016. The main focus of the meeting was the review of the electrical courses that we taught. The committee looked at the credit hour requirements, learning outcomes, schedule, and course content. The committee recommended that an additional 3 credit hours should be added to the electrical curriculum. The department developed an additional course for electrical and submitted the proposals to the curriculum committees. The committee will review Engines 1 and 2 in the Fall 2016 meeting.

The BS degree industry advisory board was reorganized in the Spring of 2016. The committee had been stagnate for the past few years. New committee members were selected and assignments were given. Most of the board members are working for companies that are out of the state. Initial discussions and assignments were done through email and document collaboration. An onsite visit is planned for the Spring of 2017.

The committee evaluated the course offering as a whole. Committee members identified that there were several courses that may need updated and several requirements that may need changed to meet industry demand. The committee determined that ATTC 4860 Automotive Standards, Laws and Regulations should be a requirement for the Field Service Operations BS degree. Committee members also identified that three new courses should be developed. Those courses identified by the committee are a hybrid electric vehicle course, an advanced emissions course, and an autonomous vehicle systems course. The faculty created three courses to meet this request. ATTC 4530 Hybrid and Electric Vehicle Systems, ATTC 4540 Automated Safety and Convenience Systems, and AUSV 4560 Advanced Emissions Systems. These courses are currently being reviewed by University Curriculum. These new courses will change the degree course requirements for the Field Service Operations emphasis. The courses designated as having the least value to graduating students were PS 3363 Contract Sales Negotiations and PS 1143 Fundamental Selling Techniques.

The committee will look in detail at each automotive course over the next 5 years. They will review the ATTC 3760 Advance Automotive Technologies and ATTC 3620 Automotive Business Practices course in detail during the Fall of 2016 and the Spring of 2017. Both of these courses are currently being reviewed by the department faculty.

Standard H – Program Summary
 Results of Previous Program Reviews

Problem Identified	Action Taken	Progress
Issue 1 Use same exam for entry and exit evaluations	Previous 5 Year Program Review:	Begin Search for assessment tool
	Year 1 Action Taken:	Evaluate effectiveness of self-built assessment tool
	Year 2 Action Taken:	Evaluate 3 rd party assessment
	Year 3 Action Taken:	First cohort complete initial entrance exam
	Year 4 Action taken:	Entrance and Exit exams administered to all students in the program
Issue 2 Use a more consistent rating system for all courses	Previous 5 Year Program Review:	Determine best rating scale
	Year 1 Action Taken:	Test Rating score in select course
	Year 2 Action Taken:	Reevaluate rating scale
	Year 3 Action Taken:	Implement Canvas Learning Outcome Rubrics
	Year 4 Action taken:	Implement Canvas Learning Outcome Rubrics
Evaluation Team Issue: 'Department needs to restructure faculty/staff so an advisor can be designated who can facilitate student progress and increase graduation rates.'	Previous 5 Year Program Review:	Begin process for advisement changes
	Year 1 Action Taken:	Evaluate faculty loads
	Year 2 Action Taken:	Evaluate faculty ability to advise
	Year 3 Action Taken:	Began Advisement staff search
	Year 4 Action taken:	Hired full Time Adviser for the department
Evaluation Team Issue:	Previous 5 Year Program Review:	Planning
	Year 1 Action Taken:	Planning
	Year 2 Action Taken:	Planning

Regular meetings to discuss students learning and assessment of learning outcomes	Year 3 Action Taken:	Formation of Department Curriculum Committee
	Year 4 Action taken:	Review and evaluation of Electrical 1 and 2 – identified the specific learning outcomes assigned to each course and the method for assessing the outcome

Summary Information (as needed)

Issue 1 Use same exam for entry and exit evaluations:

The implementation of the same entrance and exit exam has been successful. The data gathered from this can be found in the Evidence of Effective Instruction section.

Issue 2 Use a more consistent rating system for all courses:

The department gained access to the department level learning outcomes on Canvas. Each learning outcome can now be tied to the specific course that covers it. A rubric accompanies the learning outcome and allows the instructor to rate their students' performance on the outcome. The work to load the outcomes and keep them current with the NATEF standards has been challenging. The outcomes and rating system has been used in several course, but has not yet been adopted in all courses. The department will reevaluate this method and determine whether it is feasible and beneficial to utilize this uniform system to track outcomes and rating. An example of an outcome and the scale can be found below.

1. (P-1) Diagnose poor stopping, noise, vibration, pulling, grabbing, dragging or pedal pulsation concerns; determine necessary action.

Exceeds Expectations	Meets Expectations	Does Not Meet Expectations	Total Points
5 Points	3 Points	0 Points	5 Points

Evaluation Team Issue: 'Department needs to restructure faculty/staff so an advisor can be designated who can facilitate student progress and increase graduation rates.':

This has been accomplished and the details can be found in the Advisement section.

Regular meetings to discuss students learning and assessment of learning outcomes:

The formation of the Department Curriculum Committee began in the Fall of 2015. Department faculty and staff determined that the committee would address one subject area in the AAS degree and one subject area in the BS degree per year. The committee was able to fully evaluate the Electrical 1 and 2 courses. The syllabus, learning outcomes, and major content items were established. The information was presented and accepted by the industry advisory committee. The department committee was unable to fully review the ATTC 3760 Advanced Automotive Technologies. The committee will evaluate this course in the 16/17 school year.

Action Plan for Ongoing Assessment Based on Current Self Study Findings

Action Plan for Evidence of Learning Related Findings

Problem Identified	Action to Be Taken
Issue 1: Develop a more consistent assessment tool for BS degree students	Current 5 Year Program Review:
	Year 1 Action to Be Taken:
	Year 2 Action to Be Taken:
	Year 3 Action to Be Taken:
	Year 4 Action to Be Taken:
Issue 2: Improve the quality and quantity of students involved in undergraduate research with faculty support	Current 5 Year Program Review:
	Year 1 Action to Be Taken: Review other departments efforts in undergraduate research
	Year 2 Action to Be Taken: Adjust curriculum and release time of faculty to better support the undergraduate research
	Year 3 Action to Be Taken: Explore funding opportunities for undergraduate research/ Pilot first cohort through yearlong undergraduate project.
	Year 4 Action to Be Taken: Begin implementation of undergraduate research for all outgoing seniors.

Summary Information (as needed)

Action Plan for Staff, Administration, or Budgetary Findings

Problem Identified	Action to Be Taken
Issue 1: Increase opportunities to find diverse faculty and staff	Current 5 Year Program Review: Increase the number of FTE students to allow for an additional faculty line and full time positions for both admin assistant and shop foreman
	Year 1 Action to Be Taken: Increase the number of FTE students to allow for an additional faculty line. Change staff positions to full time
	Year 2 Action to Be Taken: Begin hiring process with emphasis placed on diverse applicants.
	Year 3 Action to Be Taken: Hire and train faculty member
	Year 4 Action to Be Taken: Continue training and development of faculty member
Issue 2: Establish a development plan that brings industry sponsorship for scholarships, equipment, senior research projects, and named spaces in the new building	Current 5 Year Program Review: Outline possible industry partner working directly with the development office
	Year 1 Action to Be Taken: Build relationships with industry partners
	Year 2 Action to Be Taken: Build relationships with industry partners
	Year 3 Action to Be Taken: Identify projects that are mutually beneficial for industry and department to sponsor.
	Year 4 Action to Be Taken: Identify branding opportunities for industry partners in dedicated spaces in the new building

Summary of Artifact Collection Procedure

Artifact	Learning Outcome Measured	When/How Collected?	Where Stored?
<p>Student ASE Examination</p> <ul style="list-style-type: none"> • A-1 Engine Repair • A-2 Automatic Transmissions • A-3 Manual Drivetrain • A-4 Suspension and Steering • A-5 Brakes • A-6 Electrical • A-7 Heating and Air Conditioning • A-8 Engine Performance 	<ul style="list-style-type: none"> • Students will explain the theory of operation of vehicle systems and components. • Students will apply a proper diagnostic approach when analyzing a vehicle system fault. • Students will apply a proper repair procedures when repairing a vehicle fault. 	<p>Exit Examination at the end of two year degree. The courses that cover these subjects are requirements in the AAS degree</p>	
<p>Individualized Hands On Examinations:</p> <ul style="list-style-type: none"> • All AAS automotive courses 	<ul style="list-style-type: none"> • Students will demonstrate the proper use of safety equipment when performing any type of vehicle repair. • Students will locate and utilize vehicle electronic service information for all repair procedures. • Students will demonstrate the proper use of special service tools and hand tools 	<p>At the end of the automotive course a hands on examination in administered.</p> <p>The tasks are selected from the NATEF designated service tasks</p>	<p>Online in Canvas with each specific course</p>

	<p>when performing any type of vehicle repair.</p> <ul style="list-style-type: none"> • Students will demonstrate a proper repair verification procedure when a vehicle has been prepared. • Students will explain the theory of operation of vehicle systems and components. • Students will apply a proper diagnostic approach when analyzing a vehicle system fault. • Students will apply a proper repair procedures when repairing a vehicle fault. 		
<p>Report and Presentations</p> <ul style="list-style-type: none"> • BS Degree Courses 	<ul style="list-style-type: none"> • Students will be able to present and explain information summarizing advanced vehicle systems. 	<p>At the end of each BS degree course</p>	<p>Online in Canvas with each specific course</p>

APPENDICES

Appendix A: Student and Faculty Statistical Summary

	11-2012	12-2013	13-2014	14-2015	15-2016
Student Credit Hours Total	2,679	3,099	4,002	3,770	3,340
Student FTE Total	89.3	103.30	133.40	125.67	111.33
Student Majors	252	302	293	322	312
Program Graduates					
Institutional Certificates			5	25	20
Associate Degree	19	21	28	24	17
Bachelor Degree	16	23	7	26	21
Student Demographic Profile	1				
Female	20	24	16	21	20
Male	231	278	277	301	292
Faculty FTE Total 6	9.32	9.59	7.64	7.35	n/a
Adjunct FTE	2.21	3.37	2.97	2.68	n/a
Contract FTE	7.11	6.22	4.67	4.67	n/a
Student/Faculty Ratio	9.58	10.77	17.46	17.10	

Note: Data provided by Institutional Effectiveness

Program Credit Hour requirements:	Institutional Certificates	Associate Degree	Bachelor Degree
General Education hours:	0	18	16.5
Required major course hours:	10	41	18
Required elective course hours:	6	0	3
Required support course hours:	0	6	15
Total	16	65	125

Appendix B: Contract/Adjunct Faculty Profile

Name	Gender	Ethnicity	Rank	Tenure Status	Highest Degree	Years of Teaching	Areas of Expertise
Blair Newbold	Male	White	Instructor	Tenure-Track upon completion of MS	BS	1	European Make
Scott Holland	Male	White	Instructor	Tenure-Track upon completion of MS	AAS	1	GM
Jessica Slater	Female	White	Adjunct	Non-Tenure	BS	1	Professional Development
Joe Thomas	Male	Malays	Adjunct	Non-Tenure	MS	15	Environmental and Hazardous Materials
Beth Miya	Female	Asian	Adjunct	Non-Tenure	MS	3	Automotive Manufacturer Support

Appendix C: Staff Profile

Name	Gender	Ethnicity	Job Title	Years of Employment	Areas of Expertise
Jessica Slater	Female	White	Adviser	6	Student Advisement and professional development
Bree Conlin	Female	White	Admin Assistant	2	Office Management and administrative support
Steve Merkley	Male	White	Shop Foreman	1	Shop Maintenance and Inventory Control

Appendix D: Financial Analysis Summary
 (This information is provided by the Provost's Office)

Program Name					
Funding	10-12	12-13	13-14	14-15	15-16
Appropriated Fund	797,042	765,694	711,147	660,640	599,054
Other:	00000.00	00000.00	00000.00	00000.00	00000.00
Special Legislative Appropriation					
Grants or Contracts	147,872	102,365	124,739	93,290	107,281
Special Fees/Differential Tuition	43,531	35,598	46,678	30,872	38,655
Total	988,445	903,567	882,564	784,802	744,990

Appendix E: External Community Involvement Names and Organizations

Name	Organization
Service Managers, Owners	Henry Day Ford
Service Managers, Owners	Young Automotive Group
Service Managers, Owners	LHM Automotive Group
Service Managers, Owners	Tony Davino Toyota
Service Managers, Owners	Ken Garff Automotive Group
Service Managers, Owners	FCA Dealerships
Service Managers, Owners	GM Dealerships
Service Managers, Owners	Ford Dealerships
Service Managers, Owners	Northern Utah Independent Repair Facilities
Service Managers, Owners	Firestone
Service Managers, Owners	Burt Brothers
Faculty and Staff	OWATC Automotive
Faculty and Staff	DATC Automotive
Recruiting Team	Toyota Motor Sales
Recruiting Team	Cummins Inc
Recruiting Team	Advantage Technical Resources
Recruiting Team	Ford Motor Company
Recruiting Team	General Motors
Recruiting Team	Sherwin Williams Paint
High School Automotive Instructors	All Utah and Surrounding States High Schools with Automotive Programs
Steve Taylor	Hyundai Motors America

Appendix F: Site Visit Team (both internal and external members)

Name	Position	Affiliation
Tim Border	Associate Professor	Weber State University Professional Sales
Justin Miller	Department Chair	BYU-I Automotive

