

Ferris State University

Academic Program Review
of

Automotive Engineering Technology (BS)

Automotive Service Technology (AAS)

Performance Motorsports (CT)

August 15, 2017

Program Information

Academic Program Review of

*Automotive Engineering Technology (BS)
Accredited by ETAC-ABET exp. September 30, 2018*

*Automotive Service Technology (AAS)
Accredited by NATEF exp. January 01, 2021*

*Performance Motorsports (CT)
No Accrediting Agency*

Accreditation



NATIONAL AUTOMOTIVE TECHNICIANS EDUCATION FOUNDATION, INC.

December 7, 2015

Mr. Ben Upham
Instructor
Ferris State University
708 Campus Dr.
Big Rapids, MI 49307

Dear Mr. Upham:

We have received the on-site evaluation results for your Automobile technician-training program. The results indicate that the criteria have been met for renewal of program accreditation in Master Automobile Service Technology.

We commend you and your staff for maintaining your program's standards, and continuing to meet the industry's requirements. The explosion in automotive technology makes your high quality automotive training program more valuable than ever.

To acknowledge your accomplishment, we are creating a plaque for you that will recognize your school and the specialty areas your program has been granted renewal of accreditation in. You should receive this plaque within 6-8 weeks.

Sincerely,

A handwritten signature in black ink that reads 'Patricia Serratore'.

Patricia Serratore
President, NATEF

cc: Mr. Larry Taylor, Automotive Program Coordinator
Dr. Darrell Parks, NATEF Consultant

SUMMARY OF DEBRIEFING MEETING FORM

The Summary of Debriefing Meeting Form must be completed and signed at the conclusion of the on-site evaluation. A signed copy must be left with the institution and provided to NATEF.

Institution Name: Ferris State University

Date and time of meeting: 11/13/2015

Please outline the key points of the meeting. Include information on program strengths and standards that need improvement.

Program strengths:

Standard 9.1

The onsite team felt that the lab floor area is very well laid out and kept neat and orderly.

SUMMARY OF DEBRIEFING MEETING FORM (cont.)

Standards that need improvement (provide standard number - example 7.1A):

Standard 8.2

The team recommends that the program get some updated newer technology scan tools, such as android based platforms.

Standard 9.10

The team highly recommends the the first aid kits be updated and have clearly marked signage as to their location. Also the team recommends that there be at least two first aid kits mounted in the shop floor area.

3,000 character limit

SUMMARY OF DEBRIEFING MEETING FORM (cont.)

The following recommendations must be addressed and documented at the next on-site evaluation. (The disposition of recommendations listed here will be addressed at the next on-site evaluation as part of the continuous improvement process.)

[Empty box for recommendations]

2,500 character limit

Signatures below verify that the program's strengths and weaknesses were verbally shared with the program administrator and program instructor at the conclusion of the on-site visit, and that a copy of this form has been provided to the institution for their records.

- | | | | |
|----|---------------------------------|-----------------------|-----------------|
| 1. | _____ | Laurence Taylor | 11/13/2015 |
| | ETL Signature | Typed or Printed Name | Date (m/d/yyyy) |
| 2. | _____ | Lee Johnson | 11/13/2015 |
| | Team Member Signature | Typed or Printed Name | Date (m/d/yyyy) |
| 3. | _____ | Eric Goodwell | 11/13/2015 |
| | Team Member Signature | Typed or Printed Name | Date m/d/yyyy) |
| 4. | _____ | Ben Upham | 11/13/2015 |
| | Program Administrator Signature | Typed or Printed Name | Date (m/d/yyyy) |
| 5. | _____ | Ben Upham | 11/13/2015 |
| | Program Instructor Signature | Typed or Printed Name | Date (m/d/yyyy) |



8/31/2016

Engineering Technology Accreditation Commission

**Summary of Accreditation Actions
for the
2015-2016 Accreditation Cycle**

**Ferris State University
Big Rapids, MI**

Industrial Electronics Technology EEIT (AAS)

Accredit to September 30, 2022. A request to ABET by January 31, 2021 will be required to initiate a reaccreditation evaluation visit. In preparation for the visit, a Self-Study Report must be submitted to ABET by July 01, 2021. The reaccreditation evaluation will be a comprehensive general review.

This is a newly accredited program. Please note that this accreditation action extends retroactively from October 01, 2014.

Electrical/Electronics Engineering Technology (BS)

Mechanical Engineering Technology (AS)

Mechanical Engineering Technology (BS)

Welding Engineering Technology (BS)

Accredit to September 30, 2022. A request to ABET by January 31, 2021 will be required to initiate a reaccreditation evaluation visit. In preparation for the visit, a Self-Study Report must be submitted to ABET by July 01, 2021. The reaccreditation evaluation will be a comprehensive general review.

Automotive Engineering Technology (BS)

Accredit to September 30, 2018. A request to ABET by January 31, 2017 will be required to initiate a reaccreditation report evaluation. A report describing the actions taken to correct shortcomings identified in the attached final statement must be submitted to ABET by July 01, 2017. The reaccreditation evaluation will focus on these shortcomings. Please note that a visit is not required.

Bachelor of Science Degree
Program in
AUTOMOTIVE ENGINEERING
TECHNOLOGY

INTERIM REPORT

Submitted to ETAC-ABET

July 1, 2017

The ETAC-ABET Board of Engineering and Technology's review of the BS in Automotive Engineering Technology Program at Ferris State University resulted in two Deficiencies and two Weaknesses. After the Post 30-Day Due Process Response, 1 Deficiency was reduced to a Weakness, 1 Deficiency was Resolved, 1 Weakness was reduced to a Concern, and 1 Weakness remained a Weakness. This report outlines the steps taken to correct the issues in the respective areas. The appendices provide material to support our responses.

PROGRAM DEFICIENCY #1 STATES:

Criterion 4. Continuous Improvement states, "The program must regularly use appropriate, documented processes for assessing and evaluating the extent to which the student outcomes are being attained. The results of these evaluations must be systematically utilized as input for the continuous improvement of the program."

Although the program provided graded student work samples, no evidence was provided of a regularly used, appropriately defined and documented assessment and evaluation process to support continuous program improvement. No information was provided on timetable of implementation of assessment and evaluation processes, who is responsible for the assessment (or which assessment tools would be used) and evaluation of those assessment data; or who is going to use those evaluation results for making improvement decisions. No evidence was presented on corrective measures resulting from evaluation of assessment data. Without appropriate and consistent documentation relevant to its regularly assessing and evaluating student attainment of all student outcomes, the program is unable to determine the level of student achievement of its student outcomes. Thus, the program is unable to determine appropriate continuous improvement actions and will be unable to determine if actions for improvement have been effective. The program must demonstrate that (1) it is using appropriate documented processes for assessing and evaluating the extent to which students are attaining all student outcomes, (2) the results of these evaluations are systematically used as input for the continuous improvement of the program, and (3) actions for improvement are implemented.

Due Process Response: The program reports that faculty have received additional training in assessment and the use of university-level software for collecting and analyzing outcomes. The program is revising and updating its continuous improvement plan; ensuring a close relationship between institutional mission, program educational objectives, student outcomes, and course outcomes. The collection of data for course outcomes is ongoing with preparations for analyzing those data. Results of such revisions and associated assessment and evaluation processes were not documented.

Status after Due Process: This finding remains a Deficiency until the program demonstrates that (1) it is using appropriate documented processes for assessing and evaluating the extent to which students are attaining all student outcomes, (2) the results of these evaluations are systematically used as input for the continuous improvement of the program, and (3) actions for improvement are implemented.

Post 30-Day Due Process Response: The program submitted a complete, written continuous improvement plan covering all aspects of program continuous improvement, including review and revision of program educational objectives (PEO's) and student outcomes, assessment of student outcomes, methodologies for assessment-based program improvement and review by the faculty and industrial advisory board. The plan includes direct assessment of all student outcomes using multiple measures. The program has added student outcomes covering program-specific criteria (additional details are reported in a related finding). The program documented assessment of its student outcomes during the spring 2016 semester. Minutes of faculty continuous improvement meetings were provided and documented evaluation of assessment data and resulting program improvement decisions. Industry advisory board meetings minutes demonstrated involvement in the assessment and evaluation process. Improvements have been proposed with planned implementation in the fall 2016 semester. The ETAC notes these

positive steps of creating and implementing processes for assessing and evaluating the extent to which students are attaining all student outcomes and making decisions for program improvements but the program must demonstrate that such processes are systematically used for continuous improvement. Also, proposed improvements must be implemented and their impact monitored.

Status: This finding is reduced to a Weakness until the program demonstrates that results of assessment and evaluation are systematically used as input for the continuous improvement of the program and that actions for improvement are implemented.

OUR RESPONSE

The faculty have updated the course outcomes in the university's course assessment repository called TracDat. This is a database that allows access to course outcomes, assessment methods and results, and actions taken to address performance deficiencies. See [Appendix A](#). The updating of course outcomes, assessment results and actions happens on a biannual basis. This information is reviewed by faculty biannually at department meetings and includes the courses that were taught the previous semester. This is also reviewed by the Advisory Board at their annual meeting. See [Appendix B](#) for department and Advisory Board meeting minutes.

PROGRAM DEFICIENCY #2 STATES:

Criteria: Program Criteria for Automotive Engineering Technology and Similarly Named Programs states, *inter alia*, "An accreditable program will prepare graduates with technical and managerial skills necessary to enter careers in design, manufacturing, marketing, operation, and maintenance in the field of automotive engineering technology." Further, "The field of automotive engineering technology is dependent on the application of computers in analysis, design, manufacturing, and operation of facilities. The program must demonstrate that graduates are competent in the application of computer technologies commonly used in industry, governmental service, and private practice associated with land, sea, air, and space mobility."

And, "The program must demonstrate that graduates have a working knowledge of the design, manufacture, and maintenance of major subsystems and technologies associated with land, sea, air, and space mobility." The program did not demonstrate graduates have acquired the knowledge and skills specified by program criteria. Students do not have a clearly identified identity and role in the area, or areas, of design, manufacturing, marketing, operation, and maintenance within the automotive engineering technology field and find it difficult to match the level of their acquired skills and knowledge with constituent's needs. The program must demonstrate graduates have acquired the knowledge and skills specified by automotive engineering technology program criteria.

Due Process Response: The program responded that it is incorporating Automotive Engineering Technology program criteria into its student outcomes and course outcomes; that these requirements will be mapped from course outcomes to student outcomes; and that the continuous improvement process will include these requirements. Results of this revision process were not documented.

Status after Due Process: This finding remains a Deficiency until the program demonstrates graduates have acquired the knowledge and skills specified by automotive engineering technology program criteria.

Post 30-Day Due Process Response: The program added four student outcomes addressing the skills and knowledge required by Automotive Engineering Technology Program Criteria. These outcomes have been incorporated in the program's assessment and evaluation processes, resulting in their assessment during the spring 2016 semester. Thus, the program has documented the extent to which students have acquired the skills and knowledge required by program criteria.

Status: This finding is resolved.

PROGRAM WEAKNESS #1 STATES:

Criterion 2. Program Educational Objectives states, "There must be a documented, systematically utilized, and effective process, involving program constituencies, for the periodic review of these program educational objectives..." The program regularly has the industry advisory committee (IAC) evaluate the curriculum and course content. The internal Ferris State University program review process includes a survey of the IAC regarding student outcomes. The program lists students, faculty, IAC, employers and alumni as constituents of the program. Further the program stated that faculty and the IAC, which includes employers and alumni, have participated in discussion regarding the program educational objectives. However, the program had no documentation of this review. Without documented periodic review of the program educational objectives by constituents, the program is at risk of becoming irrelevant to its constituent's needs. The program is required to demonstrate a documented, systematically utilized, and effective process, involving all program constituencies, for the periodic review of program educational objectives.

Due Process Response: The program responded that the industrial advisory committee, alumni, students, and program faculty will review the program educational objectives, with revisions implemented as needed. Results of this review process were not documented.

Status after Due Process: This finding remains a Weakness until the program demonstrates a documented, systematically utilized, and effective process, involving program constituencies, for the periodic review of program educational objectives.

Post 30-Day Due Process Response: The program submitted a complete, written continuous improvement plan covering all aspects of program continuous improvement including review and revision of PEOs. The plan lists program constituents involved in review of PEOs. The program provided minutes of faculty and industry advisory board meetings, involving program constituents, during which PEOs were reviewed.

Status: This finding is reduced to a Concern until the program demonstrates a systematically utilized, and effective process, involving program constituencies, for the periodic review of program educational objectives.

OUR RESPONSE:

The faculty reviewed the Program Educational Objectives (PEO) for alignment to the University's mission statement and relevancy to industry needs. See [Appendix C](#) for Automotive Department Meeting Minutes. Discussion amongst the faculty resulted in changing one of the PEOs from "Demonstrate high standards of ethical and social values." to "Membership in professional organizations". This was done primarily for two reasons; first, most professional organizations have a code of conduct by which they expect members to adhere to and second, it is measureable in an objective manor.

This change in PEOs along with Ferris' Mission Statement were presented to the Industry Advisory Board at their annual meeting. See [Appendix D](#) for Industry Advisory Board meeting minutes. Advisory board members had various questions and discussion on the topic and decided that the PEOs were appropriate and measureable.

Students in the AUTO 480 class were also surveyed to get their feedback on whether they felt the PEOs were worthwhile objectives for the AET program. See [Appendix E](#) for survey results. The majority of students felt the objectives were either Worthwhile or Very Worthwhile.

PROGRAM WEAKNESS #2 STATES:

Criterion 5. Curriculum states, "... baccalaureate degree programs must provide a capstone or integrating experience that develops student competencies in applying both technical and non-technical skills in solving problems..." and that "... when used to satisfy prescribed elements of these criteria, credits based upon cooperative/internships or similar experiences must include an appropriate academic component evaluated by the program faculty." The program uses a cooperative education (COOP) course to address the capstone or integrating experience required by the criterion. The COOP course syllabus identifies desired course outcomes and requires a report submitted by the student for grading purposes. However, the course outcomes are not connected to student outcomes. The student report is not assessed with a rubric or other assessment method demonstrating an integrating experience developing student competencies in applying both technical and non-technical skills in solving problems. Without clearly defined COOP course outcomes directly relating student outcomes and appropriate technical and non-technical problem solving components of a capstone experience, the program cannot ensure the cooperative education experience adequately integrates student competencies in applying both technical and non-technical skills in solving problems. This finding remains a Weakness until the program demonstrates that the COOP course used as a capstone or integrating experience contains an appropriate academic component evaluated by the faculty and the faculty evaluation shows that the course is developing student competencies in applying both technical and non-technical skills in problem solving.

Due Process Response: The program responded that it plans to accomplish the following tasks for the COOP course being used to satisfy the capstone experience: update the course outcomes; create a curriculum map linking course outcomes with student outcomes; create a rubric to assess students' competencies in technical and non-technical problem-solving skills; and use the results of assessment for course and program continuous improvement. Accomplishment of these planned changes was not documented.

Status after Due Process: This finding remains a Weakness until the program demonstrates that the COOP course used as a capstone or integrating experience contains an appropriate academic component evaluated by faculty and the faculty evaluation shows that the course is developing student competencies in applying both technical and non-technical skills in problem solving.

Post 30-Day Due Process Response: The program submitted evidence that it has revised the automotive internship course (AUTO 493) to include an appropriate academic component aligned with student outcomes and that faculty evaluate an academic component of the course. The program submitted a detailed rubric involving students, internship supervisors and faculty in the assessment of students' competencies in technical and non-technical problem-solving skills. Changes and use of the rubric will be implemented in the fall 2016 semester.

Status: This finding remains a Weakness until faculty evaluation of student performance in a capstone or integrating experience is developing student competencies in applying both technical and non-technical skills in problem solving.

OUR RESPONSE:

The faculty have updated course outcomes for AUTO 493 in TracDat. See [Appendix F](#) for the current outcomes. New assessments for the updated outcomes have been developed and will be implemented Fall 2017 semester to more accurately assess these outcomes. See [Appendix G](#) for the rubric.

Appendix A TracDat

[TracDat Report](#)

Appendix B Meeting Minutes

Department Meetings

[08/22/2016](#)

[02/21/2017](#)

[04/25/2017](#)

Advisory Board Meetings

[04/07/2016](#)

[04/11/2017](#)

Appendix C Meeting Minutes

Department Meeting

[03/29/2016](#)

Appendix D Meeting Minutes

Advisory Meeting

[04/07/2016](#)

Appendix E AUTO 480 Student Survey Results

[Survey Results](#)

Appendix F AUTO 493 Course Outcomes

[TracDat Report](#)

Appendix G AUTO 493 Course Assessment

[Course Assessment Rubric](#)

Enrollment Trends

Enrollment Trends

Automotive Engineering Technology BS

The enrollment trend in the AET program over the most recent five years started out somewhat lower in 2012/13 year at 157 students. It rose rapidly during the 2013/14 school year when there was an influx of international students entering the program. This trend carried on until the 2016/17 academic year when enrollment dipped to 169 students.

During the three years of higher enrollment (peak of 187 students) it became apparent that the international students were having difficulty locating internships in the U.S. This was determined to be for a variety of reasons. Many companies use the internship experience as an extended job interview and if everything goes well extend an offer for future employment. Typically international students return to their home country to start their career so they are unavailable for future employment and this makes them less attractive as internship candidates. Another reason for the difficult internship placement was the perception amongst employers that there is a sponsorship required by the company, additional expense, and a lot of paperwork.

An attempt was made to remove these roadblocks by allowing students to complete their internship in their home country and providing documentation to potential internship employers that explains the internship is considered part of the student's education and therefore requires no additional resources from the employer. Both of these attempts have had little impact on the number of international students securing internships. Many of the international students are native to countries that have little, if any, automotive manufacturing or research & development going on and therefore offered very few acceptable internship opportunities.

It was decided that enrollment should be closed to international students until an acceptable solution could be determined. Couple this with the decline in enrollment experienced by the university overall and it explains the declining enrollment.

Reinstating international enrollment as well as increasing exposure of our program are going to be key elements to increasing enrollment over the next few years. The job market looks extremely strong as more retirements in the industry occur and the level of technology continues to increase. Making students, parents, and secondary/post-secondary educators aware of our program and its role in the automotive industry is going to play a major part in increasing enrollment going forward. This will be accomplished by:

- Attending more recruiting events
- Hosting educator conferences
- Participating in open houses
- Identifying international friendly companies
- Working with the international office to open enrollment to countries with internship potential

Automotive Service Technology AAS

Over the past five years the enrollment in the Automotive Service Technology program has fluctuated some with a high of 39 students in 2012/13 and a low of 25 students in 2016/17. With having two 0+4 options (AET, & AMGT) in the automotive program students are not required to complete an AAS degree to enroll in the BS degrees. The number of students that find value in having an AAS degree as well as a BS degree varies from year to year and therefore has an effect on the enrollment numbers. In addition some of the students are enrolled in the AAS degree for funding purposes only (TIP) and again that financial need varies from year to year.

The job outlook for automotive service technicians is extremely strong and many positions are going unfilled because qualified candidates are not available. This is a condition that is consistent throughout the U.S. Trade organizations like Automotive Service Excellence (ASE) and Automotive Service Association (ASA) as well as many of the major manufacturers have programs to promote the profession in an effort to attract young people into the industry.

As stated above we will enhance our recruiting efforts where and when possible, work with industry to promote the profession, and continue our efforts at the secondary level supporting local programs through service on advisory committees and student assessment.

Graduation Rates

Automotive Engineering Technology BS

Over the past five years that data is available (2011/12 to 2015/16 academic years) the graduation rate has averaged 23% of the program enrollment per year. Given that AET is a 0+4 degree graduation rates are consistent with expectations.

The program will continue to monitor graduation rates and make adjustments as necessary.

Automotive Service Technology AAS

Over the past five years that data is available (2011/12 to 2015/16 academic years) the graduation rate has averaged 45% of the program enrollment per year. Given that AUSV is a 0+2 degree graduation rates are pretty consistent with expectations.

The program will continue to monitor graduation rates and make adjustments as necessary.

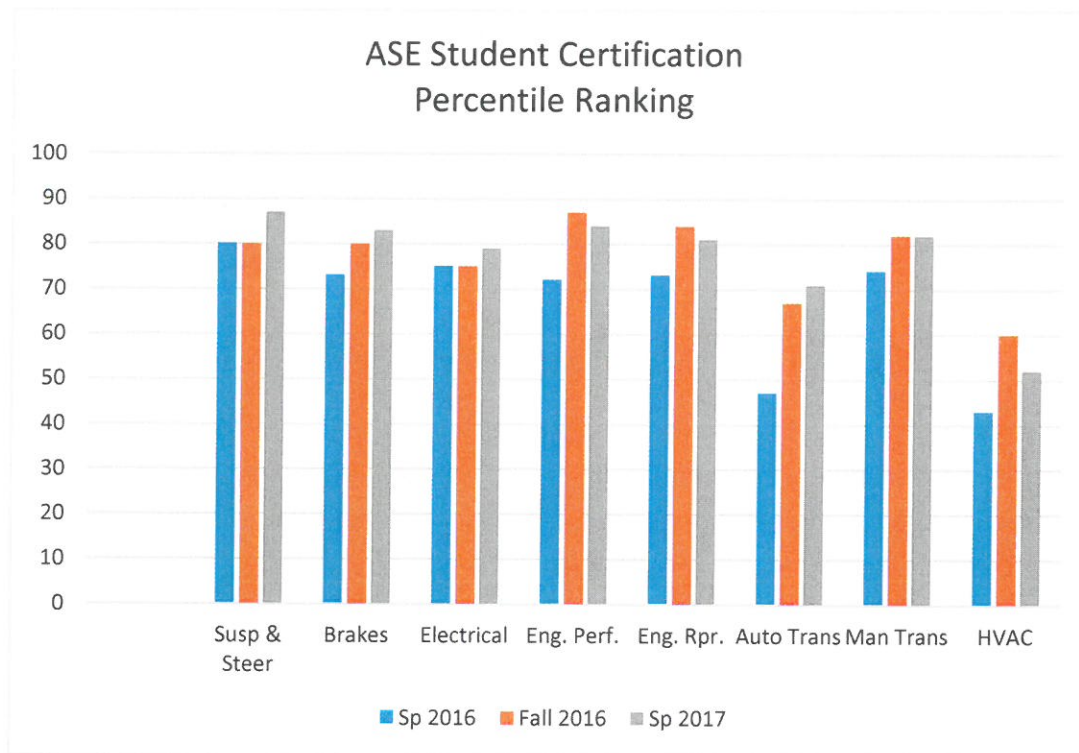
Certification Exam Pass Rates

Automotive Engineering Technology BS

Students in the AET program are not required to take certification exams and therefore no data is available for this section.

Automotive Service Technology AAS

Students completing the Automotive Service Floor (capstone) course complete the ASE Student Certification exam. This was started spring semester 2016 to comply with the Perkins third party assessment requirement. We are working with ASE starting fall 2017 semester to pilot a pre-test / post-test program which will give us data on the technical knowledge of students entering the program and also when they exit the program. This will help us to determine the effectiveness of our efforts in teaching the NATEF curriculum. The following chart shows the ASE category and the average national percentile ranking of the AUSV students by year.



The two lower categories (Auto Trans & HVAC) are lower due to the fact that not all students are required to take these courses but all of the students completed the assessments. It is difficult to make any judgement on the data at this point since there are only three data points and no pre/post test data. As more data is collected we will be able to set realistic objectives for improvement and develop strategies to move our students towards those objectives.

ENROLLMENT

FALL ENROLLMENT BY PROGRAM

ENGINEERING TECHNOLOGY	2011/12			2012/13			2013/14			2014/15		
	ON	OFF	OL	ON	OFF	OL	ON	OFF	OL	ON	OFF	OL
ARCHITECTURAL TECHNOLOGY & FACILITY MANAGEMENT												
Architectural Technology AAS	70			67			62			56		
Architecture & Sustainability BS	11			22			29			32		
Facilities Management BS	44			32			29			29		
Facilities Management CERT			11			7			6			9
Pre-Architectural Sustainability BS	2			3			1			0		
Pre-Architectural Technology AAS	4			6			5			3		
Pre-Facilities Management BS	6			6			2			3		
PROGRAM LOCATION TOTAL	137	0	11	136	0	7	128	0	6	123	0	9
DEPARTMENT TOTAL	148			143			134			132		
AUTOMOTIVE												
Automotive & Heavy Equipment Mgmt BS		2			0			0			0	
Automotive Engineering Technology BS	158			157			182			187		
Automotive Management BS	51	12		53	12		44	16	2	36	14	13
Automotive Management (2+2) BS							1			2		
Automotive Service Technology AAS	35			39			26			31		
Pre-Automotive Engineering Technology BS	7			9			16			12		
Pre-Automotive Management AAS	2			0			5			8		
Pre-Automotive Service Technology AAS	11			11			14			5		
PROGRAM LOCATION TOTAL	264	14	0	269	12	0	288	16	2	281	14	13
DEPARTMENT TOTAL	278			281			306			308		
CONSTRUCTION TECHNOLOGY & MANAGEMENT												
Advanced Construction Management CERT		1			1			1			0	
Building Construction Technology AAS	17			13			15			18		
Civil Engineering Technology AAS	21			9			9			14		
Construction Administration CERT								1			1	
Construction Management BS	186	18		166	19		162	29		153	17	
Pre-Building Construction Technology AAS	6			6			5			3		
Pre-Civil Engineering Technology AAS	1			1			0			0		
Pre-Construction Management BS	3			5			1			6		
PROGRAM LOCATION TOTAL	234	19	0	200	20	0	192	31	0	194	18	0
DEPARTMENT TOTAL	253			220			223			212		
ELECTRONICS/CNS												
Computer Networks & Systems BS	61			45			39			34		
Electrical/Electronics Engineering Tech BS	28			29			37			53		
Industrial Electronics Technology AAS	42			35			52			58		
Pre-Computer Networks & Systems BS	5			5			3			3		
Pre-Electrical/Electronics Eng Tech BS	1			2			8			6		
Pre-Industrial Electronics Technology AAS	6			5			9			7		
PROGRAM LOCATION TOTAL	143	0	0	121	0	0	148	0	0	161	0	0
DEPARTMENT TOTAL	143			121			148			161		
ENERGY SYSTEMS												
Energy Systems Engineering BS	12			16			18			16		
Pre-Energy Systems Engineering BS	1			5			4			2		
PROGRAM LOCATION TOTAL	13	0	0	21	0	0	22	0	0	18	0	0
DEPARTMENT TOTAL	13			21			22			18		

FALL ENROLLMENT BY PROGRAM

ENGINEERING TECHNOLOGY	2013/14			2014/15			2015/16			2016/17		
	ON	OFF	OL	ON	OFF	OL	ON	OFF	OL	ON	OFF	OL
ARCHITECTURAL TECHNOLOGY & FACILITY MANAGEMENT												
Architectural Technology AAS	62			56			56			60		
Architecture & Sustainability BS	29			32			26			20		
Facilities Management BS	29			29			22			18		
Facilities Management CERT			6			9			7			3
Pre-Architectural Sustainability BS	1			0			0			0		
Pre-Architectural Technology AAS	5			3			6			4		
Pre-Facilities Management BS	2			3			4			6		
PROGRAM LOCATION TOTAL	128	0	6	123	0	9	114	0	7	108	0	3
DEPARTMENT TOTAL	134			132			121			111		
AUTOMOTIVE												
Automotive Engineering Technology BS	182			187			183			169		
Automotive Management BS	44	16	2	36	14	13	36	13	20	38	11	21
Automotive Management (2+2) BS	1			2			1			0		
Automotive Service Technology AAS	26			31			26			25		
Pre-Automotive Engineering Technology BS	16			12			21			20		
Pre-Automotive Management BS	5			8			5			4		
Pre-Automotive Service Technology AAS	14			5			7			3		
PROGRAM LOCATION TOTAL	288	16	2	281	14	13	279	13	20	259	11	21
DEPARTMENT TOTAL	306			308			312			291		
CONSTRUCTION TECHNOLOGY & MANAGEMENT												
Advanced Construction Management CERT		1			0			0			0	
Building Construction Technology AAS	15			18			75			119		
Civil Engineering Technology AAS	9			14			20			21		
Construction Administration CERT		1			1		1	0		0	0	
Construction Management BS	162	29		153	17		110	33		61	18	
Construction Mgt Commercial-Industrial BS										23		
Construction Mgt Highway-Bridge BS										1		
Pre-Building Construction Technology AAS	5			3			6			7		
Pre-Civil Engineering Technology AAS							2			3		
Pre-Construction Management BS	1			6			3			5		
PROGRAM LOCATION TOTAL	192	31	0	194	18	0	217	33	0	240	18	0
DEPARTMENT TOTAL	223			212			250			258		
ELECTRONICS/CNS												
Computer Networks & Systems BS	39			34			30			26		
Electrical/Electronics Engineering Tech BS	37			53			48			38		
Industrial Electronics Technology AAS	52			58			59			48		
Pre-Computer Networks & Systems BS	3			3			0			0		
Pre-Electrical/Electronics Eng Tech BS	8			6			4			3		
Pre-Industrial Electronics Technology AAS	9			7			3			7		
PROGRAM LOCATION TOTAL	148	0	0	161	0	0	144	0	0	122	0	0
DEPARTMENT TOTAL	148			161			144			122		

DEGREES CONFERRED BY PROGRAM
ACADEMIC YEAR (SUMMER, FALL, SPRING SEMESTERS)

ENGINEERING TECHNOLOGY	2013-14				2014-15				2015-16			
	CERT	AS	BS	MS	CERT	AS	BS	MS	CERT	AS	BS	MS
ARCHITECTURAL TECH & FACILITIES MGMT												
Architectural Technology		24				17				19		
Architecture & Sustainability			12				14				17	
Facility Management	4		12		7		16		7		13	
TOTAL	4	24	24	0	7	17	30	0	7	19	30	0

AUTOMOTIVE												
Automotive & Heavy Equipment Management			1								1	
Automotive Engineering Technology			30				43				44	
Automotive Management			16				19				15	
Automotive Management (2+2)			1				1				1	
Automotive Service Technology		14				13				14		
Performance Machining	16				12				3			
Performance Motorsports	40				42				43			
TOTAL	56	14	48	0	54	13	63	0	46	14	61	0

CONSTRUCTION TECHNOLOGY & MGMT												
Advanced Construction Management					1							
Building Construction Technology		27				33				29		
Civil Engineering Technology		14				12				8		
Construction Administration					1							
Construction Mgt/Commercial-Industrial			1				2				3	
Construction Management			42				36				44	
TOTAL	0	41	43	0	2	45	38	0	0	37	47	0

ELECTRONICS/CNS												
Computer Networking					1							
Computer Networks & Systems			9				6				8	
Electrical/Electronics Engineering Technology			7				18				21	
Industrial Electronics Technology		12				7				12		
TOTAL	0	12	16	0	1	7	24	0	0	12	29	0

ENERGY SYSTEMS ENGINEERING												
Energy Systems Engineering			3				3				4	
TOTAL	0	0	3	0	0	0	3	0	0	0	4	0

HEAVY EQUIPMENT												
Electrical Power Generation	1				3				4			
Heavy Equipment Service Engineering Tech			10				23				13	
Heavy Equipment Technology		35				25				29		
TOTAL	1	35	10	0	3	25	23	0	4	29	13	0

HVACR												
HVACR Eng Tech and Energy Mgmt			14				37				28	
HVACR Engineering Technology			25				7				9	
HVACR Technology		20				25				24		
TOTAL	0	20	39	0	0	25	44	0	0	24	37	0

DEGREES CONFERRED BY PROGRAM

ACADEMIC YEAR (SUMMER, FALL, SPRING SEMESTERS)

ENGINEERING TECHNOLOGY	2011-12				2012-13				2013-14			
	CERT	AS	BS	MS	CERT	AS	BS	MS	CERT	AS	BS	MS
ARCHITECTURAL TECH & FACILITIES MGMT												
Architectural Technology		18				35				24		
Architecture & Sustainability							10				12	
Facility Management	10		21		9		22		4		12	
TOTAL	10	18	21	0	9	35	32	0	4	24	24	0
AUTOMOTIVE												
Automotive & Heavy Equipment Management			1				1				1	
Automotive Engineering Technology			46				34				30	
Automotive Management			23				19				16	
Automotive Management (2+2)											1	
Automotive Service Technology		9				20				14		
Performance Machining	19				10				16			
Performance Motorsports	43				39				40			
TOTAL	62	9	70	0	49	20	54	0	56	14	48	0
CONSTRUCTION TECHNOLOGY & MGMT												
Advanced Construction Management					2							
Building Construction Technology		38				40				27		
Civil Engineering Technology		20				12				14		
Construction Administration					1							
Construction Mgt/Commercial-Industrial											1	
Construction Management			63				71				42	
TOTAL	0	58	63	0	3	52	71	0	0	41	43	0
ELECTRONICS/CNS												
Computer Networks & Systems			11				9				9	
Electrical/Electronics Engineering Technology			13				12				7	
Industrial Electronics Technology		11				9				12		
TOTAL	0	11	24	0	0	9	21	0	0	12	16	0
ENERGY SYSTEMS ENGINEERING												
Energy Systems Engineering								1			3	
TOTAL								1			3	
HEAVY EQUIPMENT												
Electrical Power Generation	4				2				1			
Heavy Equipment Service Engineering Tech			16				19				10	
Heavy Equipment Technology		19				41				35		
TOTAL	4	19	16	0	2	41	19	0	1	35	10	0
HVACR												
HVACR Eng Tech and Energy Mgmt											14	
HVACR Engineering Technology			45				46				25	
HVACR Technology		19				27				20		
TOTAL	0	19	45	0	0	27	46	0	0	20	39	0

ASE Student Certification
 Instructor Score Report
 Academic Year: 2015-2016
 Test Window: Spring

Instructor: Jason Kruse
 School Name: Ferris State University
 School Address: 708 Campus Drive AUT 101 Big Rapids, MI 49307

Series Name **AUTOMOBILE**

Student	Suspension and Steering (40 Questions)	Brakes (40 Questions)	Electrical/Electronic Systems (40 Questions)	Engine Performance (40 Questions)	Engine Repair (40 Questions)	Automatic Transmission and Transaxle (40 Questions)	Manual Drive Train and Axles (40 Questions)	Heating and Air Conditioning (40 Questions)	Maintenance and Light Repair (60 Questions)	Automobile Service Technology (80 Questions)
	65% Pass	78% Pass	72% Pass	68% Pass	95% Pass	62% Pass	98% Pass	30% Fail	25% Fail	51% Fail
	52% Pass	68% Pass	80% Pass	72% Pass	72% Pass	38% Fail	72% Pass	48% Fail	67% Pass	78% Pass
	62% Pass	62% Pass	62% Pass	55% Pass	80% Pass	75% Pass	68% Pass	48% Fail	72% Pass	66% Pass
	72% Pass	78% Pass	80% Pass	78% Pass	82% Pass	85% Pass	85% Pass	68% Pass	88% Pass	82% Pass
	78% Pass	72% Pass	85% Pass	78% Pass	82% Pass	20% Fail	40% Fail	78% Pass	78% Pass	82% Pass
	78% Pass	85% Pass	82% Pass	75% Pass	80% Pass	78% Pass	75% Pass	72% Pass	82% Pass	80% Pass
	85% Pass	78% Pass	80% Pass		92% Pass					
	35% Fail	30% Fail	35% Fail	22% Fail	30% Fail	48% Fail	58% Pass	30% Fail	53% Pass	46% Fail
	90% Pass	90% Pass	88% Pass	98% Pass	92% Pass	95% Pass	92% Pass	75% Pass	93% Pass	95% Pass
	88% Pass	85% Pass	92% Pass	28% Fail	55% Pass	32% Fail	85% Pass	55% Pass	85% Pass	72% Pass
	70% Pass	65% Pass	72% Pass	78% Pass	85% Pass	85% Pass	68% Pass	75% Pass	83% Pass	78% Pass
						88% Pass		60% Pass	13% Fail	
	25% Fail	30% Fail	22% Fail	22% Fail	28% Fail	32% Fail	30% Fail	35% Fail	48% Fail	54% Fail
	85% Pass	70% Pass	32% Fail	88% Pass	82% Pass	30% Fail	85% Pass	30% Fail	78% Pass	80% Pass
	58% Pass	25% Fail	25% Fail	42% Fail	72% Pass	28% Fail	50% Fail	38% Fail	30% Fail	26% Fail
	78% Pass	55% Pass	75% Pass	70% Pass	78% Pass	75% Pass	88% Pass	65% Pass	78% Pass	76% Pass
	62% Pass	50% Fail	78% Pass	80% Pass	88% Pass	28% Fail	90% Pass	30% Fail	43% Fail	72% Pass
	70% Pass	55% Pass	75% Pass	60% Pass	82% Pass	62% Pass	65% Pass	60% Pass	77% Pass	71% Pass
	30% Fail	35% Fail	15% Fail	22% Fail	20% Fail	25% Fail	20% Fail	28% Fail	22% Fail	28% Fail
	62% Pass	72% Pass	78% Pass	75% Pass	80% Pass	40% Fail	62% Pass	40% Fail	77% Pass	80% Pass
	66%	62%	65%	62%	72%	54%	68%	51%	63%	68%
	84%	74%	74%	72%	84%	47%	78%	47%	68%	72%

Print Report

ASE Student Certification
 Instructor Score Report
 Academic Year: 2016-2017 Academic Year
 Test Window: Fall 2016

Instructor: Jason Kruse
 School Name: Ferris State University
 School Address: 708 Campus Drive AUT 101 Big Rapids, MI 49307

Series Name AUTOMOBILE

Student	Suspension and Steering (40 Questions)	Brakes (40 Questions)	Electrical/Electronic Systems (40 Questions)	Engine Performance (40 Questions)	Engine Repair (40 Questions)	Automatic Transmission and Transaxle (40 Questions)	Manual Drive Train and Axles (40 Questions)	Heating and Air Conditioning (40 Questions)	Maintenance and Light Repair (60 Questions)	Automobile Service Technology (80 Questions)
	75% Pass	72% Pass	78% Pass	85% Pass	88% Pass	80% Pass	80% Pass	75% Pass	87% Pass	88% Pass
	78% Pass	80% Pass	75% Pass	92% Pass	82% Pass	78% Pass	80% Pass	65% Pass	82% Pass	84% Pass
	85% Pass	90% Pass	98% Pass	98% Pass	98% Pass	92% Pass	100% Pass	85% Pass	95% Pass	95% Pass
	70% Pass	65% Pass	62% Pass	80% Pass	78% Pass	65% Pass	65% Pass	58% Pass	88% Pass	86% Pass
	68% Pass	85% Pass	68% Pass	68% Pass	90% Pass	78% Pass	82% Pass	60% Pass	72% Pass	85% Pass
	75% Pass	75% Pass	68% Pass	78% Pass	88% Pass	82% Pass	68% Pass	68% Pass	77% Pass	71% Pass
	40% Fail	52% Pass	55% Pass	52% Pass	38% Fail	50% Fail	48% Fail	50% Pass	53% Pass	56% Pass
	75% Pass	80% Pass	78% Pass	90% Pass	98% Pass	42% Fail	82% Pass	25% Fail	82% Pass	88% Pass
	60% Pass	70% Pass	78% Pass	75% Pass	75% Pass	70% Pass	65% Pass	65% Pass	77% Pass	78% Pass
	65% Pass	62% Pass	60% Pass	52% Pass	70% Pass	75% Pass	68% Pass	58% Pass	62% Pass	74% Pass
	72% Pass	70% Pass	85% Pass	78% Pass	92% Pass	18% Fail	85% Pass	70% Pass	87% Pass	72% Pass
	48% Fail	58% Pass	62% Pass	62% Pass	58% Pass	38% Fail	62% Pass	35% Fail	47% Fail	65% Pass
	50% Pass	70% Pass	68% Pass	68% Pass	85% Pass	68% Pass	70% Pass	55% Pass	82% Pass	72% Pass
	58% Pass	42% Fail	22% Fail	60% Pass	55% Pass	20% Fail	70% Pass	52% Pass	72% Pass	68% Pass
	62% Pass	72% Pass	52% Pass	58% Pass	75% Pass	70% Pass	55% Pass	60% Pass	62% Pass	75% Pass
	62% Pass	78% Pass	68% Pass	72% Pass	68% Pass	72% Pass	68% Pass	52% Pass	62% Pass	75% Pass
	50% Pass	50% Fail	42% Fail	32% Fail	32% Fail	35% Fail	38% Fail	42% Fail	30% Fail	45% Fail
Avg % Correct	64%	69%	66%	71%	75%	61%	70%	57%	72%	75%
% Examinees Passing	88%	88%	88%	94%	88%	65%	88%	82%	88%	94%

Print Report

ASE Student Certification
 Instructor Score Report
 Academic Year: 2016-2017 Academic Year
 Test Window: Spring 2017

Instructor: Jason Kruse
 School Name: Ferris State University
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Series Name AUTOMOBILE

Student	Suspension and Steering (40 Questions)	Brakes (40 Questions)	Electrical/Electronic Systems (40 Questions)	Engine Performance (40 Questions)	Engine Repair (40 Questions)	Automatic Transmission and Transaxle (40 Questions)	Manual Drive Train and Axles (40 Questions)	Heating and Air Conditioning (40 Questions)	Maintenance and Light Repair (60 Questions)	Automobile Service Technology (80 Questions)
1	82% Pass	85% Pass	78% Pass	78% Pass	78% Pass	68% Pass	85% Pass	75% Pass	83% Pass	70% Pass
	50% Pass	42% Fail	70% Pass	70% Pass	62% Pass	52% Fail	58% Pass	38% Fail	63% Pass	64% Pass
	68% Pass	70% Pass	52% Pass	70% Pass	78% Pass	60% Pass	38% Fail	65% Pass	55% Pass	65% Pass
	42% Fail	58% Pass	65% Pass	68% Pass	82% Pass	80% Pass	75% Pass	68% Pass	22% Fail	28% Fail
	80% Pass	85% Pass	80% Pass	80% Pass	82% Pass	82% Pass	75% Pass	65% Pass	87% Pass	88% Pass
	70% Pass	78% Pass	68% Pass	78% Pass	85% Pass	75% Pass	70% Pass	60% Pass	80% Pass	76% Pass
	62% Pass	62% Pass	65% Pass	60% Pass	62% Pass	58% Pass	60% Pass	32% Fail	78% Pass	64% Pass
	82% Pass	82% Pass	72% Pass	72% Pass	85% Pass	70% Pass	85% Pass	68% Pass	82% Pass	86% Pass
	50% Pass	65% Pass	62% Pass	52% Pass	62% Pass	40% Fail	45% Fail	35% Fail	60% Pass	70% Pass
	72% Pass	75% Pass	82% Pass	72% Pass	88% Pass	75% Pass	75% Pass	50% Pass	90% Pass	79% Pass
	52% Pass	85% Pass	78% Pass	82% Pass	80% Pass	28% Fail	88% Pass	20% Fail	82% Pass	84% Pass
	65% Pass	58% Pass	40% Fail	58% Pass	72% Pass	52% Fail	68% Pass	40% Fail	62% Pass	76% Pass
	82% Pass	90% Pass	80% Pass	85% Pass	82% Pass	82% Pass	80% Pass	78% Pass	90% Pass	85% Pass
	72% Pass	60% Pass	65% Pass	68% Pass	72% Pass	65% Pass	72% Pass	65% Pass	70% Pass	71% Pass
	82% Pass	78% Pass	72% Pass	75% Pass	90% Pass	85% Pass	80% Pass	65% Pass	88% Pass	80% Pass
	75% Pass	70% Pass	65% Pass	70% Pass	65% Pass	75% Pass	85% Pass	75% Pass	80% Pass	11% Fail
	65% Pass	42% Fail	22% Fail	55% Pass	80% Pass	60% Pass	68% Pass	42% Fail	58% Pass	60% Pass
	85% Pass	80% Pass	82% Pass	82% Pass	82% Pass	88% Pass	85% Pass	75% Pass	87% Pass	81% Pass
	90% Pass	75% Pass	72% Pass	78% Pass	85% Pass	72% Pass	82% Pass	38% Fail	88% Pass	66% Pass
	82% Pass	80% Pass	72% Pass	65% Pass	80% Pass	70% Pass	75% Pass	78% Pass	87% Pass	82% Pass
	75% Pass	72% Pass	85% Pass	62% Pass	92% Pass	78% Pass	82% Pass	45% Fail	75% Pass	80% Pass
	60% Pass	65% Pass	58% Pass	50% Fail	80% Pass	62% Pass	58% Pass	72% Pass	63% Pass	81% Pass
	65% Pass	70% Pass	62% Pass	75% Pass	70% Pass	75% Pass	72% Pass	70% Pass	72% Pass	68% Pass
	78% Pass	85% Pass	75% Pass	78% Pass	90% Pass	75% Pass	75% Pass	65% Pass	75% Pass	76% Pass
	70% Pass	88% Pass	65% Pass	68% Pass	75% Pass	62% Pass	70% Pass	38% Fail	83% Pass	74% Pass
	82% Pass	78% Pass	85% Pass	72% Pass	85% Pass	82% Pass	82% Pass	40% Fail	82% Pass	88% Pass
	60% Pass	68% Pass	65% Pass	68% Pass	85% Pass	70% Pass	70% Pass	55% Pass	67% Pass	76% Pass
	48% Fail	35% Fail	35% Fail	42% Fail	48% Fail	38% Fail	30% Fail	40% Fail	47% Fail	42% Fail
	88% Pass	90% Pass	88% Pass	92% Pass	88% Pass	80% Pass	95% Pass	85% Pass	95% Pass	94% Pass
	62% Pass	15% Fail	62% Pass	62% Pass	85% Pass	60% Pass	70% Pass	40% Fail	67% Pass	78% Pass
	78% Pass	90% Pass	70% Pass	80% Pass	85% Pass	78% Pass	85% Pass	42% Fail	85% Pass	84% Pass
	28% Fail	60% Pass	50% Pass	58% Pass	30% Fail	30% Fail	65% Pass	22% Fail	47% Fail	48% Fail
	62% Pass	72% Pass	80% Pass	82% Pass	92% Pass	75% Pass	70% Pass	65% Pass	82% Pass	76% Pass
Avg % Correct	69%	70%	67%	70%	77%	67%	72%	55%	74%	71%
% Examinees Passing	91%	88%	91%	94%	94%	82%	91%	58%	91%	88%

Print Report

Strategic Plan

Continuous Improvement Plan
Automotive Engineering Technology Program

Ferris State University

June, 2015

Revised May, 2017

Prepared by Professor Dr. Patrick English
Faculty Automotive Engineering Technology Program
College of Engineering Technology

Introduction

Ferris State University, through the school of Automotive and Heavy Equipment, has a Bachelor's of Science Degree offering in Automotive Engineering Technology (AET). The AET Program is reviewed systematically to ensure that the student outcomes and program objectives are continuously being evaluated for the purposes of program improvement. The purpose of this document is to outline how the objectives and outcomes of the program will be assessed and how the data from those assessments is applied for the continuous improvement process.

Program Educational Objectives

1. Employment in a discipline appropriate to the B.S. AET degree.
2. Achieve recognition as a valued employee through varied forms of promotion or merit.
3. Membership in professional organizations.
4. Ability and desire to continue education through varied means including advanced degrees.

Student Outcomes

In keeping with ABET Criterion 3, the automotive engineering technology program is focused on the following 15 student outcomes that students in the program should attain by graduation.

- a. an ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities;
- b. an ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies;

c. an ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes;

d. an ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives;

e. an ability to function effectively as a member or leader on a technical team;

f. an ability to identify, analyze, and solve broadly-defined engineering technology problems;

g. an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature;

h. an understanding of the need for and an ability to engage in self-directed continuing professional development;

i. an understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity;

j. a knowledge of the impact of engineering technology solutions in a societal and global context;

k. a commitment to quality, timeliness, and continuous improvement.

l. competency in the application of computer technologies commonly used in industry, governmental service, and private practice associated with land, sea, air, and space mobility.

m. proficiency in the application of probability and statistics to the solution of problems related to land, sea, air, and space mobility.

n. Ability to apply modern and effective management skills in identification and investigation of problems, analysis of data, synthesis and implementation of solutions, and operations of facilities related to land, sea, air, and space mobility.

o. Working knowledge of the design, manufacture, and maintenance of major subsystems and technologies associated with land, sea, air, and space mobility.

AUTO 112- Automotive Brake Systems	4	X	X														
AUTO 114- Automotive Engines	4	X	X									X					X
AUTO 115- Suspension, Steering, Alignment Services	4	X	X														
AUTO 117- Electronic Fuel Management Systems	4	X	X														
AUTO 200- Service Area	6	X	X					X									X

Table 3. Required automotive engineering technology courses and their relationship to student outcomes.

Course	cr	Student Outcomes															
		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	
COMM 221- Small Group Decision Making	3					X		X		X							
ENGL 311- Advanced Technical Writing	3							X									
MATH 126- Algebra & Analytical Trigonometry	4		X														
MATH 216- Applied Calculus	4		X				X										
Cultural Enrichment Elective	3									X	X						
Social Awareness Elective (200+ level)	3									X	X						
AUTO 320- Dynamometer Analysis	3	X	X	X	X		X	X					X	X			X
MATL 341- Material Science Metals	3	X	X	X	X		X										
MFGE 341- Quality Science Statistics	3	X	X	X	X		X								X		
AUTO 310- Engine Airflow Analysis	3	X	X	X	X		X	X					X	X	X	X	X
MFGE 342- Statistical Process	3		X	X	X		X					X		X			
SURE 331- Ethics- Prof. in Engineering	3	X					X		X	X	X						
AUTO 450- Automotive Fuels and Lubes	3	X	X										X				
MFGE 442- Design of Experiments 1	3	X	X	X	X		X						X	X			
PDET 322- Model and Prototype Development	2	X	X	X	X		X	X					X				
PDET 413- Fluids/Thermodynamics	3	X	X	X	X		X										
AUTO 460- Emissions Systems	3	X	X			X	X									X	
AUTO 480- Alternate Fuel and Vehicle Systems	3	X	X			X	X	X	X		X						X
MECH 212- Kinematics and Mechanisms	2	X	X	X	X		X										
MFGE 321- Metrology	3	X	X				X										
PDET 415- Advanced Solid Modeling	2	X	X		X		X						X				
AUTO 493- AET Internship	4					X			X	X		X					

Review of Program Educational Objectives and Student Outcomes

The Automotive Engineering Technology program educational objectives and student outcomes will be reviewed by faculty and discussed with the AET industrial advisory board. ABET guidelines for student outcomes (ABET a-o) will be monitored by the program director and changes in the ABET guidelines will guide changes in the program. Changes in the program will need to be reflected in changes in assessment instruments.

The relationship between student outcomes and the curriculum is shown in Tables 2 and 3.

Program Educational Objective Assessment Methods

Automotive Engineering Technology program alumni will be surveyed every three years to provide mid-cycle accreditation feedback. Program alumni will be surveyed to determine if program educational objectives and the student outcomes continue to meet the needs of industry.

The AET Industrial Advisory Board (IAB) will meet at least once per year. They will provide input regarding industry trends and program educational objectives. The IAB will be relied upon heavily in the continuous improvement process.

AET program graduating student employment placement will be surveyed every year. This survey will include such information as employer, location, job title and pay rate.

AET Employers will be surveyed every 3 years. Employers will be asked to provide feedback concerning the relevance of AET program educational objectives and industry trends.

AET Faculty Members teaching AUTO 493 will receive input from employers on the performance and knowledge of students in the internship experience through a written criterion and verbally at site visits. The information gathered by faculty from AUTO 493 will be discussed in faculty meetings for the purposes of continuous improvement of the program.

Table 4. Assessment of program educational objectives

Assessment Method	Program Educational Objective				Assessment Frequency
	1	2	3	4	
Alumni Survey	X	X	X	X	3 Years
Industrial Advisory Board Review	X	X	X	X	3 Years
Graduating Student Survey	X	X	X	X	1 Year
Employer Feedback	X	X	X	X	3 Years
Faculty Review	X	X	X	X	3 Years

Evaluation of Student Outcomes

Student Outcomes are adopted from ABET Criterion 3 and are reviewed by faculty and the advisory committee when changes are implemented or on a 3 year cycle.

Student Outcomes Assessment Methods

A portion of the AET Program Alumni Survey described previously, will address each alumni’s perception of how well they achieved the AET program’s student outcomes.

A portion of the Employer Survey described previously, will address the employers’ perception of how well graduating students have achieved the desired student outcomes.

An Exit Survey will be given during the AUTO 480 class each year. This survey will assess the students’ perception of how well they have achieved the student outcomes.

A third party post-test will be given as part of the AUTO 200 Service Floor course. This post-test is designed to assess students’ understanding of automotive system fundamentals.

Many AET classes have student outcomes assessments embedded. Every class does not address every student outcome. However each outcome is assessed throughout the curriculum (see Tables 2 and 3). These embedded assessments take the form of exams, quizzes, homework, labs, projects, presentations, etc...

Table 5. Assessment of Student Outcomes

Assessment Method	Student Outcomes														
	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
Alumni Survey	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Employer Evaluation	X		X		X			X							
Exit Survey	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Post-Test	X	X					X								
Embedded Assessments	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Internship					X			X	X		X				

Responsibilities for Assessment, Evaluation, and Continuous Improvement Process

The AET faculty members are responsible for preparing, administering, and analyzing the assessments within the AET program. Faculty members will determine appropriate performance levels, and monitor the results for their courses and maintain the results in TracDat. Faculty are responsible for implementing changes to the program based on the results of their evaluation of the various assessments. The School, College and University Curriculum committees may be part of this process depending on what needs to change. The AET program coordinator will be responsible for the other assessments and data collection.

The AET faculty will discuss items of interest, concerns, and input from AUTO 493 at regular faculty meetings allowing for a continuous review of program status, objectives, and outcomes.

Data Collection and Analysis

Embedded Assessments:

- The results of embedded assessments will be collected during each semester and evaluated by the responsible faculty member.
- AET faculty will suggest and implement minor corrective actions as necessary.
- Major corrective actions will be implemented through the University Curriculum Committee process as required, and will also be reviewed by the AET program IAB.

Post-Test:

- Post-Test assessment data will be collected during the capstone course (AUTO 200) and evaluated by the AET faculty and the results analyzed during continuous improvement discussions at regular faculty meetings.
- AET faculty will suggest and implement minor corrective actions as necessary.
- Major corrective actions will be implemented through the University Curriculum Committee process as required, and will also be reviewed by the AET program IAB.

Survey/Indirect Assessments:

- Surveys will be conducted by the AET program coordinator based on the frequency in Table 5, and the results analyzed during continuous improvement discussions at regular faculty meetings.
- AET faculty will suggest and implement minor corrective actions as necessary.
- Major corrective actions will be implemented through the University Curriculum Committee process as required, and will also be reviewed by the AET program IAB.

Corrective actions may take one of the following courses:

- Minor corrective actions to a course.
 - Make minor adjustments to the weighting of specific topics included in the course outline and/or
 - Add or remove additional topics not included on the course outline and/or
 - Add, modify, or remove experiments or projects and/or
 - Add, modify, or remove specific assignments.

- Major corrective actions to a course or curriculum requiring the University Curriculum Committee process.
 - Modify course content and course outline
 - Change prerequisites for a course or courses
 - Add or remove required courses
 - Change the requirements of the program

Dissemination

Changes that need to be approved by the University Curriculum Committee also require changes to the Ferris Catalog and/or curriculum check sheets. These changes are included as part of the curriculum change process and will be communicated throughout the program at regular faculty meetings and to students by their advisors.

The AET Industrial Advisory Board will have at least one face-to-face meeting per year. When necessary, additional communication will be done by mail and email.

The AET faculty will be part of the continuous improvement process through faculty meetings, the curriculum process, and emails.

NATEF Certification and the end of program test will be used to maintain the technical integrity of the automotive technology portion of the degree.

Student Assessments of Instruction (SAI)

Course evaluations are designed to provide formative feedback to faculty members. Faculty also use the student evaluations of courses in some promotion, tenure, merit, and professional development processes. The courses in the AET program are assessed by the students using the SAI developed at Ferris. The course evaluations are delivered primarily online. In moving to an online system in 2013, at the recommendation of the Academic Senate, objectives included these:

- Provide formative feedback from students to inform instructional improvements
- Provide timely feedback
- Protect the anonymity of student respondents
- Centralize administration and processing in Academic Affairs.
- Enhance the flexibility – including timing, addition of questions, and various tools.
- Assure the integrity of the process.
- Maintain historic and comparative records for varied reporting purposes, including accreditation.

Post-Tenure Review Processes

All of the Faculty teaching in the AET Program are tenured Faculty. The post-tenure review is indirectly part of the continuous improvement of the AET Program. The policy regarding post-tenure review establishes the university-wide standards for performance appraisal and provides for department/unit adaptation of the standards. This policy establishes the procedures for review of the teaching, scholarship and service responsibilities of faculty members using those standards. In addition, it provides a mechanism for development of university-wide student assessment of instruction. The Post Tenure Review Form 2013-14 is provided. On this form the faculty member records their goals and how they will reach them, these goals continually add to the program and strengthen what faculty have to offer students. Faculty and their goals are assessed on a five year cycle.

NATEF Certification

Founded in 1983 as an independent, non-profit 501(c)(3) organization the mission of the National Automotive Technicians Education Foundation (NATEF) is to improve the quality of automotive technician training programs nationwide at secondary and post-secondary, public and proprietary schools. To accomplish this mission NATEF examines the structure, resources and quality of training programs and evaluates them against standards established by the industry. These standards reflect the skills that students must master to be successful in the industry. The automotive technology classes that comprise the first two years of the AET program are accredited by NATEF every 5 years with a mid-cycle check at 2 ½ years. The NATEF accreditation process ensures that the automotive technology is maintained to current industry standards and continues to improve and offer up to date state of the industry technology education and facilities.

NATEF End of Program Test for Automotive Technology Classes

The NATEF end of program test is designed to be delivered at the end of a two-year automotive technology degree. This test provides the opportunity to benchmark student performance levels and provide baseline data upon which to base program performance metrics. The test serves as an assessment of what the students retain from the first two years of the AET degree and how closely instruction meets with industry needs nationally. The test is to be administered to students at the end of their second year of classes.

References

<http://www.ferris.edu/HTMLS/administration/academicaffairs/course-evaluations/homepage.htm>

<http://www.ferris.edu/htmls/administration/academicaffairs/ptr.htm>

http://www.abet.org/uploadedFiles/Accreditation/Accreditation_Step_by_Step/Accreditation_Documents/Current/2015-2016/T001%2015-16%20ETAC%20Criteria%2011-7-14.pdf

<http://www.natef.org/About-NATEF.aspx>

Learning Outcomes

Program-level Student Learning Outcomes



Program - Automotive Engineering Technology (B.S.)

Mission Statement: To continuously define the profession by producing Automotive Engineering Technology graduates whose outstanding knowledge, skills, and attitudes are globally recognized.

Advisory Board/Committee Meetings: Once per year

Next FSU Academic Program Review: 2017-2018

Accreditor Body: Engineering Technology Accreditation Commission - Accreditation Board for Engineering & Technology (ETAC-ABET)

Accreditor Body - Academic Year of Next Review: 2017-2018

College: CET

Program Closed?: No

Outcome: AET A

An ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities.

Outcome Status: Active

Assessment Methods

Project/Model/Invention - Research Project (Active)

Criterion for Success: 70% of the students in AUTO 310 will score a 3.5 or higher on the Research Project ABET Outcome A

Assessment Schedule: After each semester the course is offered

Related Courses

AUTO 114 - Automotive Engines - (I - Introduced)

AUTO 117 - Electronic Fuel Mgmt Systems - (I - Introduced)

AUTO 200 - Service Area 1 - (R - Reinforced)

AUTO 310 - Engine Air Flow Analysis - (A - Program Assessment)

AUTO 320 - Dynamometer Testing - (A - Program Assessment)

Related Goals

ABET: ETAC General Criteria

ETAC - A - Bachelor degree - An ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities

Related Course Outcomes

Program - Automotive Engineering Technology (B.S.)

Related Course Outcomes

AUTO 310 - Engine Air Flow Analysis

one - The students collaborate as a team to use the air flow bench to test and analyze components in the engine intake and exhaust flow stream

AUTO 320 - Dynamometer Testing

two - The students collaborate as a team to perform various engine tests using both the engine and chassis dynos

Outcome: AET B

An ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies.

Outcome Status: Active

Assessment Methods

Project/Model/Invention - Research Project (Active)

Criterion for Success: 70% of the students in AUTO 310 will score a 3.5 or higher on the Research Project ABET Outcome B

Assessment Schedule: After each semester the course is offered.

Related Courses

AUTO 200 - Service Area 1 - (R - Reinforced)

AUTO 310 - Engine Air Flow Analysis - (A - Program Assessment)

CHEM 114 - Intro to General Chemistry - (I - Introduced)

MATH 116 - Intermediate Algebra-Num Trig - (I - Introduced)

MATH 126 - Algebra-Analytic Trigonometry - (R - Reinforced)

MATH 216 - Applied Calculus - (R - Reinforced)

PHYS 211 - Introductory Physics 1 - (I - Introduced)

Related Goals

ABET: ETAC General Criteria

ETAC - B - Bachelor degree - An ability to select and apply the knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies

Related Course Outcomes

AUTO 310 - Engine Air Flow Analysis

two - The student will be able to differentiate and use common pressure scales used in engine air flow testing.

Program - Automotive Engineering Technology (B.S.)

Related Course Outcomes

AUTO 450 - Automotive Fuels and Lubes

Two - - The students will be able to use mathematics and science along with current knowledge and specialty equipment to root cause failures of fuels and lubricants. (ABET a,b,c,d,f)

One - - The students will be able to use mathematics and science along with current knowledge and specialty equipment to analyze fuels and lubricants. (ABET a,b,c,d,f)

Outcome: AET C

An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes.

Outcome Status: Active

Assessment Methods

Project/Model/Invention - Research Project (Active)

Criterion for Success: 70% of the students in AUTO 310 will score a 3.5 or higher on the Research Project ABET Outcome C

Assessment Schedule: After each semester the course is offered.

Related Courses

AUTO 200 - Service Area 1 - (R - Reinforced)

AUTO 310 - Engine Air Flow Analysis - (A - Program Assessment)

AUTO 450 - Automotive Fuels and Lubes - (A - Program Assessment)

CHEM 114 - Intro to General Chemistry - (I - Introduced)

PHYS 211 - Introductory Physics 1 - (I - Introduced)

Related Goals

ABET: ETAC General Criteria

ETAC - C - Bachelor Degree - An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve the processes.

Related Course Outcomes

AUTO 310 - Engine Air Flow Analysis

two - The student will be able to differentiate and use common pressure scales used in engine air flow testing.

four - The student will be able to select intake and exhaust components that will complement the engine design.

Program - Automotive Engineering Technology (B.S.)

Related Course Outcomes

AUTO 450 - Automotive Fuels and Lubes

Two - - The students will be able to use mathematics and science along with current knowledge and specialty equipment to root cause failures of fuels and lubricants. (ABET a,b,c,d,f)

One - - The students will be able to use mathematics and science along with current knowledge and specialty equipment to analyze fuels and lubricants. (ABET a,b,c,d,f)

Outcome: AET D

An ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives.

Outcome Status: Active

Assessment Methods

Project/Model/Invention - Research Project (Active)

Criterion for Success: 70% of the students in AUTO 310 will score a 3.5 or higher on the Research Project ABET Outcome D

Assessment Schedule: After each semester the course is offered.

Related Courses

AUTO 310 - Engine Air Flow Analysis - (I - Introduced)

PDET 322 - Model - Prototype Development - (R - Reinforced)

PDET 415 - Advanced Solid Modeling CAD - (A - Program Assessment)

Related Goals

ABET: ETAC General Criteria

ETAC - D - Bachelor Degree - An ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives

Related Course Outcomes

AUTO 310 - Engine Air Flow Analysis

four - The student will be able to select intake and exhaust components that will complement the engine design.

five - The students will collaborate as a team to complete a low cost research project analyzing and improving a component in the engine upstream or downstream air flow system

AUTO 493 - Internship

Outcome 1 - 2. Apply theory, principles, and concepts to real problems

Outcome: AET E

An ability to function effectively as a member or leader on a technical team.

Outcome Status: Active

Program - Automotive Engineering Technology (B.S.)

Project/Model/Invention - Research Project (Active)

Criterion for Success: 70% of the students in AUTO 310 will score a 3.5 or higher on the Research Project ABET Outcome E

Assessment Schedule: After each semester the course is offered

Related Courses

AUTO 111 - Manual Transmission-Drivelines - (I - Introduced)

AUTO 112 - Automotive Brake Systems - (I - Introduced)

AUTO 114 - Automotive Engines - (R - Reinforced)

AUTO 200 - Service Area 1 - (R - Reinforced)

AUTO 310 - Engine Air Flow Analysis - (A - Program Assessment)

AUTO 493 - Internship - (A - Program Assessment)

Related Goals

ABET: ETAC General Criteria

ETAC - E - Bachelor Degree - An ability to function effectively as a member or leader on a technical team

Related Course Outcomes

AUTO 310 - Engine Air Flow Analysis

one - The students collaborate as a team to use the air flow bench to test and analyze components in the engine intake and exhaust flow stream

five - The students will collaborate as a team to complete a low cost research project analyzing and improving a component in the engine upstream or downstream air flow system

AUTO 450 - Automotive Fuels and Lubes

four - - The students will perform all lab assignments as a team. (ABET a,b,c,d,e)

AUTO 493 - Internship

Outcome 2 - Student will demonstrate the ability to function effectively as a member or leader of a technical team (ABET E)

Outcome: AET F

An ability to identify, analyze, and solve broadly-defined engineering technology problems.

Outcome Status: Active

Assessment Methods

Project/Model/Invention - Research Project (Active)

Criterion for Success: 70% of the students in AUTO 310 will score a 3.5 or higher on the Research Project ABET Outcome F

Assessment Schedule: After each semester the course is offered.

Related Courses

AUTO 114 - Automotive Engines - (I - Introduced)

Program - Automotive Engineering Technology (B.S.)

AUTO 117 - Electronic Fuel Mgmt Systems - (I - Introduced)

AUTO 200 - Service Area 1 - (R - Reinforced)

AUTO 320 - Dynamometer Testing - (A - Program Assessment)

Related Goals

ABET: ETAC General Criteria

ETAC - F - Bachelor Degree - An ability to identify, analyze, and solve broadly-defined engineering technology problems

Related Course Outcomes

AUTO 320 - Dynamometer Testing

four - Students will be able to identify possible causes of abnormal engine dyno data

AUTO 450 - Automotive Fuels and Lubes

Two - - The students will be able to use mathematics and science along with current knowledge and specialty equipment to root cause failures of fuels and lubricants. (ABET a,b,c,d,f)

three - - The students will prepare written reports and papers and orally present the research finding in a group environment. (ABET e,f,g,h)

four - - The students will perform all lab assignments as a team. (ABET a,b,c,d,e)

Outcome: AET G

An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature.

Outcome Status: Active

Assessment Methods

Project/Model/Invention - Research Project (Active)

Criterion for Success: 70% of the students in AUTO 310 will score a 3.5 or higher on the Research Project ABET Outcome G

Assessment Schedule: After each semester the course is offered.

Related Courses

AUTO 200 - Service Area 1 - (R - Reinforced)

AUTO 460 - Emissions Systems - (A - Program Assessment)

AUTO 480 - Alternate Fuel and Vehicle Sys - (A - Program Assessment)

COMM 221 - Small Group Decision Making - (R - Reinforced)

ENGL 150 - English 1 - (I - Introduced)

ENGL 250 - English 2 - (I - Introduced)

Related Goals

Program - Automotive Engineering Technology (B.S.)

ABET: ETAC General Criteria

ETAC - G - Bachelor Degree - An ability to apply written, oral, and graphical communication in both technical and nontechnical environments; and an ability to identify and use appropriate technical literature

Related Course Outcomes

AUTO 450 - Automotive Fuels and Lubes

three - - The students will prepare written reports and papers and orally present the research finding in a group environment. (ABET e,f,g,h)

AUTO 460 - Emissions Systems

One -

Students will display an ability to communicate effectively within groups or teams. (ABET G)

Assessment: Oral Presentation

AUTO 480 - Alternate Fuel and Vehicle Sys

two - - The students will research an energy source - and defend its use in the transportation industry.

Assessment: Research Paper or Presentation

Outcome: AET H

An understanding of the need for and an ability to engage in self-directed continuing professional development.

Outcome Status: Active

Assessment Methods

Written Product (essay, research paper, journal, newsletter, etc.) - Auto 480 Current Article Assignment (Active)

Criterion for Success: C- or better

Assessment Schedule: Annually, based on a three year rotation.

Internship Evaluation - Auto 493 Employer Evaluation form (Active)

Criterion for Success: 80% or higher in the attitude -application to work area of the employer evaluation form.

Assessment Schedule: Annually, based on a three year rotation.

Results

Reporting Period: 3 - Action Completed

09/22/2009

Classification: Criterion Met

Employers completing the AET Employer Evaluation (for AUTO 493 Summer 2009 internship students) on average ranked their interns "Attitude - Application to Work" 4.1/5* (83%).

- * 5 Outstanding in enthusiasm
- 4 Very interested and industrious
- 3 Average in diligence and interest
- 2 Somewhat indifferent
- 1 Definitely not interested

Related Documents:

[Emp Evals Auto 493 SU09 sans names](#)

Related Courses

AUTO 117 - Electronic Fuel Mgmt Systems - (I - Introduced)

Program - Automotive Engineering Technology (B.S.)

AUTO 200 - Service Area 1 - (R - Reinforced)

AUTO 493 - Internship - (A - Program Assessment)

Related Goals

ABET: ETAC General Criteria

ETAC - H - Bachelor Degree - An understanding of the need for and an ability to engage in self-directed continuing professional development

Related Course Outcomes

AUTO 493 - Internship

Outcome 3 - Students will demonstrate an understanding of the need for and the ability to engage in self-directed continuing professional development (ABET H)

Outcome: AET I

An understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity.

Outcome Status: Active

Assessment Methods

Internship Evaluation - Auto 320 Mentor interview (Active)

Criterion for Success: Successful completion of internship

Assessment Schedule: Annually, based on a three year rotation.

Presentation (Oral) - Auto 480 Small group presentation (Active)

Criterion for Success: C- or better

Assessment Schedule: Annually, based on a three year rotation.

Written Product (essay, research paper, journal, newsletter, etc.) - Auto 480 Research paper (Active)

Criterion for Success: C- or better

Assessment Schedule: Annually, based on a three year rotation.

Internship Evaluation - Auto 493 Employer Evaluation form (Active)

Criterion for Success: 80 % or higher in the judgment area of the employer evaluation

Assessment Schedule: Annually, based on a three year rotation.

Results

Reporting Period: 3 - Action Completed

09/22/2009

Classification: Criterion Met

Employers completing the AET Employer Evaluation (for AUTO 493 Summer 2009 internship students) on average ranked their intern's "Judgement" 4.2/5* (83%).

* 5 Exceptionally mature

4 Above average in making decisions

3 Usually makes the right decision

2 Often uses poor judgment

1 Consistently uses bad judgment.

Employers completing the AET Employer Evaluation (for AUTO 493 Summer 2009 internship students) on average ranked their interns "ABILITY & WILLINGNESS TO ADJUST TO SUPERVISION" 4.5/5** (90%).

**5 Excellent

Program - Automotive Engineering Technology (B.S.)

- 4 Very good
- 3 Average
- 2 Below Average
- 1 Very poor

Related Documents:

[Emp Evals Auto 493 SU09 sans names](#)

Related Courses

AUTO 200 - Service Area 1 - (R - Reinforced)

AUTO 320 - Dynamometer Testing - (I - Introduced)

AUTO 493 - Internship - (A - Program Assessment)

Related Goals

ABET: ETAC General Criteria

ETAC - I - Bachelor Degree - An understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity

Related Course Outcomes

AUTO 460 - Emissions Systems

Two -

Students will apply research methods to compare and analyze engine performance effects on vehicle emissions standards. (ABET i)

Assessment: Final Paper

AUTO 493 - Internship

Outcome 4 - Students will demonstrate respect for diversity and a commitment to professional and ethical responsibilities (ABET I)

Outcome: AET J

A knowledge of the impact of engineering technology solutions in a societal and global context.

Outcome Status: Active

Assessment Methods

Written Product (essay, research paper, journal, newsletter, etc.) - Auto 480 Current Article Assignment (Active)

Criterion for Success: C- or better

Assessment Schedule: Annually, based on a three year rotation.

Presentation (Oral) - Auto 480 Small group presentation (Active)

Criterion for Success: C- or better

Assessment Schedule: Annually, based on a three year rotation.

Related Courses

AUTO 117 - Electronic Fuel Mgmt Systems - (I - Introduced)

Program - Automotive Engineering Technology (B.S.)

AUTO 200 - Service Area 1 - (R - Reinforced)

AUTO 460 - Emissions Systems - (A - Program Assessment)

AUTO 480 - Alternate Fuel and Vehicle Sys - (A - Program Assessment)

Related Goals

ABET: ETAC General Criteria

ETAC - J - Bachelor Degree - A knowledge of the impact of engineering technology solutions in a societal and global context

Related Course Outcomes

AUTO 460 - Emissions Systems

Three -

Students will display a knowledge of issues related emission systems on contemporary vehicles. (ABET J)
Assessment: Unit Test

AUTO 480 - Alternate Fuel and Vehicle Sys

five - - The students will demonstrate "a knowledge of the impact of engineering technology solutions in a societal and global context" (ABET J)

Outcome: AET K

A commitment to quality, timeliness, and continuous improvement.

Outcome Status: Active

Assessment Methods

Presentation (Oral) - Auto 480 Small group presentation (Active)

Criterion for Success: C- or better

Assessment Schedule: Annually, based on a three year rotation.

Written Product (essay, research paper, journal, newsletter, etc.) - Auto 480 Research paper (Active)

Criterion for Success: C- or better

Assessment Schedule: Annually, based on a three year rotation.

Internship Evaluation - Auto 493 Employer Evaluation form (Active)

Criterion for Success: 80% or higher in the quality of work , and ability to learn area of the employer evaluation.

Assessment Schedule: Annually, based on a three year rotation.

Results

Reporting Period: 3 - Action Completed

09/23/2009

Classification: Criterion Met

Employers completing the AET Employer Evaluation (for AUTO 493 Summer 2009 internship students) on average ranked their intern's "ABILITY TO LEARN" 4.6/5* (93%).

* 5 Learns very quickly

4 Learns readily

3 Average in learning

2 Rather slow to learn

1 Very slow to learn.

Employers completing the AET Employer Evaluation (for AUTO 493 Summer 2009 internship students) on average ranked their interns "QUALITY OF WORK " 4.3/5** (85%).

Program - Automotive Engineering Technology (B.S.)

Employers completing the AET Employer Evaluation (for AUTO 493 Summer 2009 internship students) on average ranked their interns "ATTENDANCE" 5/5*** (100%).

Employers completing the AET Employer Evaluation (for AUTO 493 Summer 2009 internship students) on average ranked their interns "PUNCTUALITY" 5/5*** (100%).

***5 Regular
1 Irregular.

Employers completing the AET Employer Evaluation (for AUTO 493 Summer 2009 internship students) on average answered the question "Your opinion of the future success of this intern in the industry?" 4.6/5** (92%).

** 5 Excellent
4 Very good
3 Average
2 Below Average
1 Very poor.

Related Documents:

[Emp Evals Auto 493 SU09 sans names](#)

Written Product (essay, research paper, journal, newsletter, etc.) - Auto 450 Course assignments (Active)

Criterion for Success: 80%

Assessment Schedule: Annually, based on a three year rotation.

Related Courses

AUTO 200 - Service Area 1 - (I - Introduced)

AUTO 480 - Alternate Fuel and Vehicle Sys - (R - Reinforced)

AUTO 493 - Internship - (A - Program Assessment)

Related Goals

ABET: ETAC General Criteria

ETAC - K - Bachelor Degree - A commitment to quality, timeliness, and continuous improvement

Related Course Outcomes

AUTO 493 - Internship

Outcome 5 - Students will demonstrate a commitment to quality, timeliness, and continuous improvement (ABET K)

Outcome: AET L

Competency in the application of computer technologies commonly used in industry, governmental service, and private practice associated with land, sea, air, and space mobility

Outcome Status: Active

Start Date: 02/23/2016

Program - Automotive Engineering Technology (B.S.)

Project/Model/Invention - Research Project (Active)

Criterion for Success: 70% of the students in AUTO 310 will score a 3.5 or higher on the Research Project ABET Outcome L

Assessment Schedule: After each semester the course is offered.

Related Courses

AUTO 114 - Automotive Engines - (I - Introduced)

AUTO 117 - Electronic Fuel Mgmt Systems - (I - Introduced)

AUTO 200 - Service Area 1 - (R - Reinforced)

AUTO 213 - Chassis Electrical-Electronics - (R - Reinforced)

AUTO 320 - Dynamometer Testing - (A - Program Assessment)

Related Course Outcomes

AUTO 320 - Dynamometer Testing

three - Students will be able to analyze data procured during dyno tests and recognize normal and abnormal data

Outcome: AET M

Proficiency in the application of probability and statistics to the solution of problems related to land, sea, air, and space mobility.

Outcome Status: Active

Start Date: 04/06/2016

Related Courses

MFGE 341 - Quality Science Statistics - (I - Introduced)

MFGE 342 - Statistical Proc Engineering - (A - Program Assessment, R - Reinforced)

MFGE 442 - Design of Experiments 1 - (A - Program Assessment, R - Reinforced)

Outcome: AET N

Ability to apply modern and effective management skills in identification and investigation of problems, analysis of data, synthesis and implementation of solutions, and operations of facilities related to land, sea, air, and space mobility.

Outcome Status: Active

Start Date: 04/06/2016

Related Courses

AUTO 114 - Automotive Engines - (I - Introduced)

AUTO 117 - Electronic Fuel Mgmt Systems - (I - Introduced)

AUTO 200 - Service Area 1 - (R - Reinforced)

AUTO 213 - Chassis Electrical-Electronics - (I - Introduced)

AUTO 310 - Engine Air Flow Analysis - (A - Program Assessment)

Program - Automotive Engineering Technology (B.S.)

Related Course Outcomes

AUTO 310 - Engine Air Flow Analysis

five - The students will collaborate as a team to complete a low cost research project analyzing and improving a component in the engine upstream or downstream air flow system

Outcome: AET O

Working knowledge of the design, manufacture, and maintenance of major subsystems and technologies associated with land, sea, air, and space mobility.

Outcome Status: Active

Start Date: 04/06/2016

Related Courses

AUTO 111 - Manual Transmission-Drivelines - (I - Introduced)

AUTO 114 - Automotive Engines - (I - Introduced)

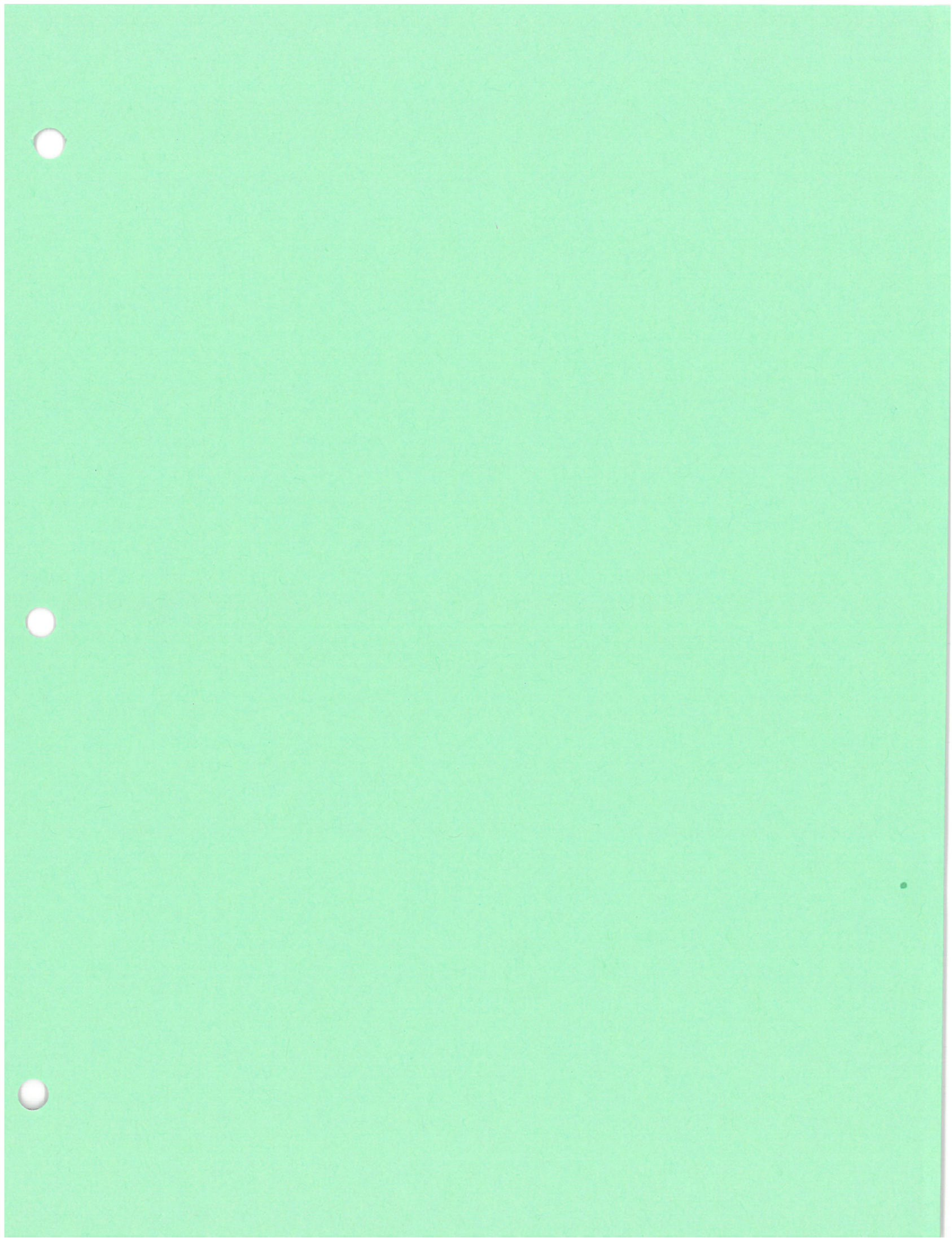
AUTO 200 - Service Area 1 - (R - Reinforced)

AUTO 310 - Engine Air Flow Analysis - (A - Program Assessment)

Related Course Outcomes

AUTO 310 - Engine Air Flow Analysis

five - The students will collaborate as a team to complete a low cost research project analyzing and improving a component in the engine upstream or downstream air flow system



Program-level Student Learning Outcomes



Program - Automotive Service Technology (A.A.S.)

Mission Statement: To continuously define the profession by producing Automotive Management graduates whose knowledge, skills and attitudes are nationally recognized.

Advisory Board/Committee Meetings: Once per year

Next FSU Academic Program Review: 2017-2018

Accreditor Body: National Automotive Technicians Education Foundation Certified (NATEF)

Accreditor Body - Academic Year of Next Review: 2019-2020

College: CET

Outcome: AST 1

A mastery of automotive technology as it relates to the course of study.

Planned Year(s) of Assessment: Learning

Assessment Methods

Observations (e.g. Clinical or Field) - Auto 111 Lab sheets (Active)

Criterion for Success: 80%

Assessment Schedule: Annually, on a three year rotation.

Related Documents:

[Auto 111 Labs.doc](#)

[Auto 111 Labs.doc](#)

Portfolio/E-Portfolio - Auto 111 notebook (Active)

Criterion for Success: 80%

Assessment Schedule: Annually, on a three year rotation.

Related Documents:

[Auto 111 NotebookGrdSht.rtf](#)

Test - External - Post or Pre/Post - Auto 111 chapter questions (Active)

Criterion for Success: 80%

Assessment Schedule: Annually, on a three year rotation.

Test - Internally Developed - Pre/Post or Post - Auto 111 Final Exam (Active)

Criterion for Success: 80%

Assessment Schedule: Annually, on a three year rotation.

Related Documents:

[Auto 111 Final Exam Fall 08.docx](#)

Observations (e.g. Clinical or Field) - Auto 112 Lab activities (Active)

Criterion for Success: Complete successfully or repeat until successful

Assessment Schedule: Annually, on a three year rotation.

Related Documents:

[Lab #1 - Safety and Measuring Tool Lab.doc](#)

[Lab #4 - Wheel Cylinder and Caliper.doc](#)

Program - Automotive Service Technology (A.A.S.)

[Lab #3 - Master cylinder, etc.doc](#)
[Lab #6 - Vacuum Brake Booster.doc](#)
[Lab #5 - Mechanical Brake Operation.doc](#)
[Lab #8 - Mechanical and Hydraulic brake system.doc](#)
[Lab #2 - Bearing Lab.doc](#)
[Lab #9 - .doc](#)
[Lab #7 - Hydro Boost Power Brake Unit.doc](#)

Test - Internally Developed - Pre/Post or Post - Auto 112 Internally developed final exam (Active)

Criterion for Success: 85%

Assessment Schedule: Annually, based on a three year rotation.

Related Documents:

[auto 112 final exam.doc](#)

Observations (e.g. Clinical or Field) - Auto 113 Lab Experience (Active)

Criterion for Success: Complete successfully or repeat until successful

Assessment Schedule: Annually, based on a three year rotation.

Related Documents:

[Alternator Lab.docx](#)

[Battery Lab.doc](#)

[LAB9.doc](#)

[Sample Lab.pub](#)

[StarterLab.docx](#)

Test - Internally Developed - Pre/Post or Post - Auto 113 Comprehensive Final Exam (Active)

Criterion for Success: C- or better

Assessment Schedule: Annually, on a three year rotation.

Related Documents:

[Final Test 113.docx](#)

Survey - Students - Auto 113 Three question evaluation (Active)

Criterion for Success: Direct data from students

Assessment Schedule: Annually, based on a three year rotation.

Related Documents:

[Three question Eval.docx](#)

Internship Evaluation - Auto 114 Internship visits, mentor evaluation (Active)

Criterion for Success: Successful completion

Assessment Schedule: Annually, on a three year rotation.

Related Documents:

[Employers Evaluation -pg 14-15.doc](#)

Project/Model/Invention - Auto 114 Written lab documents Observation of laboratory assignments (Active)

Criterion for Success: 90% accuracy

Assessment Schedule: Annually, on a three year rotation.

Test - Internally Developed - Pre/Post or Post - Auto 115 Final Exam (Active)

Criterion for Success: 85%

Assessment Schedule: Annually, on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 117 Complete laboratory assignments from course packet (Active)

Criterion for Success: Receive a 90% or higher grade on each lab sheet

Assessment Schedule: Annually, on a three year rotation.

Related Documents:

[LAB #14 Engine Performance Diagnosis.doc](#)

Program - Automotive Service Technology (A.A.S.)

[LAB #13 Ignition Lab.docx](#)
[LAB #12 Evaporative Emission System Tester.doc](#)
[Lab #4a Wire and Component Identification Lab.doc](#)
[Lab #8 PCM INPUTS LAB.docx](#)
[Lab 5b IDS Continued.docx](#)
[Lab #11Fuel Trim Lab.docx](#)
[Lab #2 Fuel Testing.doc](#)
[LAB 5a IDS .docx](#)
[Lab #9 PCM INPUTS CONTINUED LAB.docx](#)
[LAB #12 Evaporative Emission System Tester.doc](#)
[Lab #5 WDS Lab.doc](#)
[Lab #4 DRBIII Lab.doc](#)
[Lab #10 Injector Cleaning Lab.docx](#)
[Lab #7 Engine Coolant Temperature.docx](#)

Test - Internally Developed - Pre/Post or Post - Auto 117 Final Exam via Ferris Connect (Active)

Criterion for Success: Receive an 85% or higher grade.

Assessment Schedule: Annually, based on a three year rotation.

Related Documents:

[Final Exam Auto 117.docx](#)

Test - Internally Developed - Pre/Post or Post - Auto 117 Complete 27 Instructional Video's via Ferris Connect (Active)

Criterion for Success: Receive a 75% or higher on each video assignment

Assessment Schedule: Annually, on a three year rotation.

Test - Internally Developed - Pre/Post or Post - Auto 117 Complete 15 Chapter quizzes via Ferris Connect (Active)

Criterion for Success: Receive a 75% or higher on each chapter assignment

Assessment Schedule: Annually, based on a three year rotation.

Related Documents:

[Quiz Chapter 12.docx](#)
[Chapter 15.docx](#)
[Quiz Chapter 14.docx](#)
[Quiz Chapter 13.docx](#)
[Quiz Chapter 20.docx](#)
[Quiz Chapter 21.docx](#)
[Quiz Chapter 23.docx](#)
[Quiz Chapter 24.docx](#)
[Quiz Chapter 21.docx](#)
[Quiz Chapter 28.docx](#)
[Quiz Chapter 17.docx](#)
[Quiz Chapter 27.docx](#)
[Quiz Chapter 16.docx](#)
[Quiz Chapter 26.docx](#)
[Quiz Chapter 12.docx](#)
[Quiz Chapter 5.docx](#)

Observations (e.g. Clinical or Field) - Auto 200 Instructor observation of student lab work (Active)

Criterion for Success: A cumulative average score ≥ 2.4, on Service Floor Rubric item K1.

Assessment Schedule: Annually, based on three year rotation.

Results

Reporting Period: 1 - No Action Required

09/28/2009

Classification: Criterion Met

Thirty one students all scored above the required average score of 2.4, with an average score of 2.81 and a median score of 2.80.

Program - Automotive Service Technology (A.A.S.)

Related Documents:

[Service Floor Rubric](#)

[Spring 2009 Report](#)

Observations (e.g. Clinical or Field) - Auto 200 Instructor observation of student lab work (Active)

Criterion for Success: A cumulative average score ≥ 2.4, on Service Writer Rubric item K1.

Assessment Schedule: Annually, based on a three year rotation.

Related Documents:

[Service Floor Rubric](#)

Case Studies/Problem-based Assignments - Auto 211 Focus Group Power Flow Worksheets (Active)

Criterion for Success: Students must complete worksheets to 90% then present material to class

Assessment Schedule: Annually, based on a three year rotation.

Related Documents:

[Auto 211 Powerflow Worksheet 4t60e.docx](#)

[Auto 211 Powerflow Worksheet 2.docx](#)

[Auto 211 Powerflow Worksheet.docx](#)

Results

Reporting Period: 2016 - 2017

09/08/2016

Classification: Inconclusive

Prior to administering this assignment, power flow was reviewed through PowerPoint and demo with visual aids. Students received one on one instruction. Students need to be introduced to power flow in a different manor. Students had problems completing the assignment.

Actions

Action: I will try to use blended learning and other visual aids. (09/08/2016)

Observations (e.g. Clinical or Field) - Auto 211 Lab experience (Active)

Criterion for Success: Complete successfully or repeat until successful

Assessment Schedule: Annually, based on a three year rotation.

Related Documents:

[4L60-E Lab Sheet.doc](#)

[AUTO 211 lab 2.doc](#)

[AUTO 211 lab 1.doc](#)

[4T60-E 4T65-E Lab Sheetf08.doc](#)

[AUTO 211 lab 3.doc](#)

[GM Service Information Lab 9-12-07.dotx](#)

[Lab 4 GM Controls.doc](#)

[AUTO 211 lab 3a.doc](#)

Results

Reporting Period: 2016 - 2017

11/03/2016

Classification: Criterion Met

This lab was preformed until students attained satisfactory comprehension.

Actions

Action: No action required at this time. (11/03/2016)

Test - Internally Developed - Pre/Post or Post - Auto 211 Unit Tests (Active)

Criterion for Success: C- or better

Assessment Schedule: Annually, based on a three year rotation.

Related Documents:

[Auto 211 test 1.docx](#)

[Auto 211 test 2 B.docx](#)

[Auto 211 test 2.docx](#)

Program - Automotive Service Technology (A.A.S.)

[Auto 211 test 3.docx](#)

[Auto 211test 4.docx](#)

Observations (e.g. Clinical or Field) - Auto 214 Lab Work (Active)

Criterion for Success: Perform lab guides as required-100%

Assessment Schedule: Annually, on a three year rotation.

Related Documents:

[Lab 1_NATEF_EPA.docx](#)

[Lab 2_NATEF_Performance_test.docx](#)

[Lab 3_NATEF_ID_Sealant.docx](#)

[Lab 5_Over_under_Charge.docx](#)

[Lab 12_NATEF_AD_EATC_Testing.docx](#)

[Lab 10_Part_two_coolant.doc](#)

[Lab 10_NATEF_C_Lab_Cooling.docx](#)

[Lab 7_Condenser.docx](#)

[Lab 8_Compressor.docx](#)

[Lab 9_blower_Airflow.docx](#)

[Lab 11_NATEF_C_Lab_Cooling.docx](#)

Observations (e.g. Clinical or Field) - Auto 214 Hands-on Final (Active)

Criterion for Success: Factored into grade from written final 95%

Assessment Schedule: Annually, based on three year rotation.

Test - External - Post or Pre/Post - Auto 214 Crossword Puzzles (Active)

Criterion for Success: Cumulative with all other test and written assignments--80%

Assessment Schedule: Annually, based on three year rotation.

Test - Internally Developed - Pre/Post or Post - Auto 214 Refrigeration Quiz (Active)

Criterion for Success: Cumulative with all other test and written assignments--80%

Assessment Schedule: Annually, based on a three year rotation.

Test - Internally Developed - Pre/Post or Post - Auto 214 Mid-Term (Active)

Criterion for Success: Cumulative with all other test and written assignments--80%

Assessment Schedule: Annually, based on a three year rotation.

Test - Internally Developed - Pre/Post or Post - Auto 214 System analysis (Active)

Criterion for Success: Cumulative with all other test and written assignments--80%

Assessment Schedule: Annually, based on a three year rotation.

Test - Internally Developed - Pre/Post or Post - Auto 214 Final Exam (Active)

Criterion for Success: Factored into grade from Hands-on Final 95%

Assessment Schedule: Annually, based on a three year return.

Written Product (essay, research paper, journal, newsletter, etc.) - Auto 214 Coolant Assignment (Active)

Criterion for Success: Cumulative with all other test and written assignments--80%

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 250 Instructor observation of student lab work (Active)

Criterion for Success: A cumulative average score of equal to or great than 2.4, on Service Floor Rubric item K1.

Assessment Schedule: Annually, based on a three year rotation.

Results

Reporting Period: 1 - No Action Required

09/28/2009

Classification: Criterion Met

Eleven students all scored above the required average score of 2.4, with an average score of 2.84 and a median score of 2.89.

Program - Automotive Service Technology (A.A.S.)

Related Documents:

[Service Floor Rubric](#)

[Spring 2009 Report](#)

Outcome: AST 2

The ability to diagnose symptoms and malfunctions in the eight main automotive systems, as appropriate for the course of study.

Assessment Methods

Observations (e.g. Clinical or Field) - Auto 111 Lab sheets (Active)

Criterion for Success: 80%

Assessment Schedule: Annually, based on a three year rotation.

Test - Internally Developed - Pre/Post or Post - Auto 111 Final exam (Active)

Criterion for Success: 80%

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 112 Lab Activities (Active)

Criterion for Success: 100%

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 113 Lab Experience (Active)

Criterion for Success: complete successfully or repeat until successful

Assessment Schedule: Annually, based on a three year rotation.

Project/Model/Invention - Auto 114 Written lab documents Observation, lab diagnosis (Active)

Criterion for Success: 90% accuracy

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 115 Lab activities (Active)

Criterion for Success: 100%

Assessment Schedule: Annually, based on a three year rotation.

Case Studies/Problem-based Assignments - Auto 117 Drivability Paper Trace using case studies involving known concerns (Active)

Criterion for Success: Receive an 80% or higher grade on completed assignment.

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 117 Engine performance diagnosis using manufactures diagnostic equipment (Active)

Criterion for Success: Receive a 90% or higher on completed lab sheet

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 117 Hands on final performance diagnosis (Active)

Criterion for Success: Perform each task with 75% accuracy or higher

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 200 Instructor observation of student lab work (Active)

Criterion for Success: A cumulative average score > 2.4, on Service Floor Rubric items K1, P1.

Assessment Schedule: Annually, based on a three year rotation.

Results

Reporting Period: 1 - No Action Required

09/28/2009

Program - Automotive Service Technology (A.A.S.)

Classification: Criterion Met

Thirty one students all scored above the required average score of 2.4, with an average score of 2.83 and a median score of 2.85.

Related Documents:

[Service Floor Rubric](#)

[Spring 2009 Report](#)

Case Studies/Problem-based Assignments - Auto 211 Focus Group power flow worksheets (Active)

Criterion for Success: students must complete worksheets to 90% then present material to class

Assessment Schedule: Annually, based on a three year rotation.

Results

Reporting Period: 2016 - 2017

09/01/2016

Classification: Criterion Not Met

Prior to administering this assignment, power flow was reviewed through PowerPoint and demo with visual aids. Students received one on one instruction. This took too much time. Comprehension was not satisfactory. This can be a challenging concept to grasp

Change Assessment Strategy: Yes

Actions

Action: Before administering this assignment, there must be other assignments to help build understanding of the concept. Blended learning may be used. The assignment will receive revision. (09/01/2016)

Observations (e.g. Clinical or Field) - Auto 211 Lab Experience Labs 1-3 Vehicle Service and Diagnoses (Active)

Criterion for Success: complete successfully or repeat until successful

Assessment Schedule: Annually, based on a three year rotation.

Results

Reporting Period: 2016 - 2017

12/16/2016

Classification: Criterion Met

students in lab are gathered in groups of 2-3. During lab, instructor checks are performed to ensure student comprehension.

Actions

Action: Continue assessment. However, some revision to the labs will be preformed to better identify this outcome. (02/19/2017)

Observations (e.g. Clinical or Field) - Auto 214 Lab Work (Active)

Criterion for Success: Determine the required repair of a vehicle that has been bugged by the instructor-100%

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 250 Instructor observation of student lab work (Active)

Criterion for Success: A cumulative average score > 2.4, on Service Floor Rubric items K1, P1.

Assessment Schedule: Annually, based on a three year rotation.

Results

Reporting Period: 1 - No Action Required

09/28/2009

Classification: Criterion Met

Eleven students all scored above the required average score of 2.4, with an average score of 2.86 and a median score of 2.88.

Related Documents:

[Service Floor Rubric](#)

[Spring 2009 Report](#)

Outcome: AST 3

An ability to locate, comprehend, and apply OEM service information, diagnostic procedures and service routines.

Program - Automotive Service Technology (A.A.S.)

Observations (e.g. Clinical or Field) - Auto 111 Lab sheets (Active)

Criterion for Success: 80%

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 112 lab activities #2,5,7,8 (Active)

Criterion for Success: 100%

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 113 Lab 9 Service Information (Active)

Criterion for Success: Complete successfully or repeat until successful

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 114 Written lab documents lab work requires constant use of manuals (Active)

Criterion for Success: 90% accuracy

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 115 Lab activities (Active)

Criterion for Success: 100%

Assessment Schedule: Annually, based on a three year rotation.

Case Studies/Problem-based Assignments - Auto 117 Drivability paper trace using case studies involving known concerns (Active)

Criterion for Success: Receive an 80% or higher grade on completed assignment

Assessment Schedule: Receive an 80% or higher grade on completed assignment

Observations (e.g. Clinical or Field) - Auto 117 Engine performance diagnosis using manufactures diagnostic equipment (Active)

Criterion for Success: Receive a 90% or higher on completed lab sheet.

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 117 Complete lab guides in course packet (Active)

Criterion for Success: Receive a 90% or higher grade on each lab sheet

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 200 Instructor observation of student lab work (Active)

Criterion for Success: A cumulative average score of equal to or greater 2.4, on Service Floor Rubric item K2.

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 200 Instructor observation of student lab work (Active)

Criterion for Success: A cumulative average score equal to or greater than 2.4, on Service Writer Rubric item K2.

Assessment Schedule: Annually, based on a three year rotation.

Results

Reporting Period: 1 - No Action Required

09/28/2009

Classification: Criterion Met

Thirty one students all scored above the required average score of 2.4, with an average score of 2.95 and a median score of 3.00.

Related Documents:

[Service Floor Rubric](#)

[Spring 2009 Report](#)

Observations (e.g. Clinical or Field) - Auto 211 Lab Experience (Active)

Criterion for Success: Complete successfully or repeat until successful

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 214 Lab guides (Active)

Program - Automotive Service Technology (A.A.S.)

Criterion for Success: Perform lab guides as required-100%
Assessment Schedule: Annually, based on a three year rotation.

Written Product (essay, research paper, journal, newsletter, etc.) - Auto 214 Coolant Assignment (Active)
Criterion for Success: Cumulative with all other test and written assignment-80%
Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 250 Instructor observation of student lab work (Active)
Criterion for Success: A cumulative average score \geq 2.4, on Service Floor Rubric item K2.
Assessment Schedule: Annually, based on a three year rotation.

Results

Reporting Period: 1 - No Action Required

09/28/2009

Classification: Criterion Met

Eleven students all scored above the required average score of 2.4, with an average score of 2.98 and a median score of 3.00.

Related Documents:

[Service Floor Rubric](#)

[Spring 2009 Report](#)

Observations (e.g. Clinical or Field) - Auto 250 Instructor observation of student lab work (Active)
Criterion for Success: A cumulative average score \geq 2.4, on Service Writer Rubric item K2.
Assessment Schedule: Annually, based on a three year rotation.

Outcome: AST 4

The proper use of specialized service and diagnostic equipment.

Assessment Methods

Observations (e.g. Clinical or Field) - Auto 111 Lab sheets (Active)
Criterion for Success: 80%
Assessment Schedule: Annually, based on a three year rotation.

Test - Internally Developed - Pre/Post or Post - Auto 111 Final Exam (Active)
Criterion for Success: 80%
Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 113 Lab experience (Active)
Criterion for Success: complete successfully or repeat until successful
Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 114 Written lab documents specialized service and diagnosis equipment is used in lab (Active)
Criterion for Success: 90% accuracy
Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 114 Lab activities #2,5 (Active)
Criterion for Success: 100%
Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 117 Complete lab guides in course packet (Active)
Criterion for Success: Receive a 90% or higher grade on each lab sheet
Assessment Schedule: Annually, based on a three year rotation.

Program - Automotive Service Technology (A.A.S.)

Observations (e.g. Clinical or Field) - Auto 200 Instructor observation of student lab work (Active)

Criterion for Success: A cumulative average score equal to or greater than 2.4, on Service Floor Rubric items K1, P1, P4.

Assessment Schedule: Annually, based on a three year rotation.

Results

Reporting Period: 1 - No Action Required

09/28/2009

Classification: Criterion Met

Thirty one students all scored above the required average score of 2.4, with an average score of 2.86 and a median score of 2.88.

Related Documents:

[Service Floor Rubric](#)

[Spring 2009 Report](#)

Observations (e.g. Clinical or Field) - Auto 211 Lab Experience (Active)

Criterion for Success: complete successfully or repeat until successful

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 214 Lab guides (Active)

Criterion for Success: Perform lab guides as required-100%

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 250 Instructor observation of student lab work (Active)

Criterion for Success: A cumulative average score ≥ 2.4, on Service Floor Rubric items K1, P1, P4.

Assessment Schedule: Annually, based on a three year rotation.

Results

Reporting Period: 1 - No Action Required

09/28/2009

Classification: Criterion Met

Eleven students all scored above the required average score of 2.4, with an average score of 2.88 and a median score of 2.89.

Related Documents:

[Service Floor Rubric](#)

[Spring 2009 Report](#)

Outcome: AST 5

An ability to communicate effectively.

Assessment Methods

Observations (e.g. Clinical or Field) - Auto 111 Lab sheets (Active)

Criterion for Success: 80%

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 112 Lab activities (Active)

Criterion for Success: 100%

Assessment Schedule: Annually, based on a three year rotation.

Case Studies/Problem-based Assignments - Auto 113 Lab 8 Wiring Diagram Diagnosis (Active)

Criterion for Success: C- or better

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 115 Lab activities (Active)

Criterion for Success: 100%

Assessment Schedule: Annually, based on a three year rotation.

Program - Automotive Service Technology (A.A.S.)

Observations (e.g. Clinical or Field) - Auto 200 Instructor observation of student lab work (Active)

Criterion for Success: A cumulative average score equal to or greater than 2.4, on Service Floor Rubric item E4.

Assessment Schedule: Annually, based on a three year rotation.

Results

Reporting Period: 1 - No Action Required

09/28/2009

Classification: Criterion Met

Thirty one students all scored above the required average score of 2.4, with an average score of 2.98 and a median score of 3.00.

Related Documents:

[Service Floor Rubric](#)

[Spring 2009 Report](#)

Observations (e.g. Clinical or Field) - Auto 200 Instructor observation of student lab work (Active)

Criterion for Success: A cumulative average score equal to or greater than 2.4, on Service Writer Rubric items C1, C2, C3.

Assessment Schedule: Annually, based on a three year rotation.

Case Studies/Problem-based Assignments - Auto 211 Focus Group Power flow worksheets (Active)

Criterion for Success: Students must complete worksheets to 90% then present material to class

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 211 Lab Experience (Active)

Criterion for Success: Complete successfully or repeat until successful

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 250 Instructor observation of student lab work (Active)

Criterion for Success: A cumulative average score equal to or greater than 2.4, on Service Floor Rubric item E4.

Assessment Schedule: Annually, based on a three year rotation.

Results

Reporting Period: 1 - No Action Required

09/28/2009

Classification: Criterion Met

Eleven students all scored above the required average score of 2.4, with an average score of 2.96 and a median score of 3.00.

Related Documents:

[Service Floor Rubric](#)

[Spring 2009 Report](#)

Observations (e.g. Clinical or Field) - Auto 250 Instructor observation of student lab work (Active)

Criterion for Success: A cumulative average score equal to or greater than 2.4, on Service Writer Rubric items C1, C2, C3.

Assessment Schedule: Annually, based on a three year rotation.

Outcome: AST 6

The ability to function in accordance with established safe practices for the protection of self and others.

Assessment Methods

Observations (e.g. Clinical or Field) - Auto 111 Lab sheets (Active)

Criterion for Success: 80%

Assessment Schedule: Annually, based on a three year rotation.

Test - Internally Developed - Pre/Post or Post - Auto 111 Final Exam (Active)

Criterion for Success: 80%

Assessment Schedule: Annually, based on a three year rotation.

Program - Automotive Service Technology (A.A.S.)

Observations (e.g. Clinical or Field) - Auto 112 Lab activities #1 (Active)

Criterion for Success: 100%

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 113 Battery, starter, and alternator lab (Active)

Criterion for Success: complete successfully or repeat until successful

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 114 Written lab documents lab safety must be practiced in lab sessions (Active)

Criterion for Success: 90% accuracy

Assessment Schedule: Annually, based on a three year rotation.

Presentation (Oral) - Auto 117 Guidelines presented during lab session (Active)

Criterion for Success: Sign the document

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 200 Instructor observation of student lab work (Active)

Criterion for Success: A cumulative average score equal to or greater than 2.4, on Service Floor Rubric items E1, E4.

Assessment Schedule: Annually, based on a three year rotation.

Results

Reporting Period: 1 - No Action Required

09/28/2009

Classification: Criterion Met

Thirty one students all scored above the required average score of 2.4, with an average score of 2.98 and a median score of 3.00.

Related Documents:

[Service Floor Rubric](#)

[Spring 2009 Report](#)

Observations (e.g. Clinical or Field) - Auto 200 Instructor observation of student lab work (Active)

Criterion for Success: A cumulative average score equal to or greater than 2.4, on Service Writer Rubric items E1.

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 214 Lab guides (Active)

Criterion for Success: Perform lab guides as required-100%

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 250 Instructor observation of student lab work (Active)

Criterion for Success: A cumulative average score of greater than or equal to 2.4, on Service Floor Rubric items E1, E4.

Assessment Schedule: Annually, based on a three year rotation.

Results

Reporting Period: 1 - No Action Required

09/28/2009

Classification: Criterion Met

Eleven students all scored above the required average score of 2.4, with an average score of 2.97 and a median score of 3.00.

Related Documents:

[Service Floor Rubric](#)

[Spring 2009 Report](#)

Observations (e.g. Clinical or Field) - Auto 250 Instructor observation of student lab work (Active)

Criterion for Success: A cumulative average score greater than or equal to 2.4, on Service Writer Rubric items E1.

Assessment Schedule: Annually, based on a three year rotation.

Outcome: AST 7

Program - Automotive Service Technology (A.A.S.)

An ability to conform to accepted practices involving the safe use of materials and to utilize practices which will result in minimal impact upon the environment.

Assessment Methods

Observations (e.g. Clinical or Field) - Auto 111 Lab sheets (Active)

Criterion for Success: 80%

Assessment Schedule: Annually, based on a three year rotation.

Test - Internally Developed - Pre/Post or Post - Auto 111 Final Exam (Active)

Criterion for Success: 80%

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 113 Battery, Starter, and alternator lab (Active)

Criterion for Success: Complete successfully or repeat until successful

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 117 Lab guidelines presented during lab session (Active)

Criterion for Success: Sign the document

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 200 Instructor observation of student lab work (Active)

Criterion for Success: A cumulative average score greater than or equal to 2.4, on Service Floor Rubric item E1.

Assessment Schedule: Annually, based on a three year rotation.

Results

Reporting Period: 1 - No Action Required

09/28/2009

Classification: Criterion Met

Thirty one students all scored above the required average score of 2.4, with an average score of 2.98 and a median score of 3.00.

Related Documents:

[Service Floor Rubric](#)

[Spring 2009 Report](#)

Observations (e.g. Clinical or Field) - Auto 211 Lab Experience Lab 2 Transmission service (Active)

Criterion for Success: Complete successfully or repeat until successful

Assessment Schedule: Annually, based on a three year rotation.

Results

Reporting Period: 2016 - 2017

09/16/2016

Classification: Inconclusive

Students were able to find test ports, read pressures, and incorporate results. However, there was complications with two of the test vehicles that disrupted the class flow.

Related Documents:

[AUTO 211 lab 1.doc](#)

Actions

Action: Locate two different vehicles for lab and edit the labs for the new vehicles. (09/16/2016)

Observations (e.g. Clinical or Field) - Auto 214 Lab guides (Active)

Criterion for Success: Perform lab guides as required-100%

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 250 Instructor observation of student lab work (Active)

Criterion for Success: A cumulative average score of equal to or greater than 2.4, on Service Floor Rubric item E1.

Assessment Schedule: Annually, based on a three year rotation.

Program - Automotive Service Technology (A.A.S.)

Results

Reporting Period: 1 - No Action Required

09/28/2009

Classification: Criterion Met

Eleven students all scored above the required average score of 2.4, with an average score of 2.99 and a median score of 3.00.

Related Documents:

[Service Floor Rubric](#)

[Spring 2009 Report](#)

Outcome: AST 8

A commitment to always perform at their optimal ability for career success.

Assessment Methods

Observations (e.g. Clinical or Field) - Auto 111 Lab sheets (Active)

Criterion for Success: 80%

Assessment Schedule: Annually, based on a three year rotation.

Portfolio/E-Portfolio - Auto 111 Notebook (Active)

Criterion for Success: 80%

Assessment Schedule: Annually, based on a three year rotation.

Test - External - Post or Pre/Post - Auto 111 Chapter Questions (Active)

Criterion for Success: 80%

Assessment Schedule: Annually, based on a three year rotation.

Test - Internally Developed - Pre/Post or Post - Auto 111 Final exam (Active)

Criterion for Success: 80%

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 112 Written tests (Active)

Criterion for Success: 77%

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 113 Attendance and observation of academic performance (Active)

Criterion for Success: Less than 4 class hours missed and a C- or better

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 114 Written lab documents thorough and accurate work is encouraged vs. speed to complete lab work (Active)

Criterion for Success: 90% accuracy

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 117 Completing each lab guide in the course packet in a timely fashion (Active)

Criterion for Success: Receive a 90% or higher grade on each lab sheet

Assessment Schedule: Annually, based on a three year rotation.

Test - Internally Developed - Pre/Post or Post - Auto 117 Completing all necessary homework, quizzes, and tests for the course (Active)

Criterion for Success: Receive a 75% or higher for a the combined average.

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 200 Instructor observation of student lab work (Active)

Program - Automotive Service Technology (A.A.S.)

Criterion for Success: A cumulative average score equal to or greater than 2.4, on Service Floor Rubric items P1, P2, P3, P4, E2, E3.

Assessment Schedule: Annually, based on a three year rotation.

Results

Reporting Period: 1 - No Action Required

09/28/2009

Classification: Criterion Met

Thirty one students all scored above the required average score of 2.4, with an average score of 2.94 and a median score of 2.94.

Related Documents:

[Service Floor Rubric](#)

[Spring 2009 Report](#)

Observations (e.g. Clinical or Field) - Auto 200 Instructor observation of student lab work (Active)

Criterion for Success: A cumulative average score equal to greater than 2.4, on Service Writer Rubric items E1, E2, E3, E4, E5.

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 211 Lab Experience (Active)

Criterion for Success: Complete successfully or repeat until successful

Assessment Schedule: Annually, based on a three year rotation.

Results

Reporting Period: 2016 - 2017

12/01/2016

Classification: Criterion Met

Students found this lab a bit difficult to navigate. However, they were able to accomplish it with comprehension. However, there were two vehicle that were not able to be used due to interface issues. All students completed the lab on time.

Actions

Action: Locate vehicles that are able to be interfaced with. (12/01/2016)

Observations (e.g. Clinical or Field) - Auto 214 Lab guides (Active)

Criterion for Success: Perform lab guides as required-100%

Assessment Schedule: Annually, based on a three year rotation.

Observations (e.g. Clinical or Field) - Auto 250 Instructor observation of student lab work (Active)

Criterion for Success: A cumulative average score equal to or greater than 2.4, on Service Floor Rubric items P1, P2, P3, P4, E2, E3.

Assessment Schedule: Annually, based on a three year rotation.

Results

Reporting Period: 1 - No Action Required

09/28/2009

Classification: Criterion Met

Eleven students all scored above the required average score of 2.4, with an average score of 2.94 and a median score of 2.94

Related Documents:

[Service Floor Rubric](#)

[Spring 2009 Report](#)

Observations (e.g. Clinical or Field) - Auto 250 Instructor observation of student lab work (Active)

Criterion for Success: A cumulative average score equal to or greater than 2.4, on Service Writer Rubric items E1, E2, E3, E4, E5.

Assessment Schedule: Annually, based on a three year rotation.

Perceptions of Overall Quality

***Perceptions of Overall Quality
of the
Automotive Engineering, Auto Service and Performance Motor Sports Certificate***

I gave these programs an overall quality score of 91 out of 100. A summary of my rating follows. Each category had a possible of 12.5 points.

12.5 points ***Mission of the program as it relates to the University & College***

The Automotive Engineering, Automotive Service and Performance Motorsports Certificate Programs emphasize the mission of both the University and the College of Engineering Technology. I believe these programs give the students the necessary skill set so that they will have successful careers, and be productive citizens in our changing economy. In addition the training that they receive will help them to make wise choices in their professional careers, and to understand the need for lifelong learning. I believe the faculty and staff prepare students to be productive and responsible members of society.

12.5 points ***Program visibility and distinctiveness***

I believe our programs are highly visible and distinctive since many of our graduates are working in various positions within industry, teaching at the secondary and post-secondary level, and even own their own businesses. Our graduates are sought after by employers who recognize the unique characteristics of our program. The service aspect of our industry is intertwined with engineering technology making our students equipped with a unique set of skills. In addition our affiliation with the National Automotive Technician Education Foundation (NATEF) is well recognized.

9 points ***Enrollment***

Over the last 5 years our enrollment has dropped within the AET and AUSV programs. This is in part due to not enrolling international students. Since we could not guarantee employment for an international student in their country after graduation we had to deny their enrollment. We are working on getting this problem resolved and have had some successful conversations. I believe once this is resolved we will be back on the uphill swing. In addition scholarships, and financial aid, are incentives that could improve this trend. Also as we continue to recruit at high schools and career centers this will have a positive impact. In addition we should continue to maintain and enhance industry contacts, and host training at NACAT conferences which will promote our programs as well.

12.5 points ***Quality and Employability of Students***

The students graduating from the AET, AUSV, and Performance Motorsport programs are of a high quality and extremely employable. This is evidenced by the number of potential employers that attend the career fair, hold information sessions and interviews, and the strong support of the advisory committees. This is in addition to the many donations and consignment agreements that are facilitated by faculty each year.

12

Curriculum and Assessment

We as faculty have been working very diligently on putting outcomes and assessment data into TracDat. The curriculum has also been reviewed by NATEF for compliance with their accreditation standards and has received high remarks.

10 points

Quality of Faculty

The number of tenure track faculty has decreased over the last five years to its current number of 7. This is due to retirement of several of our faculty who have not been replaced. All the faculty have backgrounds in industry and have had some prior teaching experience. To my knowledge most of us regularly attend industry training, participate on advisory boards, and serve on committees at the university. In addition we participate in the student college pick nick, provide tours and are involved in extracurricular events both on campus and off. Some of the faculty have written grants that have been funded over the years which has provided extensive tooling in our labs. In addition I believe we hold our students to very high standards and provide additional assistance when we can. In my opinion I have seen mixed results in faculty quality. Some of the faculty do an outstanding job and are dedicated to improving the programs yet others are here only for the paycheck and have no motivation to spend additional time outside the normal class hours.

10 points

Quality of Program Administration

First of all let me preface my comments with the intentions of providing constructive criticism. We all want to seek to do better including myself and constructive criticism is one way of accomplishing that. With that said I have had several occasions where I have felt coerced by upper Administration. This involved a phone conversation over a new hire. In addition I felt the input of faculty has little or no influence on what the upper Administration decides to do. I did not feel this as a new hire 29 years ago. I have seen a steady decline of trust and respect between both entities. Due to the lack of anonymity in this process I would rather not express my opinion any further in regards to upper Administration.

The primary administration of the program is done by the Program Director and the Coordinator. They are responsible for maintaining and developing contacts with industry, making sure our program aligns with Ferris State University's policy and procedures, scheduling of classes, program budget, tours and recruiting, curriculum, assessment, program review, faculty review, and the day to day operation of the program. Ben Upham and Bill Wagner have been completing all of the tasks associated with the above responsibilities. They are both very hard workers and are always available for questions, guidance, and recommendations. I believe they both get along well and seek to get along with faculty. They are both very professional when facilitating the advisory committee meetings and they are very productive.

I feel the Program Director and Coordinator are trying to promote unity within our program with mixed results. I think this is because of the different backgrounds and expectations of the faculty. As a faculty member I feel there is major division amongst faculty. Some feel the current program administrator has favorites and others feel he is just with all. I don't think this is healthy as a department but I'm not sure how to resolve this issue. I believe many of these issues have been inherited by the current program administration from prior administration which does not help the matter. One possible way to resolve this issue is to place a person or persons in this position that are not a known entity at Ferris State but rather outside the program with similar automotive backgrounds. This is however no guarantee that it will resolve the issues within our department.

12.5 points **Value to Stakeholders**

The Automotive Engineering Technology Program, Auto Service Program and Performance Motorsports Certificates are all programs that are extremely valuable to all of its stakeholders. Students are able to gain skills in 2 – 4 years that could otherwise take several years in industry to develop not to mention credentials (degrees) that they would, in some cases, not be able to achieve anywhere else. The students have a very high placement rate and a degree that is highly recognized in industry.

Industry is able to select from a pool of potential employees as their needs require. They have the opportunity to help guide the program and provide feedback that is very useful in the continuous improvement of the program. Industry can also take advantage of the expertise of the faculty to keep their employees trained through classes that are taught through the Automotive Program.

The Automotive Engineering Technology program is of tremendous value to the University. It is one of the very few 4 year degree of its kind in the country, it enjoys widespread industry recognition and support, and it has a very high placement rate. These things all support the University's mission and bring it national recognition.

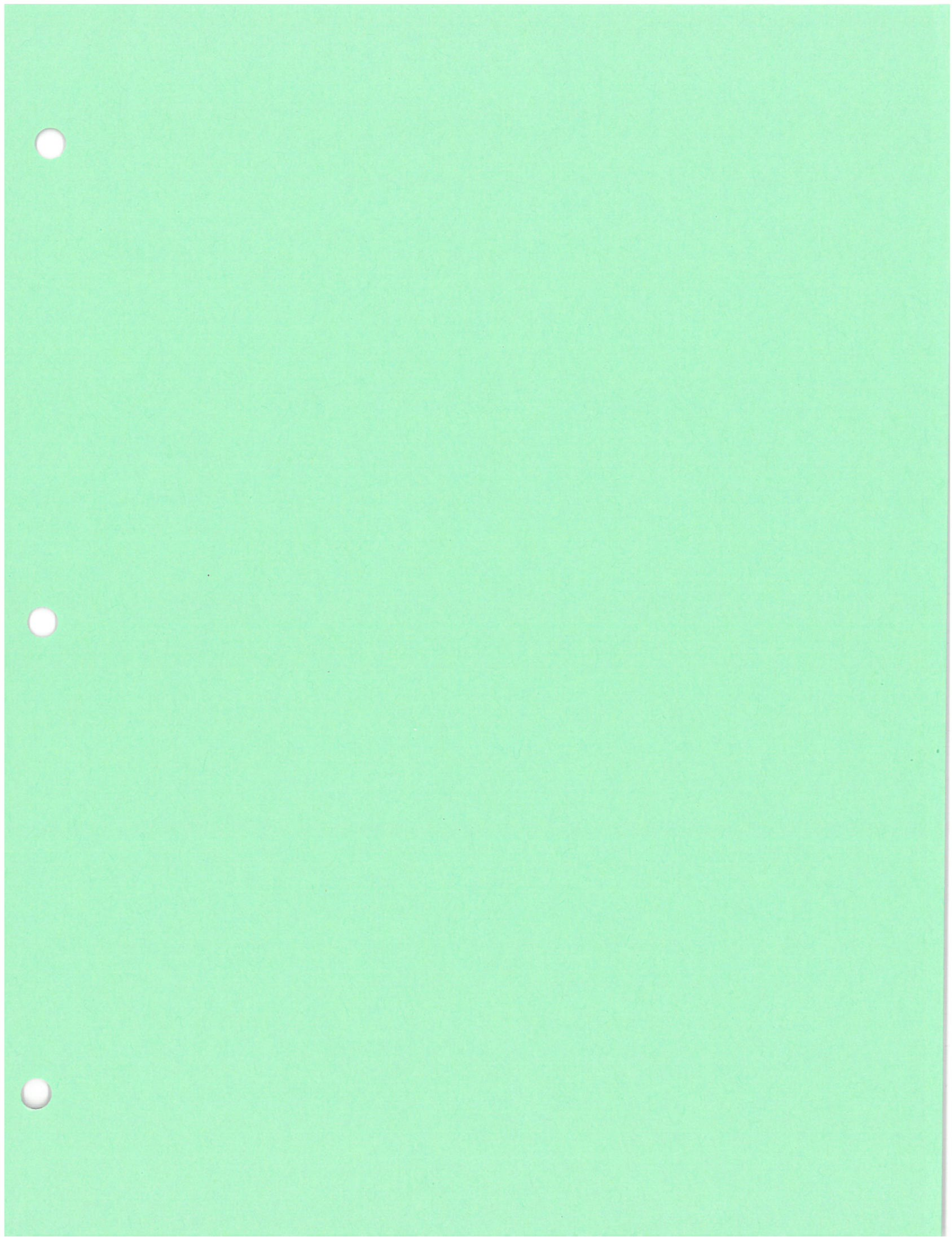
Suggestions for Improvement

1. Update TracDat assessment results to show percentage of students that meet or exceed the minimum standards. This will give a more accurate assessment of course effectiveness.
2. Increase our industry contacts in order to receive more donations to improve training in the programs.
3. Update our display cabinets to show case all of our faculty and student accomplishments.
4. Seek ways to promote faculty unity with current or new program administration.

Summary

I feel the AUSV, AET, and PM Certificate programs have solid curriculums that allows students the opportunity to fulfill their technical and educational needs and industries as well. With the changes that have taken place and the ones that will be occurring in the next 5 years the program is going to continue to be in high demand by our industry partners and is positioned in a way that it can grow with the demand.

Rex Billings
Professor
School of Automotive & Heavy Equipment



2017-18 ACADEMIC PROGRAM REVIEW REPORT

Matthew J. McNulty, Associate Professor

RATING OF OVERALL QUALITY

On a scale of 1 – 100 (with 100 representing the highest program quality achievable) rate the overall quality of the program.

Automotive Engineering Technology	80
Automotive Service	70
Certificates	50
Electives	30
Method chosen for Academic Program Review	10

RATING RATIONAL

Automotive Engineering Technology

Currency and Relevancy

The program has been stagnant for far too long.

The last major review of the AET curriculum was twelve years ago, with the application for ABET-TAC accreditation. This process resulted in several curricular changes which elevated the degree.

Employers, even our most prominent, are unsure as to the intent of the degree and the capabilities of our graduates. Graduates of the same curriculum are employed as Engineers, Designers, Engineering Technicians, and even Fabricators. The determining factor, most often, is GPA; to a lesser degree, graduate career goals and interests. The curriculum is viewed by many potential employers as too soft for placing graduates into the more rigorous positions of engineer and designer. The exception being students matriculating with high GPAs. Sufficient branding of the program is lacking.

Automotive Service

Currency and Relevancy

The last major review was fourteen years ago. Since then automotive technology has exploded with developments in electronics and processor inclusion. At that time the existing three electricity/electronics courses were pared to two with the content distributed amongst the remaining courses. Within four years, our graduates will be unable to function in the industry as alternative power sources and vehicle autonomy proliferate and become common place.

The content of many of the first year classes is modeled after industry practices of thirty years ago. Auto Service technicians no longer disassemble and reassemble engines and transmissions, yet this is the vast bulk of the AUTO 114 Engines labs. The same holds true for AUTO 211 Automatic Transmission. Manual transmissions are all but obsolete with the advent of "manual select" automatics and the popularity of paddle shifting.

Student mastery and retention of Instruction

AUTO 200, Service Area is where the Program "rubber meets the road". Students affecting maintenance and repair on customer vehicles are seldom able to apply, or more alarmingly recall, the material presented in many first year courses. Auto Electricity and Electronics students can not differentiate voltage from amperage or even use basic test equipment to diagnose malfunctions. AUTO 112 Automotive Brake Systems students are so lacking in knowledge and ability, their involvement in the repair of such a safety critical system is of great concern. AUTO 115 students are unable to correlate ride quality, handling and tire wear symptoms to steering and suspension concerns.

The AUTO 117 Electronic Fuel Management System course is the exception to this concern. Student are very well prepared in this area and demonstrate good retention.

Certificates

Currency and Relevancy

Every AET graduate receives the Performance Motor Sports and Quality Technology certificates, rendering them insignificant and perhaps irrelevant. The FSU Academic Senate and University Curriculum Committee reached this conclusion years ago. The Automotive program should follow suit and take measures to inject meaning into these offerings or eliminate as needed. The MFGE courses add significant value to the AET degree.

A few years ago, the University introduced initiatives to improve the number of students who are able to graduate on schedule. Certificates and elective courses extraneous to the enrolled degree delay graduation. Students taking extraneous electives during their first two years often regret that decision later in their studies amid growing student debt and the desire to enter the work force.

Extraneous Electives

AUTO 201 Engine Performance Machining 1
AUTO 202 Engine Performance Machining 2
AUTO 396 Forced Induction

See **CERTIFICATES**, above.

Method chosen for Academic Program Review

Traditionally, the program has met regarding APR, identified specifics we wish to assess, formulated surveys and gathered data. This format may, by sheer

coincidence, yield useable, reliable data. More likely, we will receive seven unique and vastly varied responses. These responses will not be mutually supportive, resulting in very subjective analysis.

Current program leadership insists that all voting within the program be done anonymously because some faculty are "intimidated" by others. Yet, this document was to be prepared and returned to administration during the summer, almost ensuring the use of email for filing, eliminating any hope for anonymity. The responses of tenure track faculty may be less than earnest.

RECOMMENDATIONS

Automotive Engineering Technology

Revamping the curriculum to allow for greater division of career paths is needed.

- Maintain the Automotive Engineering Technology B.S. and better promulgate the employment goals of this degree. Continue ABET-TAC accreditation.
- Add an Automotive Engineering B.S. for students desiring to pursue this career path and possessing the academic wherewithal to succeed. This will require the development and inclusion of engineering level courses. Seek ABET accreditation.
- Add an Automotive Engineering M.S. with major online accessibility to offer availability to the practicing professional.

Automotive Service

To facilitate the necessary redirect of curriculum:

- Focus on teaching transferable concepts:
 - Ensure repetitious and advancing teaching of theory and operation
 - Teach various forms of motor control verses teaching each motor driven accessory, such as power windows or windshield wipers
 - Focus on types of sensors (VR, Hall, transducer, piezo, ...) and their application, not each individual sensor.
 - Teach suspension dynamics, not each specific style used over the last thirty years
- Reassess and redesign laboratory experiences to conform with practices in industry:
 - Professional service practices and *total* adherence to safety practices
 - Place utmost emphasis on testing and diagnosis
 - Focus AUTO 113 on basic electricity
 - Labs in AUTO 113 should be completely on vehicle. Minimize breadboard use.
 - Combine AUTO 112 and AUTO 115
 - Focus AUTO 213 on circuit design and control

- Add an additional course in electric drive and vehicle autonomy
- Limit exploratory teardowns to one unit each in AUTO 114 and 211
- Ensure inclusion of unit R&R from the vehicle in AUTO 114 and 211
- Eliminate AUTO 111, move driveline components to AUTO 211
- Add an additional Electronic Fuel Management class to include forced induction

Certificates

Fully support the University's initiative to increase on-time graduation. Limit enrollment in certificate programs to semesters beyond the first eight for B.S. (first four for A.A.S.) students who enter the program "on track".

- Eliminate the Performance Motor Sports certificate. This has no career oriented value.
- Monitor and reassess the award of the Quality Technology Certificate
- Could MFGE courses be replaced by additional MECH courses

Extraneous Electives

Fully support the University's initiative to increase on-time graduation. Limit enrollment in extraneous electives to semesters beyond the first eight for B.S. (first four for A.A.S.) students who enter the program "on track".

Eliminate AUTO 201 and 202. Better utilize the resources. The A.A.S. in Automotive Machining was eliminated in 1997 due to lack of enrollment and very limited career availability.

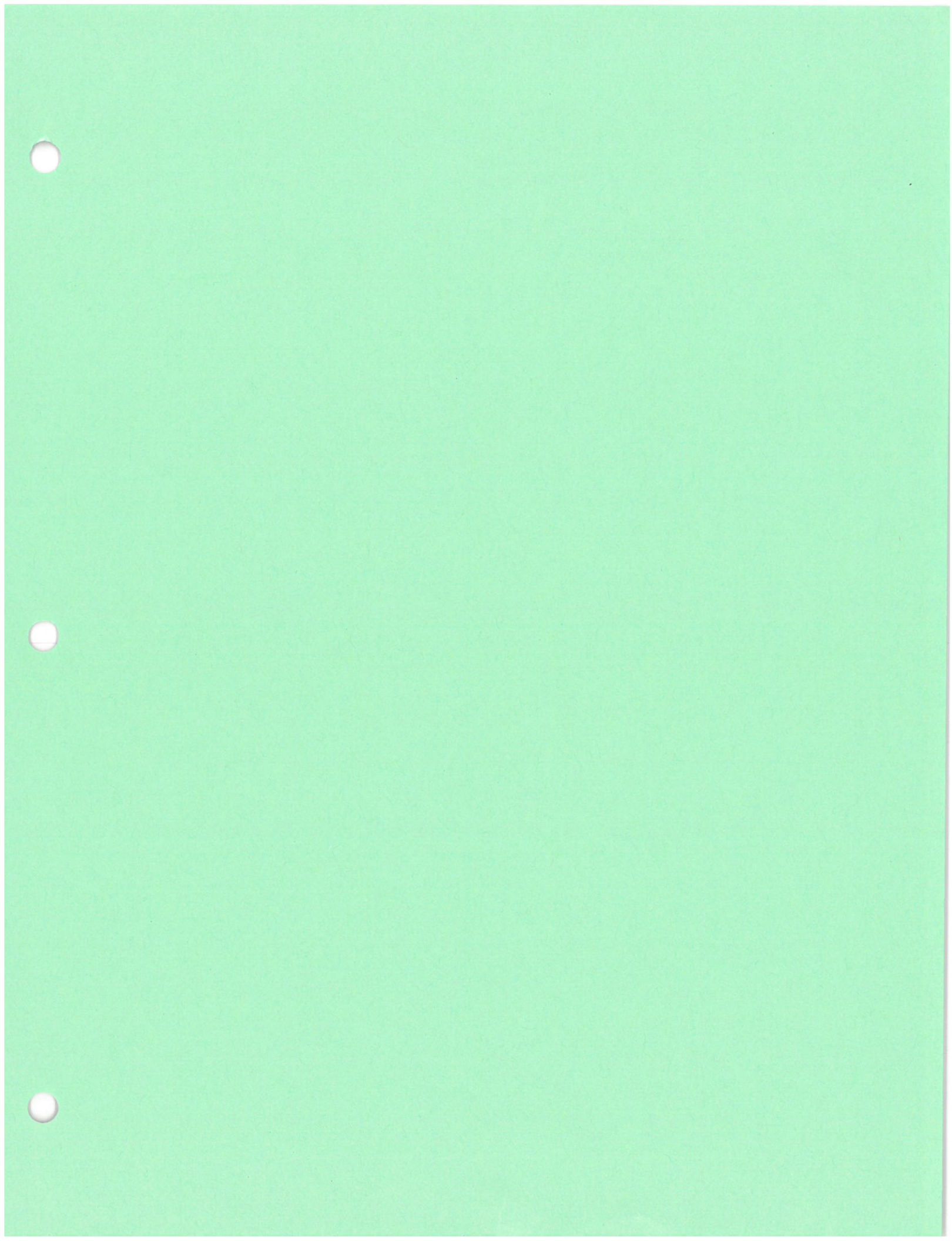
Method chosen for Academic Program Review

Return to a more comprehensive process that will ensure directed and accurate responses.

APR Overall Perception of Quality

By Patrick English

The three programs being reviewed are AET, AUSV, and the Performance Motorsports Certificate. All three of these are tied together very closely and serve the larger mission of the automotive department. The Auto Service Degree serves as the foundation for the Automotive Engineering Technology Degree. The Performance Motorsports Certificate recognizes the performance applications learned through the coursework. The AET program is the most visible and distinct being the only one of its kind. The Auto Service Degree had a distinguished history and is recognized as the starting point of many of Michigan's top technicians and educators. The Performance Motorsports Certificate is unique and typically earned with the AET Degree. Enrollment in general has remained strong with a greater portion of students focusing on the four-year degree and less students pursuing just two year degrees. The characteristics, quality, and employability of students remain areas of strength in all three areas. The quality of the curriculum and assessment is continuously being improved and remains high. The majority of the faculty are well-educated, contributing educators that genuinely care about what the student gets from his/her education. In the administrative function the Director of the program is committed to delivering the highest quality education possible and continuously improving it. The value of the program for stakeholders is demonstrated through the employment rate of our graduates and that many employers specifically seek out graduates from these programs to employ. Viewing all three programs together I collectively rate them a 95.



*Perceptions of Overall Quality
of the AET Program
Fall 2017*

I gave the AET program an overall quality score of 97 out of 100. A summary of my rating follows. Each category had a possible 12.5 points.

12.5 points **Mission of the program as it relates to the University & College**

AET, Auto Service and Performance Motorsports are all classic examples of the missions of FSU and CET. These programs provide excellent career opportunities for the graduates.

12 points **Program visibility and distinctiveness**

The AET program is a very unique and distinctive program. There are a few other AET programs, but their focus is different than our focus. The focus of our two top competitors is more towards management, whereas ours is focused on research and development. We are still one of the best kept secrets in the industry. If this program had better visibility, it would be overflowing with students. Performance Motorsports is also a very unique program. AS has many competitors in the industry. In summary, we are extremely unique, but not very visible.

12 points **Enrollment**

Enrollment has been quite steady over the last several years. Currently the University is experiencing a downturn in numbers and we are likely to suffer the same fate.

12.5 points **Quality and Employability of Students**

Graduates of AET are in extreme demand in the automotive industry. There are more demands for graduates than we can provide. This is the evidence of the quality and employability of our grads.

12 **Curriculum and Assessment**

AET is currently going through ABET accreditation. We believe that when the process is complete, we will receive accreditation. AS had been reviewed by NATEF and has been accredited for many years.

12 points **Quality of Faculty**

The success of our programs is not due to our facilities, our equipment, nor our location. The success of our students is due in full to the high quality of our faculty. All of our faculty have industry experience and attend regular industry training. They serve on many program, college and university committees.

12 points

Quality of Program Administration

Our program administration is the best it has been in many years. Ben Upham is our program director and does a great job in that position. This is in spite of the fact that he is highly overworked. Quite frequently he has a teaching load in addition to his administration position. He does not have a full time coordinator to help in the department administration. Typically the coordinator position is a half-time load. No one in the department wanted the coordinator position, but after several years of seeing Ben attempting to fill both positions, Bill Wagner accepted a quarter-time position to assist Ben. His primary responsibility is transfer equivalencies, communication with potential students and families, and building tours. This still leaves Ben with additional responsibilities beyond his job description.

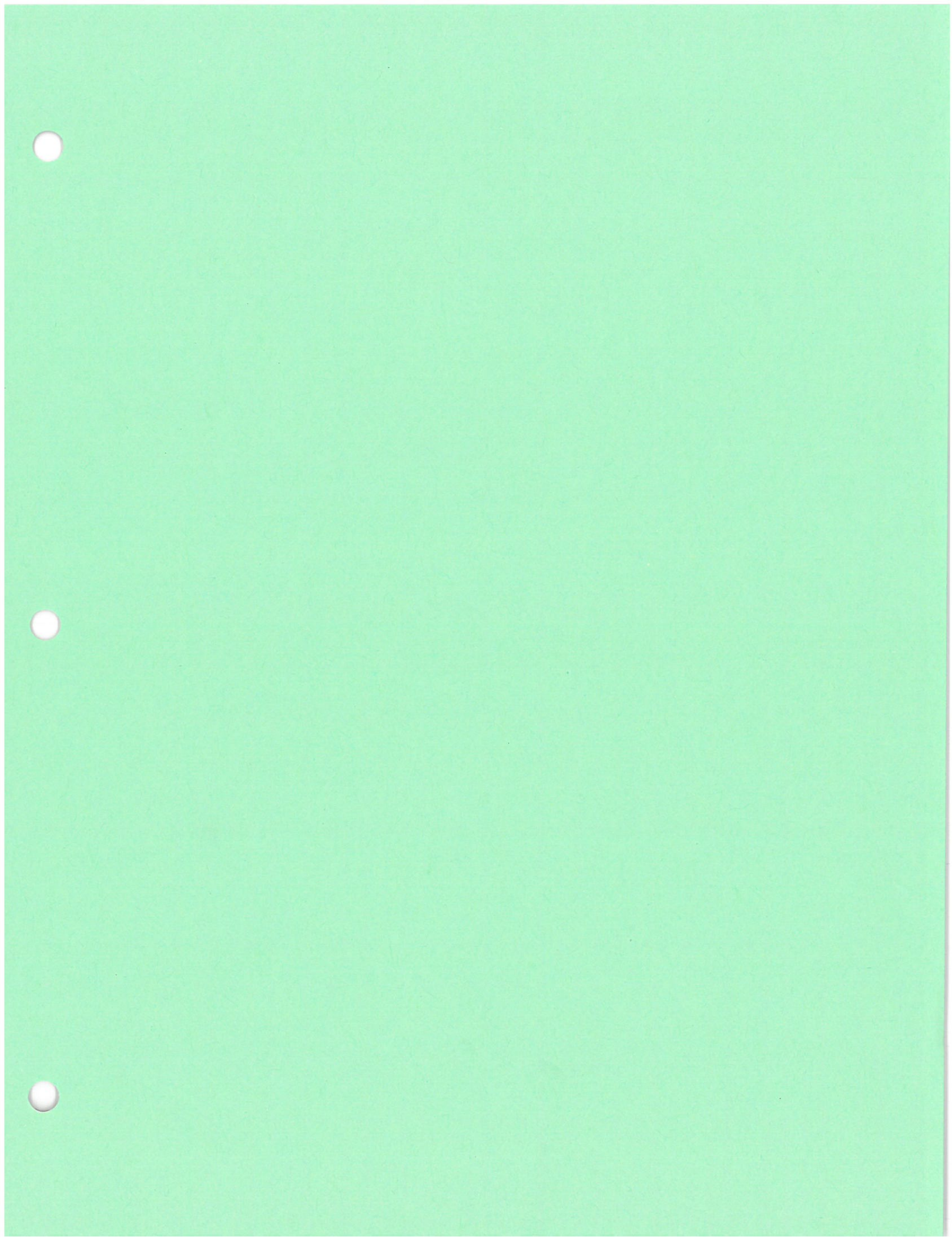
12.5 points

Value to Stakeholders

The Automotive programs are of exceptional value to stakeholders. The skills and education that the students obtain while enrolled at FSU open many fantastic doors of opportunity for them. This benefits the students, the automotive industry, and the economy of our country.

Suggestions for Improvement

1. Provide Ben Upham with additional assistance in his administrative position.
2. Provide a recruiting position to make AET internationally known.
3. Provide adequate funding to keep our equipment up-to-date.
4. Replace the Automotive Center with a new facility.



Ben,

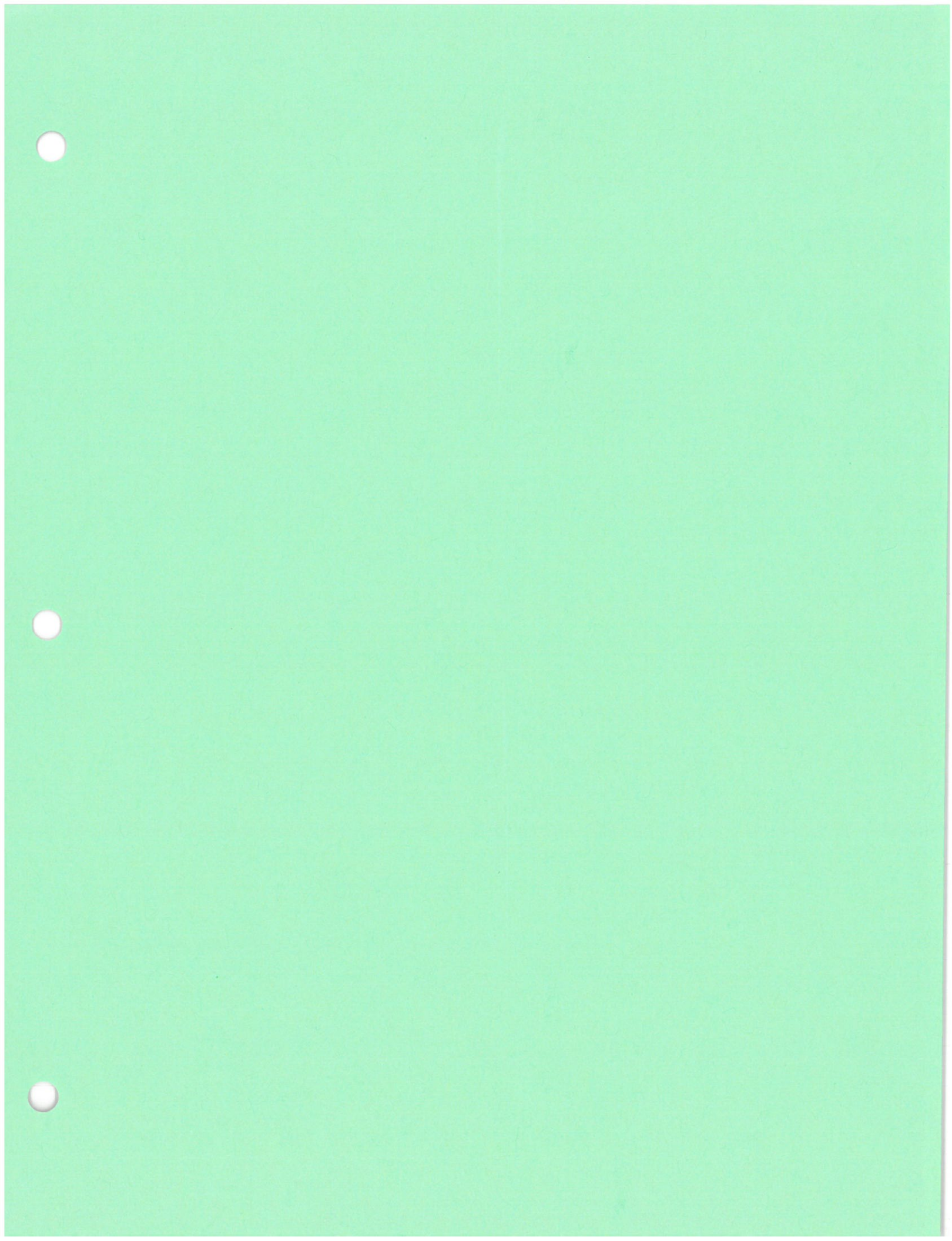
If you need me to add more please let me know...

Automotive Engineering Technology (AET) is currently aligned with the department and university missions. It holds true to the department mission of preparing "individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing, manufacturing, and testing self-propelled ground vehicles and their systems." The program is visible and distinctive as it relates to other programs at the University. This is demonstrated through student activities such as the SAE Baja and SAE Formula One organizations. Additionally, students enrolled in Auto 493 internship are distinctive when compared to other interns from other colleges because they demonstrate a mastery of various engineering courses such as statistics and CAD. Ferris prepares these students with a solid foundation to build upon when entering the workforce. Internship students also represent the program well by positive job performances and an eagerness to learn.

The composition of faculty is diverse and offers students a good foundation from all areas of automotive service and automotive engineering. The administration is supportive, resulting in the faculty being able to utilize various resources to support and expand the program through training, professional development, and purchasing tools and equipment.

The high rate of positive reviews from employers that have program interns is a representation of the value of the program itself. I would rate the program an 85 out of 100. The 15 point deduction is from three areas that the program can improve. First, would be the reinstatement of international student enrollment. Second, would be the reevaluation of the assessments for Auto 493 to include more writing and students analyzing diversity in the workplace. Lastly, the program could benefit from the inclusion of a diesel course, which is also reinforced by the automotive advisory board.

Christiaan B Desmond
Automotive Technology
ChristiaanDesmond@ferris.edu
Office: (231) 591-2361



Perceptions of Overall Quality

Overall Program Rating 0-100

I rate the Automotive programs at 87.

Program Mission

I feel the program's mission supports the university and the college very well. The AET's Program Educational Objectives (PEOs) address successful careers, responsible citizenship, and lifelong learning.

Program Visibility

The program's visibility needs improvement. This would also help with employers understanding the distinctiveness of the program. Automotive Engineering Technology is not as recognizable as Mechanical Engineering (ME) or Electrical Engineering (EE). This causes some companies to overlook the value of the program and our students. The companies that have hired our students as interns or full-time employees are very happy with their skill set and performance because they bring a particular technical knowledge that the traditional MEs or EEs do not.

Some of this stems from the Human Resource departments at the individual companies. We are told by some advisory committee members that they specify our graduates for positions within their departments but get pushback from HR because they are unaware of the degree.

Enrollment

Enrollment in the AET program has dipped in the last year as a result of closing enrollment to international students. This was done due to the limited opportunities for many international students to find internships. Even though enrollment has declined in the last year it remains consistent with enrollment numbers prior to the influx of international students in 2013/14.

Enrollment in the AUSV program is made up primarily of students that want to continue their education and may be undecided which of the two baccalaureate degrees to pursue or for financial aid purposes. This has the ability to cause some fluctuations in enrollment although it has been fairly consistent over the previous few years.

Students

The AET and AUSV students are highly employable. The skill set that they develop in the respective programs is applicable to many different industries and positions. While the focus is on the automotive industry some students venture into maintenance, manufacturing, production, or design.

Curriculum

The curriculum in both the AET and the AUSV programs are reviewed by industry recognized accrediting organizations (ABET & NATEF respectively). In addition the advisory boards provide input on industry needs and make recommendations on future curriculum. The current curriculum needs to be freshened up with options added to address individual student interests and career goals.

Program Faculty

The quality and composition of the faculty is good. We have a mix of younger faculty as well as experienced faculty. With one faculty position currently open and a search ongoing it has necessitated overloads for some faculty. Two faculty members have earned their PhDs in the last couple of years which helps with program recognition.

Program Administration

Program administration is another area that needs improvement. Currently there is one director and a quarter release time coordinator. With a program the size of the automotive program there should be a half release time coordinator. Unfortunately there is no interest among faculty to perform all of the duties of the coordinator in the job description.

Program Value

Overall I feel the value of the automotive programs to the stakeholders is very high. Ferris is well known in the automotive industry for quality automotive programs and has a lot of alumni working in many different facets of the industry. These alum are great examples of and a testament to what Ferris and the automotive programs produce.

Recommendations for Improvement

Develop a 3-5 year plan to review and implement curriculum changes
Increase recruiting efforts for both the AUSV and AET degrees
Continue reviewing TracDat data and implementing improvements
Increase program visibility in employer's HR departments
Work with the office of International Education and faculty to address the internship problem

Ben Upham
Director, School of Automotive & Heavy Equipment

Signature Page

Automotive Engineering Technology – BS
Automotive Service Technology – AAS
Performance Motorsports – Cert

My signature below indicates that I have reviewed the Academic Program Review report submitted for review by the Academic Program Review Council, Academic Senate, Provost, and President of Ferris State University and attest to its completeness and soundness:


Signature and Date

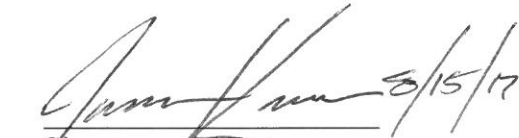
Larry Schult
Dean
231.591.2880


Signature and Date

Ben Upham
Director
231.591.2358


Signature and Date

Bill Wagner
Program Coordinator
231.591.2353


Signature and Date

Jason Kruse
Program Faculty
231.591.2676

Appendices

Appendix A

Assessment: Course Four Column



Program - Automotive Engineering Technology (B.S.)

Mission Statement: To continuously define the profession by producing Automotive Engineering Technology graduates whose outstanding knowledge, skills, and attitudes are globally recognized.

Advisory Board/Committee Meetings: Once per year

Next FSU Academic Program Review: 2017-2018

Accreditor Body: Engineering Technology Accreditation Commission - Accreditation Board for Engineering & Technology (ETAC-ABET)

Accreditor Body - Academic Year of Next Review: 2017-2018

College: CET

Program Closed?: No

AUTO 320:Dynamometer Testing

Course Outcomes	Assessment Methods	Results	Actions
<p>one - Students will be able to identify safety concerns and dangers related to dyno testing</p> <p>Course Outcome Status: Active</p> <p>Planned Semester(s) of Assessment: 2015 - 2016 (Fall 2015)</p>	<p>Service Project/Service Learning - Dyno Lab exercise</p> <p>Criterion for Success: 80% of the students will achieve a target of 80% or higher accurately completing the dyno lab safety and mounting labs</p>	<p>Reporting Period: 2016 - 2017</p> <p>Classification: Criterion Met</p> <p>100% of the students achieved a score of 80% or higher on the dyno safety and mounting lab. (01/29/2017)</p>	
<p>two - The students collaborate as a team to perform various engine tests using both the engine and chassis dynos</p> <p>Course Outcome Status: Active</p> <p>Planned Semester(s) of Assessment: 2015 - 2016 (Fall 2015)</p>	<p>Service Project/Service Learning - Dyno lab exercise</p> <p>Criterion for Success: 80% of the students will achieve a target of 80% or higher accurately completing the dyno labs in the 320 course pack</p>	<p>Reporting Period: 2016 - 2017</p> <p>Classification: Criterion Met</p> <p>95% of the students achieved a target of 80% or higher accurately completing the dyno labs. (01/29/2017)</p>	
<p>three - Students will be able to analyze data procured during dyno tests and recognize normal and</p>	<p>Test - Internally Developed - Pre/Post or Post - Written test</p> <p>Criterion for Success: 80% of the</p>	<p>Reporting Period: 2016 - 2017</p> <p>Classification: Criterion Not Met</p> <p>60% of the students achieved a 75% or higher score on the</p>	

Course Outcomes

Assessment Methods

Results

Actions

abnormal data

Course Outcome Status: Active
Planned Semester(s) of Assessment:
2015 - 2016 (Fall 2015)

students will achieve a target of 80% or higher accurately completing the data analysis exam

Service Project/Service Learning -
dyno lab data analysis exercise
Criterion for Success: 80% of the students will achieve a target of 80% or higher accurately completing the data analysis engine dyno lab

two data analysis tests. This is an improvement over the 2016 reporting date. This is a very technical and challenging test and only the best students perform well on it. My expectation was too high, and I need to lower my criterion for success next year. (02/05/2017)

Change Assessment Strategy: Yes
Reporting Period: 2016 - 2017
Classification: Criterion Met
98% of the students achieved a target of 80% or higher on the data analysis lab. (01/29/2017)

four - Students will be able to identify possible causes of abnormal engine dyno data

Test - Internally Developed -
Pre/Post or Post - written tests
Criterion for Success: 80% of the students will achieve a target of 80% or higher accurately identifying possible causes of incorrect data on the data analysis exam

Reporting Period: 2015 - 2016
Classification: Criterion Not Met
I did not write a test yet that actually measures this objective. I think the objective is better measured during the dyno labs.
I might consider removing this assessment method. (05/11/2016)

Course Outcome Status: Active
Planned Semester(s) of Assessment:
2015 - 2016 (Fall 2015)

Service Project/Service Learning -
dyno data analysis lab
Criterion for Success: 80% of the students will achieve a target of 80% or higher accurately identifying causes of incorrect dyno data

Reporting Period: 2016 - 2017
Classification: Criterion Met
98% of the students achieved a target of 80% or higher on the this lab. (01/29/2017)

AUTO 450:Automotive Fuels and Lubes

Course Outcomes	Assessment Methods	Results	Actions
<p>One - - The students will be able to use mathematics and science along with current knowledge and specialty equipment to analyze fuels and lubricants. (ABET a,b,c,d,f)</p> <p>Course Outcome Status: Active</p> <p>Planned Semester(s) of Assessment: 2016 - 2017 (Fall 2016)</p> <p>Start Date: 08/29/2016</p> <p>End Date: 12/09/2016</p>	<p>Test - Internally Developed - Pre/Post or Post - 100 question pre-test</p> <p>Criterion for Success: Diagnostic only</p> <p>Assessment Schedule: once per semester at the beginning of the course</p> <p>Visual Displays (e.g. webpage, film, Concept maps, graphics, etc.) - Develop Excel spreadsheet charting a fuel distillation curve.</p> <p>Criterion for Success: 80% correct</p> <p>Assessment Schedule: 10 per semester</p>	<p>Reporting Period: 2016 - 2017</p> <p>Classification: Criterion Met</p> <p>35% of the students completed diagnostic pre-test with 60% or higher (01/28/2017)</p> <p>Reporting Period: 2011 - 2012 and Prior</p> <p>Classification: Criterion Met</p> <p>Students completed this diagnostic test (10/14/2010)</p> <p>Curriculum Change: Does Not Require UCC Approval</p> <p>Reporting Period: 2016 - 2017</p> <p>Classification: Criterion Met</p> <p>85% performed at 80% or higher (01/28/2017)</p> <p>Reporting Period: 2011 - 2012 and Prior</p> <p>Classification: Criterion Met</p> <p>Students completed the spreadsheets with 89% correct. (10/14/2010)</p> <p>Curriculum Change: Does Not Require UCC Approval</p> <p>Reporting Period: 2016 - 2017</p> <p>Classification: Criterion Met</p> <p>86% performed at 80% or higher (01/28/2017)</p> <p>Reporting Period: 2011 - 2012 and Prior</p> <p>Classification: Criterion Met</p> <p>Quizzes passed with 87% correct (10/14/2010)</p> <p>Curriculum Change: Does Not Require UCC Approval</p> <p>Reporting Period: 2016 - 2017</p> <p>Classification: Criterion Met</p> <p>92% performed at 90% or higher (01/28/2017)</p> <p>Reporting Period: 2011 - 2012 and Prior</p> <p>Classification: Criterion Met</p> <p>Students performed lab activities with 86% success. (10/14/2010)</p> <p>Curriculum Change: Does Not Require UCC Approval</p> <p>Reporting Period: 2011 - 2012 and Prior</p> <p>Classification: Criterion Met</p> <p>Students performed lab root cause analysis with a 85% success (10/14/2010)</p> <p>Curriculum Change: Does Not Require UCC Approval</p>	
<p>Test - Internally Developed - Performance (e.g. Music, Theatre) - Perform Lab activities</p> <p>Criterion for Success: 80%</p> <p>Assessment Schedule: 15 per semester</p>			

Course Outcomes

Assessment Methods

Results

Actions

Pre/Post or Post - Mid-term
Criterion for Success: 80%
Assessment Schedule: once per semester

Classification: Criterion Met

82 % of all students passed the mid-term exam (10/14/2010)

Curriculum Change: Does Not Require UCC Approval

Test - Internally Developed -

Reporting Period: 2016 - 2017

Pre/Post or Post - Final Exam

Classification: Criterion Met

Criterion for Success: 80% Passing

88% passed with a C or better (01/28/2017)

Assessment Schedule: Once Each Semester

Reporting Period: 2014 - 2015

Classification: Criterion Met

Passed (03/03/2016)

Reporting Period: 1 - No Action Required

Classification: Criterion Met

Passed final exam with 83% (10/14/2010)

Curriculum Change: Does Not Require UCC Approval

Two - - The students will be able to use mathematics and science along with current knowledge and specialty equipment to root cause failures of fuels and lubricants. (ABET a,b,c,d,f)

Visual Displays (e.g. webpage, film, Concept maps, graphics, etc.) -

Develop Excel spreadsheets charting a fuel distillation curves, drivability Index and viscosity Index.

Criterion for Success: 80% correct

Assessment Schedule: 10 per semester

Reporting Period: 2016 - 2017

Classification: Criterion Met

89% performed at 80% or higher (02/21/2017)

Reporting Period: 2015 - 2016

Classification: Criterion Met

88% met the criteria (12/04/2015)

Course Outcome Status: Active

Planned Semester(s) of Assessment:

2016 - 2017 (Fall 2016)

Start Date: 08/29/2016

End Date: 12/09/2016

three - - The students will prepare written reports and papers and orally present the research finding in a group environment. (ABET e,f,g,h)

Visual Displays (e.g. webpage, film, Concept maps, graphics, etc.) -

Develop Excel spreadsheets charting a fuel distillation curve and present finding to the class.

Criterion for Success: 80% correct

Assessment Schedule: 15 per semester

Reporting Period: 2016 - 2017

Classification: Criterion Met

91% scored 80% or higher (02/21/2017)

Reporting Period: 2015 - 2016

Classification: Criterion Met

89% met the criteria (12/04/2015)

Performance (e.g. Music, Theatre) -

Perform Lab activities in a small group environment

Criterion for Success: 80%

Assessment Schedule: 15 per semester

Reporting Period: 2016 - 2017

Classification: Criterion Met

80% scored 80% or higher (12/09/2016)

Course Outcomes

Assessment Methods

Results

Actions

four - - The students will perform all lab assignments as a team. (ABET a,b,c,d,e)
Course Outcome Status: Active
Planned Semester(s) of Assessment: 2016 - 2017 (Fall 2016)
Start Date: 08/29/2016
End Date: 12/09/2016

Performance (e.g. Music, Theatre) -
 Perform Lab activities
Criterion for Success: 80%
Assessment Schedule: 15 per semester

Reporting Period: 2016 - 2017
Classification: Criterion Met
 80% Completed at 80% or higher (02/21/2017)
Reporting Period: 2015 - 2016
Classification: Criterion Met
 87% met the criteria (12/04/2015)

five - - All students will be held accountable to the university student handbook for professional and ethical conduct. (ABET h,k)
Course Outcome Status: Active

Performance (e.g. Music, Theatre) -
 Perform Lab activities
Criterion for Success: 80%
Assessment Schedule: 15 per semester

Reporting Period: 2015 - 2016
Classification: Criterion Met
 80% or higher met the criteria (08/25/2015)

AUTO 460:Emissions Systems

Course Outcomes	Assessment Methods	Results	Actions
<p>One - Students will display an ability to communicate effectively within groups or teams. (ABET G) Assessment: Oral Presentation Course Outcome Status: Active Planned Semester(s) of Assessment: 2015 - 2016 (Spring 2016) Start Date: 01/11/2016 End Date: 05/09/2016</p>	<p>Presentation (Oral) - 1. Students will combine into groups no larger than four to complete a final project. 2. The final project is graded in four steps. 3. One of the graded steps is an oral presentation. 4. The presentation is graded by the instructor with use of a rubric. 5. The rubric is presented and distributed to the students two months before the project due date. Criterion for Success: 70% of the students will receive an 80% or higher Assessment Schedule: This assessment will be administered one time during the duration of the class.</p>	<p>Reporting Period: 2015 - 2016 Classification: Criterion Met 87% of the students received a 90% or better. (05/08/2016) Change Assessment Strategy: Yes Curriculum Change: Does Not Require UCC Approval</p>	<p>Action: The rubric used will be revised to enhance the standard for communication. In addition, the students will be assigned an additional assignment to practice the communication expectations of the class. (05/24/2016)</p>
<p>Two - Students will apply research methods to compare and analyze engine performance effects on vehicle emissions standards. (ABET i) Assessment: Final Paper Course Outcome Status: Active Planned Semester(s) of Assessment: 2015 - 2016 (Spring 2016) Start Date: 01/11/2016 End Date: 05/09/2016</p>	<p>Written Product (essay, research paper, journal, newsletter, etc.) - 1. Students will combine into groups no larger than four to complete a final project. 2. The final project is graded in four steps. 3. One of the graded steps is a final paper. 4. The final paper is graded by the instructor with use of a rubric. 5. The rubric is presented and distributed to the students two months before the project due date. Criterion for Success: 75% of the students will achieve an 80% or higher Assessment Schedule: This</p>	<p>Reporting Period: 2015 - 2016 Classification: Criterion Met 88% of the students received a 90% or higher (05/08/2016) Change Assessment Strategy: Yes Curriculum Change: Does Not Require UCC Approval</p>	<p>Action: This rubric will be revised to reflect more specific requirements for grading. (05/24/2016)</p>

assessment will be administered one time during the duration of the class.

Related Documents:

[Syllabus Auto 460 F09.docx](#)

Three -

Students will display a knowledge of issues related emission systems on contemporary vehicles. (ABET J)
Assessment: Unit Test

Course Outcome Status: Active

Planned Semester(s) of Assessment:

2015 - 2016 (Spring 2016)

Start Date: 01/11/2016

End Date: 05/11/2016

Test - Internally Developed -

Pre/Post or Post - 1. Students will be exposed to information regarding current vehicle emissions issues in class lecture

2. Students will be required to answer multiple choice post test question to check for retention

Criterion for Success: 75% of the students will receive 100% on the test question

Assessment Schedule: This

assessment will be administered one time during the duration of the class.

Reporting Period: 2015 - 2016

Classification: Criterion Met

1. The test question regarding current issues on emissions was reviewed on each student test.

2. All of the students in the class received 100% on the test question. (05/25/2016)

Change Assessment Strategy: Yes

Curriculum Change: Does Not Require UCC Approval

Action: 1. This test question in my opinion has failed and needs to have an increased rigor.

2. Test question will be re-written, be assigned in a different format, or introduced in a different assignment (05/25/2016)

Four -

Students will design and conduct vehicle emissions experiments.

Assessment: Lab

Course Outcome Status: Active

Planned Semester(s) of Assessment:

2015 - 2016 (Spring 2016)

Start Date: 01/11/2016

End Date: 05/09/2016

Case Studies/Problem-based

Assignments - 1. Students are assigned in groups of 2

2. Students are given a lab guide

3. Student will complete the guide in the lab time given

Criterion for Success: 80% of the students will receive a 90% or better.

Assessment Schedule: This

assessment will be administered one time during the duration of the class.

Reporting Period: 2015 - 2016

Classification: Criterion Met

100% of the students achieved 100% on the assignment (05/25/2016)

Change Assessment Strategy: Yes

Curriculum Change: Does Not Require UCC Approval

Action: 1. This assignment will have a rubric created for it next year

2. rubric will define expectations of the assignment

3. Assignment will be revised to show greater detail for testing (05/25/2016)

AUTO 480: Alternate Fuel and Vehicle Sys

Course Outcomes	Assessment Methods	Results	Actions
<p>one - - The students will be able to compare and contrast current and potential energy sources used in the transportation industry. Assessment: Feasibility study of different energy sources</p> <p>Course Outcome Status: Active</p> <p>Planned Semester(s) of Assessment: 2015 - 2016 (Spring 2016)</p>	<p>Project/Model/Invention - Research Report</p> <p>Criterion for Success: C- or better</p> <p>Assessment Schedule: 1 report per semester</p> <p>Related Documents: Research Project and Presentation Guidelines.doc</p> <p>Written Product (essay, research paper, journal, newsletter, etc.) - Feasibility study of different energy sources</p> <p>Criterion for Success: 80% of the students completing the assessment will achieve 80% or higher</p> <p>Assessment Schedule: Once per semester</p>	<p>Reporting Period: 2011 - 2012 and Prior</p> <p>Classification: Criterion Met 93% (10/27/2010)</p> <p>Reporting Period: 2015 - 2016</p> <p>Classification: Criterion Met 95.2% of the class completed the assessment at a level at or above 80% (05/12/2016)</p>	
<p>two - - The students will research an energy source and defend its use in the transportation industry. Assessment: Research Paper or Presentation</p> <p>Course Outcome Status: Active</p> <p>Planned Semester(s) of Assessment: 2015 - 2016 (Spring 2016)</p>	<p>Written Product (essay, research paper, journal, newsletter, etc.) - Research Article on new technology</p> <p>Criterion for Success: C- or better</p> <p>Assessment Schedule: 1 per semester</p> <p>Related Documents: Current Article Assignment.docx</p> <p>Written Product (essay, research paper, journal, newsletter, etc.) - Research Paper or Presentation</p> <p>Criterion for Success: 80% of the students completing the assessment will achieve 80% or higher</p> <p>Assessment Schedule: Once per semester</p>	<p>Reporting Period: 2011 - 2012 and Prior</p> <p>Classification: Criterion Met 87% (10/27/2010)</p> <p>Reporting Period: 2015 - 2016</p> <p>Classification: Criterion Met 95.45% of the class completed the assessment at a level at or above 80% (05/12/2016)</p>	
<p>three - - The students will be able to diagram hybrid vehicle technology/operation.</p>	<p>Test - Internally Developed - Pre/Post or Post - Hybrid Vehicle Test</p>	<p>Reporting Period: 2011 - 2012 and Prior</p> <p>Classification: Criterion Met 86% (10/27/2010)</p>	

Course Outcomes	Assessment Methods	Results	Actions
<p>Assessment: Create a Flowchart or Diagram of Operation Course Outcome Status: Active Planned Semester(s) of Assessment: 2015 - 2016 (Spring 2016)</p>	<p>Criterion for Success: C- or better Visual Displays (e.g. webpage, film, Concept maps, graphics, etc.) - Create a Flowchart or Diagram of Operation Criterion for Success: 80% of the students completing the assessment will achieve 80% or higher Assessment Schedule: Once per semester</p>	<p>Reporting Period: 2015 - 2016 Classification: Criterion Met 80.48% of the class completed the assessment at a level at or above 80% (05/12/2016)</p>	
<p>four - - The students will compare and contrast a hybrid vehicle and a comparable non hybrid vehicle. Assessment: perform a cost benefit analysis of the two vehicles based on your driving patterns. Course Outcome Status: Active Planned Semester(s) of Assessment: 2015 - 2016 (Spring 2016)</p>	<p>Written Product (essay, research paper, journal, newsletter, etc.) - Research Report and Presentation Criterion for Success: C- or better Assessment Schedule: 1 per semester Related Documents: Research Project and Presentation Guidelines.doc</p>	<p>Reporting Period: 2011 - 2012 and Prior Classification: Criterion Met 93% (10/27/2010)</p>	
<p>five - - The students will demonstrate "a knowledge of the impact of engineering technology solutions in a societal and global context" (ABET J) Course Outcome Status: Active Planned Semester(s) of Assessment: 2015 - 2016 (Spring 2016)</p>	<p>Written Product (essay, research paper, journal, newsletter, etc.) - A cost benefit analysis of two vehicles, one hybrid and one conventional based on your driving patterns Criterion for Success: 80% of the students completing the assessment will achieve 80% or higher Assessment Schedule: Once per semester Related Documents: Research Project and Presentation Guidelines.doc</p>	<p>Reporting Period: 2015 - 2016 Classification: Criterion Met 97.4% of the class completed the assessment at a level at or above 80% (05/12/2016)</p>	
<p>five - - The students will demonstrate "a knowledge of the impact of engineering technology solutions in a societal and global context" (ABET J) Course Outcome Status: Active Planned Semester(s) of Assessment: 2015 - 2016 (Spring 2016)</p>	<p>Presentation (Oral) - Presentation Criterion for Success: C- or better Assessment Schedule: one per semester Related Documents: Research Project and Presentation Guidelines.doc</p>	<p>Reporting Period: 2011 - 2012 and Prior Classification: Criterion Met 89% (10/27/2010)</p>	
	<p>Written Product (essay, research paper, journal, newsletter, etc.) - Current Article paper</p>	<p>Reporting Period: 2015 - 2016 Classification: Criterion Met</p>	

Course Outcomes

Assessment Methods

Results

Actions

Criterion for Success: 80% of the students completing the assessment will achieve 80% or higher

97.2% of the class completed the assessment at a level at or above 80% (05/26/2016)

Assessment Schedule: Once per semester the class is offered.

AUTO 493: Internship

Course Outcomes	Assessment Methods	Results	Actions
<p>Outcome 1 - 2. Apply theory, principles, and concepts to real problems</p> <p>Course Outcome Status: Active</p> <p>Planned Semester(s) of Assessment: 2015 - 2016 (Spring 2016)</p> <p>Start Date: 05/16/2016</p>	<p>Survey - Employer - mid term and final employer evaluations</p> <p>Criterion for Success: 80% on both evaluations in areas a-o</p> <p>Observations (e.g. Clinical or Field) - Weekly activity sheets and site visits</p> <p>Criterion for Success: 90% score above 80%</p> <p>Assessment Schedule: once per semester</p>	<p>Reporting Period: 2011 - 2012 and Prior</p> <p>Classification: Criterion Met</p> <p>The results of the employer evaluations for areas a-o were from 81% to 93 % so all the students met the criterion (02/24/2012)</p> <p>Reporting Period: 2015 - 2016</p> <p>Classification: Criterion Met</p> <p>100% scored above 80% (08/10/2016)</p>	
<p>Outcome 2 - Student will demonstrate the ability to function effectively as a member or leader of a technical team (ABET E)</p> <p>Course Outcome Status: Active</p> <p>Planned Semester(s) of Assessment: 2015 - 2016 (Summer 2016)</p> <p>Start Date: 05/16/2016</p>	<p>Internship Evaluation - Mid-term and final employer evaluations</p> <p>Criterion for Success: 80% score above 80% when mid-term and final evaluations are averaged together.</p> <p>Assessment Schedule: twice per semester</p>	<p>Reporting Period: 2015 - 2016</p> <p>Classification: Criterion Met</p> <p>100% scored above 80% (08/10/2016)</p>	
<p>Outcome 3 - Students will demonstrate an understanding of the need for and the ability to engage in self-directed continuing professional development (ABET H)</p> <p>Course Outcome Status: Active</p> <p>Planned Semester(s) of Assessment: 2015 - 2016 (Summer 2016)</p> <p>Start Date: 05/16/2016</p>	<p>Internship Evaluation - Employer mid-term and final evaluation and site visits</p> <p>Criterion for Success: 80% score 80% or higher</p> <p>Assessment Schedule: once per semester</p>	<p>Reporting Period: 2015 - 2016</p> <p>Classification: Criterion Met</p> <p>100% scored 80% or higher (08/10/2016)</p>	
<p>Outcome 4 - Students will demonstrate respect for diversity and a commitment to professional and ethical responsibilities (ABET I)</p> <p>Course Outcome Status: Active</p> <p>Planned Semester(s) of Assessment: 2015 - 2016 (Summer 2016)</p> <p>Start Date: 05/16/2016</p>	<p>Internship Evaluation - Employer mid-term and final evaluations and site visits</p> <p>Criterion for Success: 80% score 80% or higher</p> <p>Assessment Schedule: once per semester</p>	<p>Reporting Period: 2015 - 2016</p> <p>Classification: Criterion Met</p> <p>100% scored 80% or higher (08/10/2016)</p>	

Course Outcomes

Outcome 5 - Students will demonstrate a commitment to quality, timeliness, and continuous improvement (ABET K)

Course Outcome Status: Active

Planned Semester(s) of Assessment: 2015 - 2016 (Summer 2016)

Start Date: 05/16/2016

Assessment Methods

Internship Evaluation - Employer mid-term and final evaluation and site visits

Criterion for Success: 80% score above 80%

Assessment Schedule: once per semester

Results

Reporting Period: 2015 - 2016
Classification: Criterion Met
100% scored 80% or higher (08/10/2016)

Actions

Appendix B

8/22/2016

August 22, 2016

Automotive Department Meeting

Faculty Members Present: Ben Upham, William Wagner, Rex Billings, Christiaan Desmond, Patrick English, Jason Kruse, Rusty Leonard, Matt McNulty, William Wagner

Staff Present: Kathy Carroll

Ben called the meeting to order at 8:00 am and welcomed the faculty back to campus. Ben shared that we would be taking breaks at 9:30 am and at Noon to allow the faculty the opportunity to attend the Faculty brunch and lunch provided at the University Center. Ben mentioned that on Wednesday breakfast would be served from 7:30 am to 8:30 am in Granger and the College would follow at 8:30 am.

Ben indicated that today's meeting will address TracDat and that we will go thru the spring courses that are in TracDat currently. Ben shared that the importance of TracDat is to see how our students are doing. It is important to be sure we are accessing on the right things and that the outcomes are current. Ben attended a meeting on campus last week in regards to TracDat. It was shared at that meeting that the University hired an off campus consultant. The consultant will be able to help with mapping and tracking in TracDat.

Ben read the outcomes, assessment methods and results for Auto 113, Electricity-Electronics, from the handout. It was suggested that we look at the detail, example, what is the assessment. A lab was used and discussion was held as to if a lab assignment would be an individual or group assessment. It was suggested that a test or lab quiz might be added to the assessment in this case. Ben wondered about results inconclusive and Patrick shared it was a winter start and it was a rough group, it was said to maybe add that in the actions. All outcomes, assessment and results were reviewed and discussed for Auto 113.

Matt shared that ABET warns on doing an assessment on to small of a group. Ben said waiting or adding in another semester is fine. Do not make knee jerk corrections. SLA, tutoring, extra homework assignments might help them improve. Discussion held. Ben indicated that he would check on the definition between inconclusive and not meeting criterion.

The next class reviewed was Auto 114, Automotive Engines. The first outcome is no longer active. When reviewing the second outcome, assessment and results Ben asked for everyone's thoughts on using lab guides as an assessment guide. Matt felt it was a group effort and not a good assessment unless you can assure its done individually. Ben asked what about instructor checks. Discussion held.

Discussion was held on the number of outcomes and it was decided that four would be a manageable number. Matt suggested you start with a blank paper and write down what you want your students to be able to accomplish. Suggestions, diagnosis, measurement, disassembly & reassembly techniques, and the ability to demonstrate the understanding of a 2 stroke engine operation. Discussion continued.

Next course reviewed was Auto 115, Suspension-Steering-Alignment. Ben shared Christiaan's related documents. Christiaan said he would go thru the tests and highlight the questions that he is using to assess the outcomes. Suggestions for outcomes were diagnosing noises and vibrations. Also identify tire wear and handling (bad ball joint). Discussion continued.

Meeting adjourned at 9:30 am and resumed at 10:30 am, all faculty present.

Topic for discussion was Auto 117, Electronic Fuel Management Systems. Under related documents Rex explained the GM Case Study is basically retrieving information outside of class for students. Ben suggested to choose one lab sheet under Service Project/Service Learning. Faculty felt the first outcome was a good one. Outcome #2 reviewed. Rex stated he would add the test for assessment and highlight specific questions that pertain to the outcome. Rex wondered what the percentage of achievement should be. Rex indicated that he allows students to take the ASE test and if they pass they do not have to take the final. Ben shared that ASE testing should be included under actions. Rex said that he is looking for ways to make it more individual. Outcome #3 reviewed. Rex indicated that he needs to find room in the course for new technology and would like input on what could be excluded from his course. Ben indicated that the fundamental theory needs to be taught before new technology can be taught. Discussion was held. Outcome #4 was reviewed and discussion was held. Ben was concerned with the time involved with assessment when using 4 tests to do the assessing. Discussion was to test on the process. Ben asked if anyone had any questions, and they did not.

Jason asked why Auto 116 was taken out of the program. Matt indicated it was due to the number of credits being reduced. It was discussed if the number of credits could be increased for the program. The faculty felt this would be worthwhile and that would give Rex additional time in Auto 117 for new technology.

Auto 200, Service Floor, was reviewed. Matt explained each outcome and he has three or four assessments. Matt indicated that he would provide his rubric. Matt will put the results in shortly.

Meeting adjourned at 11:30 am for lunch and resumed at 1:00 pm, all faculty was present.

Auto 310, Engine Air Flow Analysis, was reviewed. Outcome#1 the criterion is 80% or higher, and labs 1-7 are used. Ben suggested percentage vs the way it is reported in results and maybe adding the rubric. Outcome #2 was reviewed and Matt suggested to separate out just the questions that deal with pressure be used to assess the outcome. Outcome #3 is inactive. Outcome #4 was reviewed and discussion was held and it was suggested to review data used to access. Outcome #5 was reviewed. Ben asked if there were any questions and there was not.

Auto 460, Emissions Systems, was reviewed. Outcome #2 was discussed and the faculty suggested that the rubric should be added. Ben suggested a research proposal. Outcome #3 was reviewed and it was discussed about using one question to evaluate the outcome. Outcome #4 was reviewed and it was suggested to look at the assessment. The action indicates the rubric will be revised. Outcome #1 will be moved so it is at the beginning of the outcomes. Ben asked for questions from faculty and there were none.

Page Three
Automotive Department Meeting
August 22, 2016

Auto 480, Alternate Fuel and Vehicle Systems, was next. Outcome #1 was reviewed. The question was asked what the feasibility study was and it is writing a paper. Discussion was held on Criterion for Success being a C- or better. Outcome #2 was reviewed and faculty felt it was pretty cut and dried by using a paper for assessment. On Outcome #3 discussion was held on the flowchart or diagram of operation. Patrick shared that a rubric is used to assess it and he will figure out how to attach it from Blackboard. Discussion was held on Outcome #4 in regards to which vehicles fit this outcome. Outcome #5 was reviewed and there were no comments. Outcome #6 is inactive. Ben asked for any questions on Auto 480 and there were none.

Ben shared that we need to review the courses on a regular basis in TracDat. This will help us to evaluate our 100 and 200 level classes. Feedback from Service Floor faculty will also help in this process.

Bill asked if at the next meeting we could have an update on the internships done this summer. Matt shared that Max Schwann was at Roush and Matt did not feel it was a very good experience. Matt also said that Steve Zimmerman was at ZF in Marysville and the Engineering Manager is very interested in having more FSU interns and it was an excellent experience for Steve. Patrick shared that the two interns at Saudi German Brake had a good experience. Matt added that Seth Swanson had an internship at Comau in Southfield and that was also a good experience for him.

Matt asked if our program was open to international students and Ben indicated it currently is not. Ben said some of our international students went back without internships set up this summer.

Meeting adjourned at 2:35 pm.

Appendix B

2/21/2017

February 21, 2017

Automotive Department Meeting

Faculty Members Present: Ben Upham, William Wagner, Rex Billings, Christiaan Desmond, Patrick English, Jason Kruse, Rusty Leonard, Matt McNulty

Staff Present: None (Minutes recorded by Ben Upham)

Meeting called to order at 11:05 am. Ben thanked everyone for coming and reviewed the meeting agenda.

Ben updated the faculty on the AUTO 396 New Course Proposal. Ben met with Kemi Fadayomi on 2/2/2017 to discuss revisions to the proposal. He also attended the UCC meeting on 2/8/2017 to answer questions the committee had about the proposal. The UCC decided to not support the proposal as written but indicated they would support the creation of AUTO 396 but not the modification of the Motorsports Certificate. Ben will modify the proposal to remove the Motorsports Certificate modification.

Ben displayed the course outcome assessments in TracDat for AUTO 111, 112, 113, 213, 320, & 450. Faculty discussed the results and how they were recorded. It was decided that results should be reported in terms of the criteria. Faculty will make changes to results to show how they compare to the criteria.

One of the criterion for AUTO 320 course was not met and after discussion with the faculty it was determined that for the subject matter the criteria was initially set too high. It will be reevaluated by the faculty member teaching the course. The remainder of the courses showed that the criteria was being met.

Ben shared with the faculty the Program Evaluation Report from ABET. The faculty discussed the next step in the process which is to create an interim report outlining the changes that have taken place in the program since the onsite evaluation.

The faculty discussed the possibility of having an Automotive Center open house similar to the Tech of the Future. Ben met with Jason Daday from admissions and set two dates aside for the event. Sept. 20 & 27 would work best for admissions. It was decided to proceed with the event.

Ben asked faculty if there would be any interest in hosting a regional SKILLS USA event in the building or a similar type of competition. This would bring recognition to the program and get students as well as teachers into the facility. More discussion is needed before we can commit to it.

Meeting adjourned at 11:50 am.

Appendix B

4/25/2017

Automotive Department Meeting
April 25, 2017

Faculty Present: Ben Upham, Rex Billings, Jason Kruse, Russ Leonard, Matt McNulty,
Patrick English, Bill Wagner
Absent: Christiaan Desmond
Staff Present: Kathy Carroll

Ben called the meeting to order at 11:05 am.

Ben asked faculty for feedback on students addressing faculty by their last name only. Discussion was held. It was decided that students and faculty should address faculty members by Mister, Professor or Doctor.

Ben shared that the Motry endowment for Heavy Equipment was around a million dollars. Heavy Equipment will utilize about 4% of the endowment yearly with the majority being used for scholarships and then some of the funds will be used for programmatic things.

Ben mentioned students are helping themselves to copy paper and advising forms in 103. Ben asked faculty if they see this, to please address it with the students. Matt suggested that all of the advising forms be electronic. Ben indicated that faculty could send an email for program changes and maximum credit limits for students.

Ben asked faculty to give Kathy office hours for the fall 2017 semester.

Ben made faculty aware that Auto 396, Forced Induction is on the schedule for fall. If there is not enough students signed up for it this fall, we will have to cancel and offer it spring 2018, due to approval being so late in the spring semester.

Ben said he emailed all faculty in regards to serving on the promotion committee (2 year term). Patrick is the only one that contacted Ben saying he is interested in serving on that committee. Ben asked if anyone else was interested in serving on the promotion committee. No one was interested, so Patrick is on the committee by default.

Ben asked faculty to indicate how many interns each faculty member would like to have for the summer 2017 semester. The rotation list was passed around for faculty to review and then Ben asked faculty to email him with the number they would take.

Ben asked Patrick to talk about his proposal to add a lab to Auto 480. Patrick passed out a handout and reviewed it. The major issue for adding the lab is equipment. Patrick indicated donors do not donate equipment due to the cost of it. Patrick indicated he would like to have the lab offered for the spring 2018 semester and have it be a 2 hour lecture and 2 hour lab combination. Russ indicated that he would help with the curriculum process.

Automotive Department Minutes
April 25, 2017
Page Two

Ben reminded faculty that updated information needs to be put into Trac Dat at the end of the semester. The Department will be reviewing this information when we return in the fall.

Ben gave the recap of the Automotive Engineering Technology and Automotive Service Technology advisory board meetings to the faculty.

Items touched on:

University of Michigan campus tour of autonomous vehicles.

Willow Run building a 300 acres autonomous vehicle campus.

Failure analysis course in the curriculum.

More flexibility in the curriculum

Capstone projects, entrance requirement senior project

Ethics class maybe be a Capstone (current trends/current issues) also maybe make ethics a cultural class if auto taught it themselves.

Resume skills – do not undersell themselves, Microsoft office, hobbies, interests (Russ suggested a template)

Lecture and Lab taught by the same professor would be good

Students need direction on how to access AC Delco, All Data and Mitchell

On service floor have two students bug a car for another two students to repair. Bugs would have to have instructor approval.

Students would like longer labs

Service floor – list of tips, how to park a car on the hoist, etc

Maker space for students to work on their own vehicle

Meeting adjourned at 11:55 am.

Appendix B

4/07/2016

Automotive Engineering Technology
Advisory Board Minutes
April 7, 2016

Members Present: Jay Rohrback, Jeremy Themm, Greg Fountain, Brian Link, Tyler Greenhill, Nick Klunder, and Brandon Glossop

FSU/Faculty Present: Larry Schult, Ron McKean, Ben Upham, Bill Wagner, Jason Kruse, Patrick English, and Greg Key

Handouts: Enrollment for 2015 and 2016, Course Information Form E, Student Outcomes, Ferris Mission Statement vs AET Program Objectives, Check sheet, Minutes from October 9, 2014

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Ben introduced Jason Kruse. Jason asked the board for their input in regards to his Auto 460 Emissions class. Jason indicated he will be following the outline, however would like to know what new technology needs to be included. Jason said he is incorporating excel. Brian Link indicated that he would get with Joe Parsons from Hyundai for some suggestions because that is what Joe is involved in all day long. Jeremy Themm said Bosch is only doing OBD calibration testing. Jason asked how much dyno testing is being done. Brian said Hyundai is doing a lot, focusing on EPA cycles canister testing. Jay said aftermarket has ignored it, but Lingenfelter has been doing it for 10 to 15 years. Jay will get Jason a name and information to contact. Discussion was held on diesel emissions, Tyler indicated that he could ask around at GM. Jason thanked the Board for their input.

Ben asked the Board what employable skills students should have for entry level positions? Tyler shared they like them to have a personality, and an ability to get along with everybody. Brandon thinks that interviews for the internship should happen sooner than later and communication skills are needed, presentation skills, be able to work as a team. Brian shared that Hyundai looks for people with hands on experience and a passion for the automotive world. Also, list hobbies and interest on their resume. Tyler said students have to be open and willing to take a position that they might grow into. Greg Fountain said his issue is trying to educate HR on the AET program. The students need to be able to sell their degree. Jay suggested sending information on the program along with the students resume. Discussion was held.

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Program Update. Ben shared that we have two new faculty this semester, Jason Kruse and Christiaan Desmond. Ben also updated the Board that Greg Key would be retiring during the summer and that there is currently a posting for a new faculty member. If you know of anybody, please let them know to apply for this position.

Ben made the Board aware that out of the ten student inductees to Tau Alpha Pi that four of them are Automotive Engineering Technology students. Enrollment was reviewed for the AET program and the handouts show AET is down a little. Ben shared that he feels that internal transfer students being zero might not be accurate.

Ben updated the board members that the renovations are complete for this phase and the new fuels and lube lab is a huge improvement for the department. He is hoping painting will continue in the labs this summer.

Next item was discussion on the ABET process. Continuous improvement and documentation are areas that we need to improve upon in the department. Another step in this process is reviewing our outcomes with the Advisory Board. Ben asked the Board to look at the Ferris Mission Statement and the Program Objectives handout. These objectives will be assessed thru a survey that is sent out. Discussion, feedback, enhancement from the Advisory Board is what we are looking for. Greg Fountain and Jeremy Themm questioned varied forms of promotion or merit, in regards to getting the degree recognized. It was brought up that when searching for resumes on line the name is an issue. Ron indicated that ABET is looking to see if other names should be allowed. Ron feels that HR is much more open to hiring these degrees versus 20 years ago and some companies recognize the ABET accreditation. Ben asked if there was any legal ramifications of engineering versus engineering technology. No one has heard that from their HR departments. Brian had heard rumors from Tier 1 or Tier 2 suppliers. Greg and Tyler felt these objectives should be strived for.

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Students would like to see more guest speakers come in. Discussion was held, this would be good to keep up on new technology.

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It was brought up about having an AET Alumni Association. Discussion was held and it appeared that LinkedIn might be the way to go.

In regards to resume's being reviewed the Board wondered if there was a system in place. Ben shared that Career Services reviews resumes and also posts them on their website for the students signed up with them. It was suggested that we have HR Departments speak to the students. It was also suggested that students should put their resumes out on sites like Monster.

Meeting adjourned at 4:45 pm.



Appendix B

4/11/2017

Automotive Engineering Technology
Advisory Board Minutes
April 11, 2017

Members Present: Jay Rohrback, Jeremy Themm, Greg Fountian, Brian Link, Tyler Greenhill, Nick Klunder and Brandon Glossop
FSU/Faculty Present: Ron McKean, Ben Upham, Bill Wagner, Rex Billings and Jason Kruse
Handouts: Spring 2017 Enrollment, Recap Past Enrollment, Trac Dat Assessment: Course Four Column, and Karen Weber handout Ferris Futures Scholarship Challenge

Ben called the meeting to order at 1:15 pm and welcomed the board members. Ben introduced Ron McKean to the board. Ron also thanked the board for coming and indicated to the board that we are growing. The Swan building is going to double in size. Ben added that the Auto students will benefit from the Swan addition due to our students taking the Material classes in that building. Karen Weber added that the 30 Million dollar project, is being funding by 22.5 million from the State and that Ferris is raising the other 7.5 million (4.5 monetary gifts and the rest is donated equipment). Ben shared that the formula team will be moving out of the Automotive SAE lab area and they will have a lab in the Swan building. Ron indicated to the board that the ABET certification is very important to the program and it is highly recognized at the College level.

Karen Weber explained the Ferris Futures Scholarship Challenge and explained that handout. Karen encouraged members to take this idea back to their employers. Ferris is the only ones in the State that received a refund on the pension fund that is utilizing this refund to reduce student debt. Ben shared that our student debt is approximately \$36,000 when students graduate. The University is still trying very hard to get the debt lower.

Ben shared that the new dorm currently being built near the Automotive Center is at capacity for fall. Renovations in the Automotive Center are the virtual classroom for AMGT that was made possible from Bridgestone Firestone thru donations. Items purchased for the room were cameras with tracking capability, microphone in a soft sided box to toss around the classroom for presentations and the camera will track that. The transmission lab has been updated with new flooring that is very similar to the lab in 105. Walls were painted and new benches have been purchased from the welding department for the lab. The physical plant is also painting the old body shop.

Overall, the University budget was decreased by 2 million last year, however, the CET college did not get a decrease at that time. Ben indicated he was not sure we would be as lucky for 2017-18.

Ben updated the board on the SAE teams. Dr. Leonard is the advisor for the BAJA team. They have been doing a lot of work on the vehicle. They competed at Houghton this winter and will be competing at Peoria, Illinois in June at a summer event. A graduate of the program has

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AET Advisory Minutes
April 11, 2017

volunteered to help the BAJA team and this has been a tremendous asset for the team. Dr. English is the advisor for the Hybrid Formula team. This team only has a few active members. The students have a good design and the students are building a new frame. The timeframe for the buggy to be ready to go is Christmas. Dr. English is also the Chapter representation for Ferris. Phil wondered what the students get other than the experience. Patrick shared it is a standalone activity and one of the main things is that students obtain is collaboration with other programs, such as welding, manufacturing, product design and heavy equipment. Discussion was held in regards to capstone's in the Automotive program.

Ben shared that he felt the dip in enrollment was due to the program currently being closed to international students. This is due to international students have a difficult time finding internships. Travis wondered if we have seen a rise in Automotive Service Technology students and Ben indicated that we have not. That only 4 or 5 students graduate a year that want to be service techs.

Three automotive students out of the eleven for the College of Engineering Technology were inducted into the Tau Alpha Pi Society this year. Students grade point average needs to be in the top 4% of the College of Engineering Technology for this honor.

Ben indicated that students went on a couple field trips this year that faculty set up and the department provided transportation for the students. They visited FCA and GM Powertrain with Professor Wagner. Dr. English also took the students to SAE World Congress to give the students an opportunity to see how large the automotive industry really is. 32 out of 42 students participated. The board members thought this was a good experience for the students and wondered if they attended any presentation of papers. Members also thought that students should attend SAE World Congress earlier than their senior year. Discussion was held.

Next item of discussion was resumes. Members felt that resumes need to include interests, hobbies, and projects that relate to the automotive field. They are looking for employees that are passionate about the automotive industry. Many companies use computers to filter resumes, so key words need to be used. Don't undersell themselves and speak to the program. Presentation skills are important if only a five minute presentation with a couple powerpoints. Employees need to be Microsoft office experts. Board members felt that all reference books for internship and job opportunities need to be digital for the students.

Ben shared an update on the curriculum and reviewed Trac Dat with the board members present. Ben reviewed the Course Assessment handout with the board members. The reason for this review is that this is part of our continuous improvement process. Ben asked for the Board to provide feedback during this review. It was discussed that the unfortunate thing is that students that graduate do not benefit from this process. Professor Wagner shared that instructors have always been doing this review, but did not document it in the past. Discussion was held and it was determined that in the future Ben will try and develop some charts for review out of Trac Dat.

The alumni survey was reviewed, and Ben asked if our questions are appropriate for our Mission Statement. Ben reviewed the mission statement and program educational objectives. Discussion was held in regards to the answers. It was determined that questions need to be reworded in regards to membership in professional organizations.

Professor Wagner shared with the board that Auto 396 was developed and on the schedule for a year as an experimental class. The hope is that this class will be offered Fall of 2017 as a stand alone class. If the paperwork does not allow time for students to register for Fall 2017, then it will be offered Spring, 2018. The pre req's for Auto 396 are engines, electronic fuel management systems, and math 116.

Ben shared that Auto 211, manual vs automatic transmission is in the process of being reviewed. Professor Kruse is currently writing the new outline. The department still needs to see where it will fit into the curriculum.

The board members made faculty aware of items that need to be addressed from the student portion of the meeting.

- Exposure to thermal couplers in regards to, when to use them
- Instrumentation course
- Bring in supplies to show off new tools – free to do this, maybe bring along an engineer
- Borrow or share tools from other programs (electronic)
- Up to date sensor's – latest and greatest
- Share with students easier paths for service floor
- Deep dive into electric and autonomous vehicles
- More information on dynamics and design of vehicle
- Address more on failure analysis
- More opportunities for product design and different certificates
- Capstone project that would be something they could take to an interview

Meeting adjourned at 4:10 pm

Appendix C

March 29, 2016

Automotive Department Meeting

Faculty Members Present: Ben Upham, Bill Wagner, Matthew McNulty, Rex Billings, Patrick English, Russ Leonard, Jason Kruse and Christiaan Desmond

Absent: Greg Key (agenda items #1 abstain #2 yes, stopped in the office on 3/28/16 after reviewing the agenda)

Staff Present: Kathy Carroll

Ben called the meeting to order at 11:05 am. Ben then asked for a vote on the curriculum proposal.

Support: Jason, Christiaan, Bill, Patrick

Support w/concern: Rex Billings

Not Support:

Abstain: Greg Key, Matt McNulty, Russ Leonard

Ben asked Rex to send an email or letter with his concerns. Rex shared that his concern was he would like to see a lab attached if it moves to 4 credits with Bill teaching the lab due to his knowledge. Ben said the proposal will move forward at this point.

Next item was the rotation list that Ben passed around for the fall semester for everyone to initial.

Ben indicated the next thing on the agenda is review of objectives. Ben reviewed the Ferris Mission Statement and the Program Educational Objectives. Matt shared that ABET says 3 to 5 years after graduation and it could be done in a survey. Matt suggested social activities be added. Russ added professional ethics in regards to integrity and honesty, Ben wondered how that could be measured.

Ben shared Welding's career objects. Russ suggested adding membership in professional organizations and remove demonstrate high standards of ethical and social values. All in attendance seemed comfortable with that.

Jason shared that the posting for the new faculty position was on the people admin site.

Ben touched on trac dat and how to input test grades and shared that you can utilize sandbox to create text and then copy and paste to trac dat. Rex wondered about hyper linking and Ben didn't think we had that capability at this point. Ben shared that Katy Moore has volunteered to help out with Trac Dat for faculty. Discussion was held.

Ben reminded faculty that the results need to be reviewed as a group at the end of each semester.

Meeting adjourned at 11:50 am.

Appendix D

Automotive Engineering Technology
Advisory Board Minutes
April 7, 2016

Members Present: Jay Rohrback, Jeremy Themm, Greg Fountain, Brian Link, Tyler Greenhill, Nick Klunder, and Brandon Glossop

FSU/Faculty Present: Larry Schult, Ron McKean, Ben Upham, Bill Wagner, Jason Kruse, Patrick English, and Greg Key

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Meeting adjourned at 4:45 pm.

Appendix E

One aspect of the AET program that needs to be assessed by constituents is the Program Educational Objectives (PEO's). These are the things that students should be able to attain a few years after graduation.

Please read each objective and provide feedback on whether you feel this is a worthwhile objective for the AET program to be preparing students to achieve. If you feel that it is not a worthwhile objective please provide feedback as to why you feel this way and what a more appropriate objective might be. Your input will be reviewed by faculty as part of the continuous improvement process. Thank you for your assistance and good luck as you leave Ferris to start your career.

Students will achieve:

Objective 1: employment in a discipline appropriate to the BS AET degree. (N=38)

Not worthwhile	Somewhat worthwhile	Worthwhile	Very worthwhile
7.9%	7.9%	34.21%	47.37%
			81.58%

Objective 2: recognition as a valued employee through varied forms of promotion and merit.

Not worthwhile	Somewhat worthwhile	Worthwhile	Very worthwhile
5.26%	5.26%	47.24%	34.21%
			81.45%

Objective 3: membership in professional organizations.

Not worthwhile	Somewhat worthwhile	Worthwhile	Very worthwhile
2.36%	15.795	60.53%	18.89%
			79.42%

Objective 4: ability and desire to continue education through varied means including advanced degrees.

Not worthwhile	Somewhat worthwhile	Worthwhile	Very worthwhile
2.36%	11.81%	49.6%	25.98%
			75.58%

Appendix F

Assessment: Course Four Column



Program - Automotive Engineering Technology (B.S.)

Mission Statement: To continuously define the profession by producing Automotive Engineering Technology graduates whose outstanding knowledge, skills, and attitudes are globally recognized.

Advisory Board/Committee Meetings: Once per year

Next FSU Academic Program Review: 2017-2018

Accreditor Body: Engineering Technology Accreditation Commission - Accreditation Board for Engineering & Technology (ETAC-ABET)

Accreditor Body - Academic Year of Next Review: 2017-2018

College: CET

Program Closed?: No

AUTO 493: Internship

Course Outcomes	Assessment Methods	Results	Actions
<p>Outcome 1 - 2. Apply theory, principles, and concepts to real problems</p> <p>Course Outcome Status: Active</p> <p>Planned Semester(s) of Assessment: 2015 - 2016 (Spring 2016)</p> <p>Start Date: 05/16/2016</p>	<p>Survey - Employer - mid term and final employer evaluations</p> <p>Criterion for Success: 80% on both evaluations in areas a-o</p> <p>Observations (e.g. Clinical or Field) - Weekly activity sheets and site visits</p> <p>Criterion for Success: 90% score above 80%</p> <p>Assessment Schedule: once per semester</p>	<p>Reporting Period: 2011 - 2012 and Prior</p> <p>Classification: Criterion Met</p> <p>The results of the employer evaluations for areas a-o were from 81% to 93 % so all the students met the criterion (02/24/2012)</p> <p>Reporting Period: 2015 - 2016</p> <p>Classification: Criterion Met</p> <p>100% scored above 80% (08/10/2016)</p>	
<p>Outcome 2 - Student will demonstrate the ability to function effectively as a member or leader of a technical team (ABET E)</p> <p>Course Outcome Status: Active</p> <p>Planned Semester(s) of Assessment: 2015 - 2016 (Summer 2016)</p>	<p>Internship Evaluation - Mid-term and final employer evaluations</p> <p>Criterion for Success: 80% score above 80% when mid-term and final evaluations are averaged together.</p> <p>Assessment Schedule: twice per semester</p>	<p>Reporting Period: 2015 - 2016</p> <p>Classification: Criterion Met</p> <p>100% scored above 80% (08/10/2016)</p>	

Course Outcomes

Assessment Methods

Results

Actions

Start Date: 05/16/2016

Outcome 3 - Students will demonstrate an understanding of the need for and the ability to engage in self-directed continuing professional development (ABET H)

Course Outcome Status: Active

Planned Semester(s) of Assessment:

2015 - 2016 (Summer 2016)

Start Date: 05/16/2016

Internship Evaluation - Employer mid-term and final evaluation and site visits

Criterion for Success: 80% score 80% or higher

Assessment Schedule: once per semester

Reporting Period: 2015 - 2016

Classification: Criterion Met

100% scored 80% or higher (08/10/2016)

Outcome 4 - Students will demonstrate respect for diversity and a commitment to professional and ethical responsibilities (ABET I)

Course Outcome Status: Active

Planned Semester(s) of Assessment:

2015 - 2016 (Summer 2016)

Start Date: 05/16/2016

Internship Evaluation - Employer mid-term and final evaluations and site visits

Criterion for Success: 80% score 80% or higher

Assessment Schedule: once per semester

Reporting Period: 2015 - 2016

Classification: Criterion Met

100% scored 80% or higher (08/10/2016)

Outcome 5 - Students will demonstrate a commitment to quality, timeliness, and continuous improvement (ABET K)

Course Outcome Status: Active

Planned Semester(s) of Assessment:

2015 - 2016 (Summer 2016)

Start Date: 05/16/2016

Internship Evaluation - Employer mid-term and final evaluation and site visits

Criterion for Success: 80% score above 80%

Assessment Schedule: once per semester

Reporting Period: 2015 - 2016

Classification: Criterion Met

100% scored 80% or higher (08/10/2016)

Appendix G

Ferris State University

Automotive Engineering Technology
Grading criteria for internship experience

These are the primary inputs:

1. Your supervisor evaluation

There is a form in your packet to be completed by your supervisor at mid-term and end of term. There is just one copy in the packet, so copy it before you fill it out at mid-term. These evaluations will be worth **100 points each**.

2. Weekly log sheets

They are due on Friday of each week. Make them neat, and punctual. Also make them informational and interesting! These are worth **10 points each** for a total of 100 points at the end of the internship.

3. Communication

Be punctual and thorough in returning emails and phone calls.

4. On-site Coordinator visit

5. Your internship project

Each intern will undertake a special research or study project, which will allow the intern to thoroughly investigate a problem or condition and develop meaningful recommendations. This is not intended to be a summary of the internship experience. The special project chosen should be mutually beneficial to the internship site and the intern. The following is a list of acceptable project topics but in no way represents a complete list.

1. A cost study
2. Reorganization of a department
3. Introduction of a new product
4. Feasibility of a new process
5. Tool standardization program
6. A safety program
7. An improved method of performing an operation

The text content of this project should be at least five pages long and include the following:

1. Identification of the problem
2. Theory behind the problem
3. Concepts used in the recommended solution of the problem
4. Principles adhered to in the resolution of the problem

Feel free to include multiple pictures, but the text content should still be five pages. If you wish to complete the project in PowerPoint format, that is acceptable, just make sure the text content is of appropriate length. **200 points total** (100 points supervisor evaluation, 100 points intern coordinator

evaluation). See attached Project Grading Rubric for more details.

6. Your final notebook

The notebook will be due one week from your final week and its total content is worth **700 points**. Late work will be accepted for up to three weeks after the due date however **25 points** will be deducted for **each week** it is late. After three weeks no late work will be accepted.

Internship notebook contents:

1. Weekly log sheets (signed by your supervisor) **100 points**
2. Internship project **200 points**
3. Mid-term and final evaluation **200 points**

This material should be presented in a three ring binder. Use tabs dividers as necessary to separate the sections. It should have a nice looking cover page. Use pictures as you wish. Make it look professional. It will not be returned to you, so you may wish to make a second copy for yourself to present when interviewing for a permanent position.

Your notebook will be a significant portion of your internship grade, so make it professional quality. If you have any questions regarding any of the above information, please ask your coordinator.

Additional Required Assignments

- Team Member Reflection Paper (1 page) **25 points**
- Professional Development Paper (2 pages) **50 points**
- Diversity Observation & Promotion Report **25 points**
- Professional & Ethical Responsibility Paper (2 pages) **50 points**
- Continuous Improvement Plan **50 points**

Note: Due dates for these assignments will be determined by your internship coordinator. See the following rubrics for assignment content.

Team Member Reflection Paper (1 page minimum)

You will write, at a minimum, a 1 page paper reflecting on your experience as a member of a team. In this reflection paper you will identify the following:

1. Team membership (supervisors, engineers, support persons, interns, etc.)
2. The team's role and responsibilities that support the next level of the organization or the customer
2. Your responsibilities or role on the team
3. Three examples of how you supported the team through your work

This will be reviewed and signed by your supervisor.

Professional Development Paper (2 pages minimum)

You will write, at a minimum, a 2 page paper that identifies a position within the company you are currently employed at or within the industry that you would like to hold in the future. This position must be at a higher level than your current position. You must research the position to determine the following:

1. What additional education/degree you will need to hold this position
2. What additional experience you will need or would be helpful in this position
3. Where can you go to get the additional required education/degree
4. What is the typical length of time a person stays in this position
5. What would be a logical move after this position

Diversity Observation & Promotion Report

In this report you will identify the following as they relate to diversity in the workplace:

1. What your employer does to recognize diversity
2. Identify examples of diversity in your workplace
3. Identify the benefits of having a diverse workforce
4. What additional items could be done to recognize diversity in your workplace
5. List the things that you have done to promote diversity

This will be reviewed and signed by your supervisor.

Professional & Ethical Responsibility Paper (2 pages minimum)

For this paper you will choose an event that has occurred recently (within the last 24 months) that has an ethical and professional impact on the industry. You will write a 2 page paper that:

1. Describes the event in detail
2. States the impact it has had on the consumer and the industry
3. Identifies how the event was handled and the impact that it has had on the company or companies involved
4. Describes how you feel the event should have been handled to limit the impact of the event on the industry

Continuous Improvement Plan

You will demonstrate your commitment to quality, timeliness, and continuous improvement by creating a report that:

1. Describes the Continuous Improvement Plan used at your place of employment
2. Provides a specific example of how the program works and lists the steps of the program from start to finish
3. Explains what part your position has in the continuous improvement program
4. Lists 3 things about the current program that could be improved and why