University Of New Mexico

Gallup Campus

Automotive Technology Department
Program Review

Associate of Applied Science

September 2018

Department: Business and Applied Science

Prepared by: Ernesto Watchman, Visiting Lecturer.

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0A: Executive Summary

Working on today's vehicles requires an understanding of fundamentals and principles in technology associated with modern cars and sophisticated automobile vehicles. The Automotive Industry changes every 5 years. This means schools need to stay current with the automotive industry in order to properly educate students in industry standards.

Attendance in the Automotive Technology Program has increased and all indications are that today's UNM-Gallup Auto technology program will continue to attract new students and retain current students.

The University of New Mexico-Gallup Branch Automotive Department continues to offer excellent instruction in past, current, and trending automotive repair and maintenance practices. Our commitment to student success comes with community partnerships and supporters investing in the success of the program.

Automotive Service Excellence (ASE) certified faculty guide students through the learning process in the automotive field of analytic and strategic approaches to repairs, maintenance, and new build of automotive equipment.

The commitment of current applied technology faculty, is to provide students and the Gallup community with a quality education in the field of automotive technology to prepare todays technicians, for tomorrow's workforce.

Ernesto Watchman
Visiting Lecturer

Mark Remillard, Division Chair of Business and Applied Technologies

Recommendation for the AAS in Automotive Technology

Having been in the position of Division Chair for only six weeks at the writing of this review, I cannot offer in-depth commentary or analysis of the program, but given the numbers enrolled and the clear vision plan articulated by the faculty, I feel this is a strong and worthwhile program. The AAS in Automotive Technology provides graduates with job training and apprenticeships into job placement.

I would recommend two additions to the program:

1. A modularization of instruction to allow for more industry certifications so that students graduate with multiple and specialized skills within the automotive technology industry. Increasing certifications for students would make graduates more marketable.

2. The updating of equipment and increased certification for faculty in the program to ensure current and best practice knowledge and skills in the field to ensure high quality instruction and relevant job skills for graduates.

I believe the existing program should be retained, strengthened, and expanded to help UNMG connect to a broad range of programs and technologies.

Respectfully,

Mark Remillard
Division Chair, Business and Applied Technologies

0B: Descriptive Summary of program history

The University of New Mexico Gallup Automotive Technology offers two programs, CCTE and College, to secondary and post-secondary students.

The Center of Career Technology Education (CCTE) program comprises of junior and senior high school students that are transported from local high schools in the McKinley county district to the University of New Mexico Gallup Campus. Every week during an academic semester, CCTE students attend UNM-Gallup for instruction in various academics such as Automotive Technology. Classes and labs are reserved for CCTE students Monday through Friday, 9:00am-11:00pm. Credits earned in the various programs available at UNM-Gallup can be applied to a certificate or AAS degree offered for instruction.

The Automotive Technology program offers certificate level and an Associates of Applied Science degree to past, current and future prospective students. The UNM-Gallup auto tech is a popular program in the region and classes usually exceed classroom capacity without having to solicit. Classes are reserved for post-secondary students in the afternoons, Monday-Friday 12:30pm-10:00pm of an academic school year.

Curriculum used in the auto-tech program corresponds with National Institute for Automotive Service Excellence (ASE), and National Automotive Technical Education Foundation (NATEF) requirements. Also, extended online training is made available to students through Cengage, an education and technology company built to deliver real world scenarios, interaction of the latest and best practices in this industry for learners, which also corresponds to NATEF and ASE curriculum requirements for automotive technology.

The current program is operated by one full-time faculty member and two faculty adjuncts. Ernesto Watchman, visiting lecturer, is the only full-time faculty coordinating day to day operations and lectures CCTE and college in the above listed times, while two part-time faculty adjuncts conduct their classes in the evenings Monday through Friday.

The University of New Mexico-Gallup Branch Automotive Department continues to offer excellent instruction in past, current, and trending automotive repair and maintenance practices. Our commitment to student success comes with community partnerships and support investing in the success of the program. The automotive Program continues to progress and improve the areas of teaching methods and equipment to stay up to date with other institutions and stay current with the ever-changing automotive industry. Instructors must also keep up to date with Industry standards in Automotive Service Excellence (ASE) certifications.

The auto technology program is fully accredited by the North Central Association of Colleges and school. We are also a regional ASE testing site for Automotive Service Excellence certifications that automotive employers require. Certification is available in eight different automobile specialty areas: Automatic Transmission/Transaxle, Brakes, Electrical and Electronic Systems, Engine Performance, Engine Repair, Heating and Air-Conditioning, Manual Drive Train

and Axles, and Suspension and Steering. All of which, is currently offered at the UNM-Gallup campus automotive technology program for Certificate and Associates level degrees.

0C: Organization Structure

Chief Executive Officer:

Dr. James Malm

Dean of Instruction:

Dr. Daniel Primozic

Division Chair:

Mark Gerard Remillard

Faculty: Automotive

Full time Faculty:

Ernesto Watchman

Part Time Faculty:

Felix Benally

Abel Johnson

Administrative Assistant:

Bobby Campos

0D: Information regarding specialized/external program accreditations

The Automotive Technology Program currently does not have any specialized/external program accreditations.

The UNM-Gallup automotive technology program is working towards certification through NATEF and NC3 curriculum. Brief summary of benefits for certification outlined below. Project timeline will require two years of documentation implementation.

Once industry requirements are met, the program becomes NATEF accredited for a five year period from the date of accreditation

Benefits of Accreditation:

Accreditation of an automotive training program brings with it program credibility, prestige, recognition, and overall program improvement. By ensuring training programs meet the highest standards, NATEF accreditation benefits everyone from schools, students and future employers, to the automotive service industry and everyone driving on our nation's roads.

School Benefits:

- Increases potential for funding from public and corporate sources
- Identifies program excellence to draw more students to the school

Student Benefits:

- Provides a way for students to identify quality schools and programs
- Provides assurance of a higher quality education
- Increases potential to secure a solid career after graduation

Employer Benefits:

- Ensures a pool of highly trained entry-level technicians
- Connects employers with schools who have quality graduates

Automotive Service Industry Benefits:

- Encourages more respect for automotive service professions
- Increases the level of professionalism in the industry

(Information extracted from NATEF website at www.natef.org)

Requirement for achieving certification can be very tedious but are attainable. An application for NATEF can be submitted for 3 different levels of accreditation: Maintenance and light repair (MLR), Automotive Service Technology (AST), and Master Automotive Service Technology (MAST). Programs applying for accreditation must also meet the following hour requirements based on level of accreditation sought: MLR-540 combined classroom and shop activities hours, AST-840 combined classroom and shop activities hours and MAST-1200 combined classroom

and shop activities hours. The current UNM-Gallup Automotive Technology curriculum and newly proposed curriculum change will be sufficient for Master level accreditation based on combined classroom and shop instructional activities contact hours. Documentation for certification application is a long and difficult process as far as time is concerned. The time involved to physically prepare the program in the areas of equipment, tools, repairs, replacement, arrangement, care, and time involved to prepare the shop for instruction and fulfill safety requirements are all obstacles. The cost to process an application for NATEF accreditation is estimated to be $1,650.00

ALSO, instituting a Topics Lab class would benefit students as certified instructor would teach and certify students in Snap-on or other industry certifications. Snap-on has provided a document (NC3) National Coalition of Certifications Centers that will partner with UNM-Gallup to certify faculty of whom would then be able to certify students. This is possible only through Snap-on equipment.

(NC3 can be viewed at http://www.nc3.net/ for more info)

Completing a vocational or other postsecondary education program in automotive service technology is considered the best preparation for entry-level positions.

0E: A brief description of the previous Program Review for the program

The previous UNM-Gallup Automotive Technology program review was prepared by Lorretta Notah, April 2013 with the assistance of student work studies.

The last report documented from curricula committee states:

"Advisement recommendations for AAS Auto Technology: (75 Credit Hours)
A short term (8 weeks) mechanical fundamental/familiarization course for 2 credit hours should be created that could be offered to any student desiring to study any technical program (auto-tech, welding, CRT, even construction tech.)
Many students in the technical programs have little or no knowledge or skills in general mechanics.
A 30 question quiz could be offered to test student's mechanical knowledge level and anyone scoring less than 24 correct answers would be required to take the mechanical fundamentals course listed above.
Seventy five credit hours for an AAS is excessive. If each of the eight courses listed at 6 credit hours was reduced to four credit hours, sixteen credit hours would be eliminated. The Practicum (AUTT 295) could be returned to a variable credit hour (4-9) to allow students to receive additional training in areas in which the student feels they need extra training. These changes would reduce the total number of credit hours required for graduation to 60-67 (even if the y were required to take the fundamentals course recommended.)

The certificate program could be reduced to 34-36 credit hours since the 42 credit hours now required."

The requested mechanical fundamentals course could be offered to students interested in auto-technology in the fall semesters only. The course does exist under AUTT-293 automotive technology topics course (1-6 credit hours), however inactive.

Currently, efforts are pending to reduce credit hours for both Certificate and AAS degrees. Progress was impeded due to the absence of dean of instruction, division chairman, and administrative assistant. Course modifications was created and is currently pending submission for final approval from current division chair.

Document 1:

Program Goals

1A: Provide a brief overview of the vision and mission of the program and how the program fits into the vision and mission of the UNM-Gallup campus.

1B: Describe the relationship of the program's vision and mission to the University of New Mexico's vision and mission

1C: List the overall learning goals of the program

1D: Explain the manner in which learning goals are communicated to students

1E: Describe the program's primary constituents and stakeholders

1F: Provide examples of outreach or community activities (local, regional, national, and/or international) offered by the program

1A: Provide a brief overview of the vision and mission of the program and how the program fits into the vision and mission of the UNM-Gallup campus.

MISSION STATEMENT

The UNM-Gallup Automotive Technology Program mission is to provide an environment with the purpose of developing automotive technology student skills with absolute dedication to their dreams, passions, and growth. Instructors will work to develop or improve the training structure that an automotive technician needs to meet the ever-changing demands of the industry.

VISION STATEMENT

The UNM-Gallup Automotive Technology Program strives to be a thriving center of integrity and collaborative excellence in Automotive Performance, Training and Education rooted in Modern Vehicle applications.

PURPOSE STATEMENT

1. To provide a place for anyone, regardless of age or gender, to pursue their goal in Automotive Technology.

2. The UNM-Gallup Automotive Technology Center shall be a place for individuals to learn about the fundamentals and theories of automotive applications through lectures and performance diagnostics, maintenance, repairs, and addresses other vehicle performance issues, and to enhance students skills so they can perform at a professional level.

1B: Describe the relationship of the program's vision and mission to the University of New Mexico's vision and mission.

The Automotive Technology program at the UNM-Gallup campus strives to advance the institutional core competencies and learning outcomes of the University.

Every course includes components that assess the awareness of students and faculty understanding in, knowledge, skills, and/or abilities in communication, critical thinking, information competency, responsibility, technology, and given the area of focus, extensive discipline/subject specific content material.

Also, students must master specific skill sets for each class topic as a requirement of passing each course. These include, writing assignments, working in teams, computer competencies to retrieve information regarding vehicle diagnosis, and understanding technological knowledge.

1C: List the overall learning goals of the program

Our goal is to recertify the University of New Mexico-Gallup Campus Automotive Technology program through third party accreditations such as National Automotive Technicians Education Foundation (NATEF) in the CCTE program as well as the College Program to better certify students to be ready for the workforce.

The goals and objectives of the Automotive Technology Program are:

- The student will demonstrate proper safety practices and procedures
- The student will demonstrate a systematic automotive diagnostic and repair strategy as defined by NATEF (National Automotive Technicians Education Foundation)
- Document repairs of vehicles accurately and descriptive of concern, cause, and correction
- Prepare and write repair orders to include: customer information, vehicle identifying information, customer concerns, related service history, cause and correction.
- Demonstrate accuracy, proficiency and quality in service performance and Develop professional attitudes, values, and goals
- Continually integrate current and future industry standards within the curriculum
- Comprehensive knowledge of employer expectations and ethical work practice

- Provide sufficient training and education for students to find gainful employment to compete in the job market in the field of Automotive-oriented service, maintenance and repair

1D: Explain the manner in which learning goals are communicated to students. Please provide specific examples

Assessment Methods

Competencies, written and hands on activities set forth by the National Automotive Technicians Education Foundation (NATEF).

A student's grade will be based on multiple measures of performance, and will reflect the level of accomplishment of the objectives set forth above as well as a level of understanding of the topics enumerated under "Content and Scope." A final grade of "C" or better will indicate that the student has the ability to successfully apply the principles taught in the course to subsequent courses, to the work-place, or to personal goals as appropriate. The assessment process will also measure independent critical thinking skills and will reflect the student's ability to demonstrate their accomplishments by:

1) Performance on written or oral examinations
2) Performance on outside assignments including shop assignments
3) Contributing to class discussion
4) Maintaining attendance per current policy
5) Hands-on diagnosis and repair
6) Completion of assigned ASE/NATEF task lists

Lecture with, or without, various visual aids: Lecturing conveys information that an instructor feels is most important, according to the lesson plan. Various visual aids will be utilized.

Group problem solving, Collaborating, discussion, debate, and/or critique: Group collaboration will allow students to actively participate in the learning process by talking with each other and listening to other points of view.

Demonstration in shop and classroom: demonstrating will allow students to personally relate to the presented information. Demonstrations help to raise student interest and reinforce memory retention.

Computer assisted instruction: this method involves interaction of the student with programmed instructional material such as, Computer Aided Instruction, Computer Based Education, Computer Assisted Learning with various Tutorials, Simulations, and

Hands-on shop assignments: Students learn by giving them the training to take initiative for their own learning experiences. Learners are actively involved. Instructor facilitates a process of learning in which students are encouraged to be responsible and active.

1E: Describe the program's primary constituents and stakeholders

1) Students: Personal success throughout school, future opportunity.
2) School advisory board: Professional efficacy, fulfilling the schools mission, media coverage, accountability and job satisfaction.
3) Faculty and staff: Adequate yearly progress, meeting accountability and expectations.
4) Taxpayers: Getting a good return on their tax "investment" in school operations
5) Business community: Ability to hire graduates with skills needed, community economics
6) Other community members: Community pride and livability
7) Internal stakeholders: Work within the school system on a daily basis and coordinate daily operations
8) External stakeholders (automotive advisory board): work outside the schools, who have a strong interest in school outcomes.

1F: Provide examples of outreach or community activities (local, regional, national, and/or international) offered by the program.

UNM-Gallup campus "focus outreach to the community and region," aims as the institution playing a leadership role in developing and strengthening relations with the community. UNM-Gallup Automotive Technology is a long-standing program that has deep ties to the greater Gallup community.

UNM-Gallup auto club: Auto club members advertise in the daily lobo or hang signs around the Gallup campus in efforts to recruit club members and/or make other students aware of services provided by the automotive technology program. Club members would be required to complete 10 hours of community service hours per week. This could be accomplished by picking trash in the Gallup community, collaborating with various community projects if permitted, feeding the homeless, servicing vehicles at the UNM-Gallup automotive shop, and collaborating with other UNM-Gallup clubs do assist in various activities.

Internships: Students are placed as entry-level technicians in a participating automotive cooperative education internship. This helps to promote and recruit for the automotive technology program at UNM-Gallup.

Community outreach: Current acting program coordinator reaches out to local businesses to promote the UNM-Gallup automotive technology program in order for students to secure employment upon graduation. Since September 2016, a total of 20 students have been hired for full time employment at participating cooperative education facilities. As a result, an automotive advisory board was formed due to student outcome success with local dealerships and independent shops.

Student: Students are required to purchase an identifiable "auto tech" patch to be stitched on work shirts to promote the program. Also, promotion is accomplished from word of mouth.

Community vehicle services: Students in the auto tech program provide labor free services in auto maintenance for the UNM-Gallup community.

Skills USA: The UNM Gallup Campus CTE SkillsUSA Chapter, which was reinvigorated four years ago, hosted the New Mexico SkillsUSA Community Outreach and Leadership Conference in the past. Those conference played host to approximately three hundred student members (secondary and post-secondary), chapter advisors, and stated leadership. Joe Sanchez, Robert Encinio, and Ann Jarvis initiated contact with local agencies and city government to develop partnerships with groups that were utilized as work sites for SkillsUSA members to perform community service and outreach. The partnerships that were created included: Jim Harlin Community Pantry, Veterans Helping Veterans, Playground of Dreams/Lion's Club, McKinley County Humane Society, Battered Families Incorporated, Manuelito Children's Home, and Kamp Kiwanis.

Document 2:

Teaching and Learning – Curriculum

2A: Provide a detailed description of program curricula.

2B: Describe the contributions of the program to other units/programs within UNM-Gallup

2C: Describe the modes of delivery used for teaching courses

2A: Provide a detailed description of program curricula.

Refer to Appendix 0A for syllabus

The auto technology program is fully accredited by the North Central Association of Colleges and school. We are also a regional ASE testing site for Automotive Service Excellence (ASE) certifications that automotive employers require.

AAS Automotive Technology

Listed is course sequencing and course descriptions to each class that is currently offered at UNM-Gallup in AAS degree.

Area: (18 credits)

Writing and Speaking: (6 credits)
ENGL 110 Accelerated Composition 3cr
ENGL 119 Technical Communications 3cr
Arts/Humanities/Social Sciences: (6 credits):
Select two elective courses from any of the lower division Core Curriculum in Arts, Humanities, and Social Sciences
Behavioral Science: (3 credits)
PSY 211 or 230 3cr
Mathematics: (3 credits)
MATH 115 Technical Math 3cr

AUTOMOTIVE TECHNOLOGY CORE REQUIREMENTS: (57 credits)

AUTT 111 Automotive Testing & Diagnosis 6cr

- Intended to give students a background in testing and diagnosis of electronic, electrical and fuel systems found in current automobiles.

AUTT 115 Brake Systems 6cr

- The study of modern brake theory including drum and disc type brakes. Mechanical and hydraulics principles as they pertain to brakes will be covered

AUTT 130 Electrical System Repair 6cr

- Electrical theory and diagnosis. Starting, charging, lighting and related electrical systems in automotive application will be covered.

AUTT 157 Steering & Suspension 6cr

- A detailed study of steering and suspension components and their repair and alignment.

AUTT 167 Emission Control Service 3cr

- To familiarize the student with the various emission control devices including functions, diagnosis, repair, and/or service.

AUTT 170 Heating and Air Conditioning 6cr

- Covers the basic and advanced instruction of the latest heating and air-conditioning systems, also the testing, diagnosis and repair of A/C compressors and components

AUTT 203 Automotive Engine Overhaul 6cr

- To teach students repair and overhaul procedure performed on a gas engine

AUTT 210 Drive Train Overhaul 6cr

- Repair and overhaul drive train components such as clutch, manual transmission, transfer case and differentials found on 2-wheel, 4-wheel and front wheel drive vehicles.

AUTT 213 Automatic Transmission Overhaul 6cr

- A detailed study of the overhaul procedures on all current domestic automatic transmissions.

AUTT 230 Electrical System Overhaul 3cr

- To review basic electrical theory and learn the testing and overhaul procedures for electrical system components.

AUTT 295 Practicum in Auto Technology 3cr

- The student will work on the Gallp Campus in an assignment involving a variety of tasks equivalent to the functions and responsibilities of the line mechanic or parts counter person.

SUGGESTED COURSE SEQUENCING:

Recommended Course Sequence for full-time Students (part-time Students Should see an Academic Advisor to customize their educational plan)

Term 1 - 15cr/hrs
UNM-GALLUP | AAS Automotive Technology
AUTT 115 - 6cr
AUTT 130 - 6cr
MATH 115 - 3cr

Term 2 - 15cr/hrs
AUTT 170 - 6cr
AUTT 203 - 6cr
AUTT 230 - 3cr

Term 3 - 15cr/hrs
AUTT 157 - 6cr
AUTT 213 - 6cr
ENGL 110 - 3cr

Term 4 - 15cr/hrs
AUTT 111 - 6cr
AUTT 210 - 6cr
ENGL 119 - 3cr

Term 5 - 15cr/hrs
AUTT 167 - 3cr
AUTT 295 - 6cr
PSY 211 or 230 3cr
Arts/Humanities/Social Science Elective - 3cr
Arts/Humanities/Social Science Elective - 3cr

Automotive Service Excellence (ASE) certified faculty guide students through the learning process in the automotive field of analytic and strategic approaches to repairs, maintenance, and new build of automotive equipment.
During the duration of the fall or spring semester, students are required to complete a series of tasks related to their area of training. Attached is a series of tasks students must know in order to advance to the next course of study or to graduate with a completion in AAS. Furthermore, potential employers require students to be experienced in the general areas of diagnosis and systems.

For example, included is a master automobile service technology task list in Brake Systems. Students are required to complete tasks listed as Priorities (must be completed **P1**-95%, **P2**-90%, and **P3**-75%).

AUTT 115 Brake Systems

For every task in Brakes, the following safety requirement must be strictly enforced:

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

A. ***General: Brake Systems Diagnosis***

1. Identify and interpret brake system concerns; determine needed action. P-1
2. Research vehicle service information including fluid type, vehicle service history, service precautions, and technical service bulletins. P-1
3. Describe procedure for performing a road test to check brake system operation including an anti-lock brake system (ABS). P-1
4. Install wheel and torque lug nuts. P-1

B. ***Hydraulic System Diagnosis and Repair***

1. Diagnose pressure concerns in the brake system using hydraulic principles (Pascal's Law). P-1
2. Measure brake pedal height, travel, and free play (as applicable); determine needed action. P-1
3. Check master cylinder for internal/external leaks and proper operation; determine needed action. P-1
4. Remove, bench bleed, and reinstall master cylinder. P-1
5. Diagnose poor stopping, pulling or dragging concerns caused by malfunctions in the hydraulic system; determine needed action. P-1

6. Inspect brake lines, flexible hoses, and fittings for leaks, dents, kinks, rust, cracks, bulging, wear, and loose fittings/supports; determine needed action. P-1
7. Replace brake lines, hoses, fittings, and supports. P-2
8. Fabricate brake lines using proper material and flaring procedures (double flare and ISO types). P-2
9. Select, handle, store, and fill brake fluids to proper level; use proper fluid type per manufacturer specification. P-1
10. Inspect, test, and/or replace components of brake warning light system. P-3
11. Identify components of hydraulic brake warning light system. P-2
12. Bleed and/or flush brake system. P-1
13. Test brake fluid for contamination. P-1

C. ***Drum Brake Diagnosis and Repair***

1. Diagnose poor stopping, noise, vibration, pulling, grabbing, dragging or pedal pulsation concerns; determine needed action. P-1
2. Remove, clean, and inspect brake drum; measure brake drum diameter; determine serviceability. P-1
3. Refinish brake drum and measure final drum diameter; compare with specification. P-1
4. Remove, clean, inspect, and/or replace brake shoes, springs, pins, clips, levers, adjusters/self-adjusters, other related brake hardware, and backing support plates; lubricate and reassemble. P-1
5. Inspect wheel cylinders for leaks and proper operation; remove and replace as needed. P-2
6. Pre-adjust brake shoes and parking brake; install brake drums or drum/hub assemblies and wheel bearings; perform final checks and adjustments. P-1

D. ***Disc Brake Diagnosis and Repair***

1. Diagnose poor stopping, noise, vibration, pulling, grabbing, dragging, or pulsation concerns; determine needed action. P-1
2. Remove and clean caliper assembly; inspect for leaks, damage, and wear; determine needed action. P-1
3. Inspect caliper mounting and slides/pins for proper operation, wear, and damage; determine needed action. P-1
4. Remove, inspect, and/or replace brake pads and retaining hardware; determine needed action. P-1
5. Lubricate and reinstall caliper, brake pads, and related hardware; seat brake pads; inspect for leaks. P-1
6. Clean and inspect rotor and mounting surface; measure rotor thickness, thickness variation, and lateral runout; determine needed action. P-1
7. Remove and reinstall/replace rotor. P-1
8. Refinish rotor on vehicle; measure final rotor thickness and compare with specification. P-1
9. Refinish rotor off vehicle; measure final rotor thickness and compare with specification. P-1
10. Retract and re-adjust caliper piston on an integrated parking brake system. P-2
11. Check brake pad wear indicator; determine needed action. P-1
12. Describe importance of operating vehicle to burnish/break-in replacement brake pads according to manufacturers' recommendations. P-1

E. ***Power-Assist Units Diagnosis and Repair***

1. Check brake pedal travel with and without engine running to verify proper power booster operation. P-2
2. Identify components of the brake power assist system (vacuum and hydraulic); check vacuum supply (manifold or auxiliary pump) to vacuum-type power booster. P-1
3. Inspect vacuum-type power booster unit for leaks; inspect the check-valve for proper operation; determine needed action. P-1
4. Inspect and test hydraulically-assisted power brake system for leaks and proper operation; determine needed action. P-3
5. Measure and adjust master cylinder pushrod length. P-3

F. ***Related Systems (i.e., Wheel Bearings, Parking Brakes, Electrical) Diagnosis and Repair***

1. Diagnose wheel bearing noises, wheel shimmy, and vibration concerns; determine needed action. P-1
2. Remove, clean, inspect, repack, and install wheel bearings; replace seals; install hub and adjust bearings. P-2
3. Check parking brake system and components for wear, binding, and corrosion; clean, lubricate, adjust and/or replace as needed. P-1
4. Check parking brake operation and parking brake indicator light system operation; determine needed action. P-1
5. Check operation of brake stop light system. P-1
6. Replace wheel bearing and race. P-3
7. Remove, reinstall, and/or replace sealed wheel bearing assembly. P-1
8. Inspect and replace wheel studs. P-1

G. ***Electronic Brake Control Systems: Antilock Brake (ABS), Traction Control (TCS), and Electronic Stability Control (ESC) Systems Diagnosis and Repair***

1. Identify and inspect electronic brake control system components (ABS, TCS, ESC); determine needed action. P-1
2. Describe the operation of a regenerative braking system. P-3
3. Diagnose poor stopping, wheel lock-up, abnormal pedal feel, unwanted application, and noise concerns associated with the electronic brake control system; determine needed action. P-2
4. Diagnose electronic brake control system electronic control(s) and components by retrieving diagnostic trouble codes, and/or using recommended test equipment; determine needed action. P-2
5. Depressurize high-pressure components of an electronic brake control system. P-2
6. Bleed the electronic brake control system hydraulic circuits P-2
7. Test, diagnose, and service electronic brake control system speed sensors (digital and analog), toothed ring (tone wheel), and circuits using a graphing multimeter (GMM)/digital storage oscilloscope (DSO) (includes output signal, resistance, shorts to voltage/ground, and frequency data). P-2
8. Diagnose electronic brake control system braking concerns caused by vehicle modifications (tire size, curb height, final drive ratio, etc. P-3

2B: Describe the contributions of the program to other units/programs within UNM-Gallup

The AAS in Automotive Technology program connects to/supports several other programs within the University. The Writing and Speaking requirement, ENGL 110 and ENGL 119 support the English Department and ENGL 119 is cross listed in both the AAS in Construction Technology and the Certificate in Welding programs. The Arts/Humanities/Social Science requirement, 6 credits taken from any of the lower division Core Curriculum in Arts, Humanities, or Social Sciences, supports those programs/departments. The Behavioral Science requirement, PSY 211 or 230 supports the Psychology Department and PSY 211 is cross listed in the AAS in Construction Technology program. The Math requirement, MATH 115 is cross listed in the Certificate in Auto Technology and Certificate in Welding programs.

Several of the courses in the AAS program are cross listed in the Certificate program such as AUTT 111, 115, 130, 157, 167, 230, and 295. AUTT 170, 203, 210, and 213 are unique to the AAS program.

2C: Describe the modes of delivery used for teaching courses

Direct and Indirect measures will be applied to all students in the AAS, Automotive Technology Program

Teaching Methods

1) **Lecture with, or without, various visual aids:** Lecturing conveys information that an instructor feels is most important, according to the lesson plan. Various visual aids will be utilized.
2) **Group problem solving, Collaborating, discussion, debate, and/or critique:** Group collaboration will allow students to actively participate in the learning process by talking with each other and listening to other points of view.
3) **Demonstration in shop and classroom:** demonstrating will allow students to personally relate to the presented information. Demonstrations help to raise student interest and reinforce memory retention.
4) **Computer assisted instruction:** this method involves interaction of the student with programmed instructional material such as, Computer Aided Instruction, Computer Based Education, Computer Assisted Learning with various Tutorials, Simulations, and
5) **Hands-on shop assignments:** Students learn by giving them the training to take initiative for their own learning experiences. Learners are actively involved.

Instructor facilitates a process of learning in which students are encouraged to be responsible and active.

Problem based learning: A lecturer gives students information in problem based learning to present students with a problem to encourage them to find a solution. This allows students to become more active in their learning as they work out which information they need to find out to solve a particular problem.

Some benefits:

- Develop transferable and employability skills that will be useful in the workplace
- Improve communication and team working
- Practice research and information processing
- Develop debating and analytical skills

Work based learning: this mode of delivery provides students with real-life work experiences to aid their learning and improve their employability. Workplace learning is integrated into the curriculum to allow students to experience theories in practice.

Student-led learning: Student- or peer-led learning is where students themselves facilitating their learning, often by students in the year above guiding students in group activities to discuss materials with their peers and solve problems. This helps to encourages collaborative learning.

Document 3:

Teaching and Learning – Continuous Improvement

3A: Describe the program's assessment process and evaluation of student learning outcomes

- What skills, knowledge, and values are expected of all students at the completion of the program (refer to learning goals outlined in Document 1)?
- What are the student learning outcomes for the program?
- How have the student learning outcomes been changed or improved?
- How are the student learning outcomes clearly defined and measurable?
- How are the student learning outcomes communicated to faculty and students?
- What current direct and indirect assessment methods are used to evaluate the extent to which students are meeting the student learning outcomes?
- How have the program's assessment methods been changed or improved?

3B: Synthesize the impact of the program's annual assessment activities

- How have the results of the program's assessment activities been used to support quality teaching and learning?
- How have the results of the program's assessment activities been used for program improvement?
- Overall, how is the program engaged in a coherent process of continuous curricular and program improvement?
- How does the program monitor the effects of changes?

3A: Describe the program's assessment process and evaluation of student learning outcomes by addressing the questions below:

1. **What skills, knowledge, and values are expected of all students at the completion of the program (refer to learning goals outlined in Document 1)?**

A.1. Students will have a broad knowledge of Fundamentals in automotive technology
B.1. Students will have a broad knowledge of the Automotive industry in which business operates including specific knowledge of diversity, economics, and ethics.
C.1. Students will have requisites of oral and written communication skills.
D.1. Students are prepared for future study.
E.1. Students are able to perform at a professional level in the automotive industry

2. **What are the student learning outcomes for the program?**

A.1. Students will be able to communicate effectively both written and orally.
B.1. Students will be able to solve mathematical problems by applying concepts and proving the results.
C.1. Students will be able to demonstrate knowledge of the basic operations of a computer and software applications and create professional business documents using appropriate software's.
D.1. Students will be able to register and pass an ASE student certified examination
E.1. Students will be able to demonstrate knowledge as it pertains to the Automotive systems

3. **How have the student learning outcomes been changed or improved?**

Students learning outcomes have improved. Students are now able to be selected for internship opportunities and are able to perform at a professional level in the automotive community.
Also, students will give feedback to the coordinator based on the instructors. This allows the faculty and coordinator to sit down and discuss areas of improvements needed.

4. How are the student learning outcomes clearly defined and measurable?

Students are required to complete a series of tasks relevant to their area of training. For example, AUTT 115-400 Brakes systems, students are required to complete Tasks that are listed as priority 1 through priority 3. Each tasks may consist of varies objectives. Each completed objective ensures the instructors and potential employers students are understanding the material and are able to troubleshoot and repair vehicle concerns.

Refer to curriculum to see tasks in brake systems.

5. How are the student learning outcomes communicated to faculty and students?

Direct.

Meetings are held with full time and part time faculty before the start of an academic semester to go over expectations, goals and learning outcomes.

Students are expected to participate in orientations to go over shop safety, program expectations and attendance policies.

6. What current direct and indirect assessment methods are used to evaluate the extent to which students are meeting the student learning outcomes?

Direct, through observation in lab activities and simulations

Indirect, independent study. Book work assignments are assigned at the completion of each chapter presentation through PowerPoint.

Direct. *Students are required to participate in orientations at the beginning of every semester and are required to sign a statement of understanding for the expectations throughout the semester.*
Direct. *Students are required to participate in safety orientations at the beginning of every semester and are required to pass with 100% scores before allowed to enter lab area.*
Indirect: *Student are required to complete assigned end of chapter review questionnaires and lab activity tasks lists. Assignments that are submitted allow instructors to review areas of misunderstanding*

a. Instructors will keep track of student progress on required clock hours

b. Instructors will keep track of students' progress on required tasks assigned
c. ASE testing will be practiced in preparation for ASE tests that are administered semi-annually on campus. (the student must prepare for testing and pass a practice test with a 72% or better in areas of study. Instructors will keep track of pass rates for graduates in the actual ASE testing.

7. **How have the program's assessment methods been changed or improved?**

Improved by incorporating more safety Inspections during lab time. Students will demonstrate the importance of shop safety by taking a shop safety test before entering the automotive lab area

Also, students are given an entry pretest to monitor improvements beginning of the semester and again at the end of the semester to compare results. For example, in AUTT 115-400 Brake systems, students are given a 30 question test at the beginning of the semester to determine familiarity of that particular subject, and the same test is given again at the end of the semester to compare improvements.

3B: Synthesize the impact of the program's annual assessment activities by addressing the questions below:

1. How have the results of the program's assessment activities been used to support quality teaching and learning?

   The test results allow instructors to improve in areas students are lacking in experience and knowledge of a particular topic. By comparing pretest and posttest results, faculty can better determine method of instructions.

   Also, recommendations from the automotive advisory board plays a factor in determining tasks a students should know prior to graduation from the auto tech program. Faculty meet prior to each semester and agree on learning outcomes and goals for the program.

   UNM-Gallup Automotive technology program is designed to mimic that of an actual automotive dealerships daily operations, with the added element of students researching certain topics as it pertains their course of study.

2. How have the results of the program's assessment activities been used for program improvement?

   Recommendations are evaluated by automotive technology faculty and assessed for pros and cons. It was determined modeling the UNM-Gallup auto tech program after a dealership is the best way to teach students to prepare them for employment. Students are now able to write up workorders (work received) documents and speak with the customer one-on-one without the aid of an instructor. Also, students are able to research into service information manuals to determine the best method of replacing or repairing vehicle components.

3. Overall, how is the program engaged in a coherent process of continuous curricular and program improvement?

   An Automotive advisory board convenes to times a year. Each member is informed of student outcomes and daily activities. Members of the advisory board give recommendations of experience students must be skilled in order to succeed in the industry. Also, members review curriculum and give recommendations of priorities of tasks that students should know prior to graduation.

   Also, Faculty and cooperative apprenticeship students meet and discuss current training trends.

   This allows UNM-Gallup to stay current with the automotive industry.

4. How does the program monitor the effects of changes?

   No current model is available to track changes.

   However, since the fall of 2016, students have been in demand more in automotive industry dealerships or independent shops for internship opportunities or full/part time employment. Overall, 20 students have been successfully hired from the automotive technology program since fall of 2016.

Document 4:

Students

4A: Provide information regarding student recruitment and admissions.
4B: Provide an analysis of enrollment trends, persistence, and graduation trends.

4C: Provide a description of program advisement for students.

4D: Describe any student support services that are provided by the program.

4E: Describe any student success and retention initiatives in which the program participates.

4F: Describe where graduates of the program are typically placed (including transfers to other institutions).

4A: Provide information regarding student recruitment and admissions.

In general students are recruited and admitted by the usual means, advertising of the program online via the university, department, and program webpages, in the UNMG catalog, and by word of mouth among students. Admission into the program follows the same process as non-Automotive Tech students. All students must be accepted into the university and have sufficient scores on the Accuplacer Test to qualify them for university level Math and English courses. A minimum grade of C must be maintained in all courses in the Certificate program.

4B: Provide an analysis of enrollment trends, persistence, and graduation trends.

Looking at the enrollment numbers in the ASS in Automotive Technology, it appears that the student numbers have been on a slight decline pattern from 2013-2015 with a general increase in numbers from 2016 to the present. The number of students in the Fall has increased from 41 in 2013 to 58 in 2017. The numbers for Spring students shows a drop from 52 in 2013 to 43 in 2017. Currently, it appears that enrollment for both Spring and Fall of 2018 is at an increase.

The completion rate for the AAS in Automotive Technology program also shows increasing number of graduates in the last three years. In 2013 and 2014, there were no graduates in the program. In 2015, one student completed the program. In 2016, two students graduated, and in 2017, eight students graduated with the AAS in Automotive Technology.

Some graduates of this program go on to complete their BA degrees in other fields at local universities such as University of New Mexico, Albuquerque, New Mexico State University in Grants or Las Cruces, Arizona State University in Phoenix, Western New Mexico University, or Navajo Technical University. For employment, many of our graduates are employed in the area by the Gallup Refinery, Gallup McKinley County, the Navajo Nation, local shops and business in the auto repair industry, or relocate to the areas to pursue further technical education or employment. Currently, no programs are in place to officially track graduates and record their career success, but this type of tracking would improve the program by providing graduate feedback on their preparedness for the job market upon graduation as well as identify area in need of improvement in the program from the graduate's perspective.

	Includes all students enrolled in AAS Program Core Courses					
		2013	2014	2015	2016	2017
Fall Semester						
	Total Student Credit Hours	702	690	543	609	645
	Total Course Enrollments	138	125	99	112	117
Spring Semester						
	Total Student Credit Hours	648	624	579	633	576
	Total Course Enrollments	128	118	107	129	116

	Only includes students enrolled in AAS Program Core Courses who are also enrolled in the AAS Auto Tech Program (excludes those enrolled in other programs)					
		2013	2014	2015	2016	2017
Fall Semester						
	Total Student Credit Hours	303	345	279	366	414
	Total Course Enrollments	56	62	52	68	76
Spring Semester						
	Total Student Credit Hours	315	345	321	303	297
	Total Course Enrollments	61	67	60	60	58

Headcount (by semester) enrolled in AAS-Auto Tech Program					
	2013	2014	2015	2016	2017
Fall	41	48	55	57	58
Spring	52	47	48	49	43

Number of sections taught by semester												
		2013		2014		2015		2016		2017		Semester First Offered at UNM-Gallup
Title	Course	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	
Auto Testing & Diag	AUTT111	1	0	1	0	1	0	1	0	1	0	Summer 2003
Brake Systems	AUTT115	0	2	0	2	0	2	0	2	0	2	Summer 2003
Electrical System Repair	AUTT130	0	1	0	1	0	1	0	1	0	1	Summer 2005
Steering & Suspension	AUTT157	2	0	2	0	2	0	2	0	2	0	Summer 2004
Emission Control Ser	AUTT167	0	1	0	1	0	1	0	1	0	1	Summer 2004
Heating & Air Conditioning	AUTT170	0	1	0	1	0	1	0	1	0	1	Summer 2005
Automotive Engine Overhaul	AUTT203	1	0	1	0	0	0	1	0	1	0	Summer 2004
Drive Train Overhaul	AUTT210	0	1	0	1	0	1	0	1	0	1	Summer 2005
Auto Transmission Overhaul	AUTT213	1	0	1	0	1	0	1	0	1	0	Summer 2005
Electrical System Overhaul	AUTT230	1	0	1	0	1	0	1	0	1	0	Summer 2005
Practicum in Auto T	AUTT295	2	1	1	0	0	0	2	0	2	0	Summer 2003
Courses in grey are not part of the CERT Auto Tech Program,												

only the AAS Auto Tech Program													
"Semester first offered at UNMG" shows the earliest date that the course was listed in the catalog													

Completions with an AA in Auto Tech		2013			2014			2015			2016			2017		
		Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall
AA Automotive Technology		4	0	1	2	0	1	1	0	3	4	0	3	5	1	1

4C: Provide a description of program advisement for students.

Academic Advisement Mission:

To develop a partnership with students to build their knowledge of degree requirements and campus resources to ensure their successful completion of a Certificate and/or Associate program that supports their progression into a career and/or transfer to continue their education

Academic Advising

In Student Affairs, academic advisors are available on a drop-in basis or by appointment to assist students in determining educational goals and dealing with personal concerns that may affect academic progress. Advisors help students select classes, plan course schedules, decide on degree programs, interpret transfer evaluations, meet graduation requirements, and resolve problems relating to policies and procedures.

Because of limited time during the registration period, it is suggested that students see an advisor prior to registration or make appointments in advance through LoboAchieve to avoid long waiting times.

Throughout the semester, advisement will provide a variety of workshops that will be helpful for understanding your academic journey. Events will be listed on our calendar and notices will be posted throughout campus.

Services Provided:

- Accuplacer Testing
- New Student Orientation
- Academic, Transfer and Career Advisement and Coaching
- Monitoring, Intervention & Early Alert
- Workshops

4D: Describe any student support services that are provided by the program.

Students are encouraged to seek and/or referred to the various support services on campus such as Accessibility Resource Center, Career Services, Center for Academic Learning (CAL), LGBTQ Resource Center, Transfer Resource Center, Trio/SSS, and Veterans Resource Center.

The Automotive program encourages students to join membership with UNM-Gallup auto club in order to gain extended hands on training in the auto shop after hours and are encouraged to network with other students.

Faculty also tutor students one-on-one if a students does not understand a certain topic or how to properly operate equipment, specialty tools and tools.

4E: Describe any student success and retention initiatives in which the program participates.

Cooperative internship opportunities. Students are aware opportunities are available to them through UNM-Gallup automotive to work as apprentices in the automotive industry. This allows students to get a head start on their career as automotive technicians. Also, student discounts are available to students of the auto tech program to purchase tools and parts at discounted rates.

4F: Describe where graduates of the program are typically placed (including transfers to other institutions).

Currently no data exist to track student employment/transfer after graduation.

However, students who participate in UNM-Gallup Cooperative internships or shadow program do have a requirement to fill out a cooperative education application packet. This application is an employment opportunity agreement between the student, program coordinator and participating shop manager. Students are selected through a vetting process by the full time faculty and part time faculty to determine who best fits the requirements by the participating business. About 80% of Students who participated in internship opportunities have been offered a full time employment contract to work as service technicians, under the supervision of senior technicians, students are evaluated at the end of each semester based on their work performance. This survey allows the acting coordinator to make improvements where student's knowledge/experience is lacking.

Currently, a total of 20 students hold an employment status with local dealership and independent shops while/after attending the UNM-Gallup automotive technology program since the spring of 2017.

Document 5:

Faculty:

5A: Describe the composition of the faculty and their credentials

5B: Provide information regarding professional development activities for faculty within the program

5C: If applicable, provide a summary and examples of scholarly/creative work of faculty members within the program

5D: Provide an abbreviated vitae (2 pages or less) or summary of experience for each faculty member

5A: Describe the composition of the faculty and their credentials

The full time and part time adjunct faculty are extremely qualified in the field to instruct in the automotive technology program. Each instructor possess industry certifications applicable to automotive technology and teaching requirements of the University of New Mexico Gallup campus. These certifications included the automotive industry Automotive Service Excellence (ASE) and minimum qualifications in technical instructions. The manner in which the individuals obtained their automotive expertise in automotive technology varies. Additionally, the individuals possess varying lengths of work experience as instructors and as automotive technicians working in the industry.

Each instructor improved the method of instructional delivery to the current curriculum design of Automotive Technology. The curriculum has evolved from a free-flowing, pick something to learn on any given day design to courses that had prerequisites, identified start and end dates, and stated objectives. The new, structured teaching method provides guidance in course competencies that previously was not available to students.

- **Ernesto Watchman:** Skills/knowledge building on 15 years' experience
  Attached is a highlight list of Ernesto Watchman accomplishments at UNM-Gallup automotive technology:
  - Reconfiguration, course modification and development; faculty retention and leadership building management; maintained a student centric approach and a commitment to ensuring all academic excellence
  - Strongly committed to bringing new technology into the classroom and lab to further engage and capture student interest
  - Developed and established an innovative program to attract and retain Students, and energized academic offerings to enhance career and professional development outcomes for students
  - Developed, initiated and maintained business relationship with various dealership, independent shops, tool franchises and small business start ups

    a. Associate of Applied Science (University of New Mexico)
    b. ASE certified: A5 Brakes, Suspension and Steering/Maintenance and Light Repair (Test In progress)
    c. Chrysler FCA level 0 training: Fundamentals, Electricals/Electronics, Ohms Law, Porter/Receiver, Engine Performance, Maintenance and Light Repairs.

- **Abel Johnson:** Skills/knowledge building on over 25 years' work experience. Currently, Abel works as a Senior Automotive Technician for Windowrock Fleet management. Abel demonstrates a commitment to improving the UNM-Gallup auto tech program and is very knowledgeable in courses he instructs. His tasks include but not limited to, diagnosing/replacing engines, diagnosis noise and repairs, diagnosing/replacing transmissions, maintenance and light repairs, keep up to date in industry trainings, perform drivability work, servicing heating and air conditionings, be able to navigate online computer generated service manuals, supervise and train all incoming service techs. Some of his qualifications are as listed:
    a. Associates of Occupational Studies (Universal Technical Institute)
    b. ASE certified: A1 Engine repair, A2 Automatic Transmissions, A3 Manual Transmission and axles, A4 Steering and Suspension, A5 Brakes, A6 Electrical/Electronic systems, A7 Heating and Air-Conditioning, A8 Engine Performance.
    c. GM computer based training: fundamentals, Engine Performance, Diesel Engine Performance, Engine repair, Electrical/Electronics, Manual drive train and Axle, Automatic Transaxle/Transmission, Steering and Suspension, Brakes.

- **Felix Benally:** Knowledge/Skills building on 20 years' experience. Felix currently a master level ASE certified technician, works as an Automotive Technician for Amigo Chevrolet and has been employed by Amigos Chevrolet for over 20 years. Felix's knowledge and experience is very beneficial to the UNM-Gallup auto tech program as he is able to take lessons from the assigned text books, as well as use his experience and apply the techniques in a way that is understandable for his students. His tasks include but not limited to, diagnosing/replacing engines, diagnosis noise and repairs, maintenance and light repairs, keeping up to date in industry trainings, perform drivability work, servicing heating and air conditionings, electrical diagnosis, testing and diagnosis concerns, able to navigate online computer generated service manuals, supervises and trains all incoming service technicians. Some of his qualifications are as listed:
    a. Automotive certificate (Universal Technical Institute)
    b. ASE Master Technician certified: A1 Engine repair, A2 Automatic Transmissions, A3 Manual Transmission and axles, A4 Steering and Suspension, A5 Brakes, A6 Electrical/Electronic systems, A7 Heating and Air-Conditioning, A8 Engine Performance.
    c. GM training/Toyota training: Brake systems, Audio and Entertainment training, Diesel drivability, Airbag and other constraints, Chevy Hybrid

training, Heating and air-conditioning, Body and electrical, Electrical/Electronics, Testing and diagnosis, Drivability.

5B: Provide information regarding professional development activities for faculty within the program

Currently, funding is insufficient to cover costs of industry standard training. However, each instructor has attended automotive related training online or at a training facility with their respective employers. Occasionally, tool distributers will be invited to give a guest lecture about current technology with equipment and tools.

Additionally, Ernesto has attended some training for professional development in NCSL leadership, New Mexico ACTE Region conference with UNM-Gallup.

5C: If applicable, provide a summary and examples of scholarly/creative work of faculty members within the program

Ernesto Watchman coordinates day to day operations for the UNM-Gallup automotive program, and maintains business partnerships with local dealerships and independent shops. An advisory board was formed under his direction as well as an internship program. Opportunities for student employment has increased in the years he's been coordinating.

Abel Johnson and Felix Benally have both contributed to the improvement of automotive technology program and the development of current curriculum modifications.

5D: Provide an abbreviated vitae (2 pages or less) or summary of experience for each faculty member

Refer to appendix: 1A, 1B, 1C.

Document 6:

Resources and Planning

6A: Describe how the program engages in resource allocation and planning.

6B: Provide information regarding the program's budget including support received from the institution as well as external funding sources.

6C: Describe the composition of the staff assigned to the program (including titles and FTE) and their responsibilities.

6D: Describe the library resources that support the program's academic initiatives.

6A: Describe how the program engages in resource allocation and planning.

The Automotive Technology is within the Business Technology budget. The program budget is allocated yearly by the University and overseen by the Division Chair of Business and Applied Technologies. The senior full-time faculty member in the program handles all purchase requests for the program. Purchases for the department are requested through the senior faculty member and approved by the Chair. There is an Advisory Board for the program.

6B: Provide information regarding the program's budget including support received from the institution as well as external funding sources.

The budget for Automotive Technologies is attached. There are no external funding sources.

2000 - Faculty Salary Detail Gen	$.00
3100 - Office Supplies General	$200.00
3110 - Books Periodicals Gen	$200.00
3140 - Computer Software Gen	$1,000.00
3150 - Computer Supplies<$5,001	$800.00
3182 - Tools <$5,001	$1,000.00
31B0 - Food F&A Unallowable Gen	$500.00
31N2 - Individual Safety Equipment	$200.00
31P1 - Instructional Materials & Supplies	$4,571.00
37Z0 - Other Supply Costs Gen	$1,500.00
3800 - In State Travel Gen	$500.00
6020 - Long Distance Gen	$21.00
63X0 - Technical Services Gen	$1,000.00
80K0 - Banner Tax	$115.00
*TOTAL Expense	$11,607.00
Total Revenue:	$11,607.00
Total Expense:	$11,607.00

6C: Describe the composition of the staff assigned to the program (including titles and FTE) and their responsibilities.

The program consists of one full time faculty member, Ernesto Watchman, teaching three classes for total fifteen credits, each in both fall and spring semesters. There are also two part-time faculty members. Felix Benally teaches two classes in the fall semester for nine credits, and twelve credits in the spring. Abel Johnson teaches two classes for total of twelve credits each semester in the fall and spring.

6D: Describe the library resources that support the program's academic initiatives.

Zollinger Library provides a variety of services and resources that support the University's instructional programs and users' needs for personal enrichment and recreation. Knowledgeable staff are available to organize library materials, to help users locate information, and to assist them in using print and online resources and computer equipment

The library contains a computer lab, a conference room and group study rooms. In addition, the facility houses books, videos and periodical titles.

Document 7:

Facilities

7A: Describe the facilities associated with the program, including, but not limited to, classrooms, program space (offices, conference rooms, etc.), laboratories, equipment, access to technology, etc.

7B: Describe any computing facilities maintained or used by the program.

7A: Describe the facilities associated with the program, including, but not limited to, classrooms, program space (offices, conference rooms, etc.), laboratories, equipment, access to technology, etc.

The Automotive Technology department is located in Building 2 GH-CE1310

A fully equipped lab area allows students to get extended hands-on training to diagnosis and repair their own vehicles, and students may service vehicles for the community at no labor cost and in a timely fashion.
The Automotive Technology program Space is insufficient to house 40 students at a time. 2 part time faculty in the evenings are tasks to house 40 plus students and share the shop for instruction. This creates tension as students have multiple vehicles to service as space is insufficient to support a high volume of traffic at one time. The current design and set up has yet to be upgraded since year 2002.

Major equipment for instruction included: Hunter four post Wheel alignment, 3 hydraulic lifts, Hunter smart Wheel Balancer, 2 Coats wheel balancer, 2 wheel dismount/mount machines, 1 engine troubleshooting trainer, 2 transmission teardown benches, Snap-on vehicle diagnosis machine, A/C refrigerant flush/refill machine, off-car Brake lathe, on-car brake lathe, 3 transmission flush machines, 2 battery chargers, 47 inch smart TV for instruction, 4 electric motor bay doors.

The tool room houses a wide variety of specialty tools for instruction (complete list of tools is provided), every cabinet holds tools pertaining to a particular subject, for example in brakes: one cabinet inventories brake specialty tools only. Items found in the tool include: 7 cabinets, 3 fire proof cabinets, 3 battery chargers, 3 transmission flush machines, 1 welding machine, 1 on-car brake lathe, 2 filing cabinets, 2 drawers to inventory small specialty items, 2 transmission jacks, 2 engine hoists, 1 A/C flush/refill machine, 1 movable solvent tank,

The office holds documents for instruction as well as specialty tools. Items located in the shop office include: 3 cabinets to hold special tools, one office desk and computer, telephone, white board, 2 filing cabinets,

Classroom is adjacent to the shop, the spacing available is not sufficient to hold 20 students at a time. Students have to either sit on floor, stand in back of room, or stand by the door in order to hear presentations. The equipment to deliver instruction include: 1 overhead projector, 5 classroom computers, 6 wooden hardtop transmission teardown desk, 20 stools, 7 trainers (electrical, brakes, lightening, audio, charging, starting, etc),

Parking outside the shop is very small and difficult to maneuver vehicles exiting and entering the shop. 4 vehicles are available to students for training as they are donated to the program.

Refer to Appendix 2A for shop layout and 2B for list of tools and Equipment

7B: Describe any computing facilities maintained or used by the program.

No other facilities is utilized by the UNM-Gallup Automotive Technology program

Reviewed and Discussed by members of the Automotive Technology Faculty (Ernesto Watchman, Felix Benally, and Abel Johnson).

The Automotive Industry changes every 5 years. Working on today's vehicles requires an understanding of fundamentals and principles in technology associated with modern cars and sophisticated automobile vehicles. This means schools need to stay current with the automotive industry in order to properly educate students in its industry standards. The UNM-Gallup Automotive Department has been reviewed for its strengths and weaknesses by industry partners such as Tate's Auto Group, Snap-On Tools, Gurley Motor Company, and Navajo Nation Fleet Management in Window Rock, Arizona.

Positives:

a. Low cost tuition (as compared to other automotive programs)
b. Enrollment
c. Hands-on experience
d. Industry partnerships
e. Internship opportunities
f. Certified faculty
g. Popularity
h. Automotive Advisory committee
i.

Negatives:

A. Credit hours for completion
B. Space
C. Non-paid internships
D. Insufficient equipment available for demonstration
E. Limited amount of tools available
F. Non-third party accreditations
G. Outdated equipment
H. Budget
I.

The Automotive Department Advisory Committee determined that National Automotive Technicians Education Foundation (NATEF) Certification is a requirement and is possible to obtain for student and program recognition in Automotive Service Excellence (ASE) training in two years if the Automotive Department has the cooperation of other departments and with enough funding and other adjustments. Attendance in the Automotive Technology Program has slowly risen and all indications are that today's UNM-Gallup Auto technology program will continue to attract new students and retain current students. Our goal is to become NATEF certified in the CCTE program as well as the College Program to better certify the individual who will pursue the automotive field in ASE certifications. ASE certification is available in eight

different automobile specialty areas: Automatic Transmission/Transaxle, Brakes, Electrical and Electronic Systems, Engine Performance, Engine Repair, Heating and Air-Conditioning, Manual Drive Train and Axles, and Suspension and Steering. To become certified, technicians must have at least 2 years of shop experience (or relevant schooling and 1 year of shop experience) and pass an exam.

Also, we must progress and improve the areas of teaching methods and equipment to stay up to date with other institutions and stay current with the ever-changing automotive industry. Instructors must also keep up to date with Industry standards in Automotive Service Excellence (ASE) certifications.

Automotive Technology faculty, UNM students, automotive club members, UNM student representatives, and UNM academic advisors assist in recruitment by on site school visits to promote and advertise the Auto Technology Program. In order for the UNM-Gallup Automotive Technology Program to reach its goal, it needs additional resources, such as, additional fulltime faculty, state of the art equipment, expanded Auto tech Lab area and classroom, increased budget, and curriculum change to bring each objective to fruition.

9B: Describe the program's strategic planning efforts

Establishing a High Quality and Deliverable Curriculum and Program.

Already, a strategic Action Plan was drafted by Ernesto Watchman and submitted to the UNM-Gallup Dean of instruction, CFO, and Business and Applied Tech Division chairman for consideration. Also, a 5 year plan has been drafted and will be submitted to the Business and Applied tech Chairperson for consideration.

Refer to appendix 3A and 3B

9C: Describe the strategic directions and priorities for the program.

Future of the Automotive Program

1. Students will provide own personal tools and tool boxes and will be graded at the end of every semester to ensure they have a basic tool inventory put together. This will account for a grade. Students are encouraged to continue purchasing tools. Instructor will hand a basic tools list for students to use as a reference.
2. Design a cooperative program where students will be required to pass 1 year of auto technology and public speaking or inter personal communication classes in order to qualify for Co-op. This will ensure students are ready and qualified to serve as interns (apprentices) in the selected cooperative education recruited hosts business.
3. Students will be required to pass a minimum of 2 ASE certifications in order to graduate with their desired level of completion. (Certificate, AAS)
4. Students will be required to wear automotive uniform on college campus and work sites. (sponsored, furnished uniforms)
5. A system that will allow students participating in cooperative education to rotate in and out of college classrooms for 16 week. 8 weeks in classroom/shop training (9 hour days), 8 weeks in their selected automotive shop to apply their level of education. (Total: 320 hours a semester) instructor will have an end of year evaluation to determine if student advances to next level of training.
6. Building a successful program will allow UNM-G to obtain NATEF certification, GM ASAP certification, expansion, updated state of the art equipment.

Achieving certification with NATEF.

Achieving third party accreditations is a priority for the UNM-Gallup automotive technology program. This will allow the Auto tech program to partner with manufacturers and also allow students to take ASE certification tests upon graduating the program.

Updating curriculum

In order for students to graduate from the Automotive Technology program, students must complete over 75 credit hours depending on the accuplacertest, in order to receive an AAS degree. A proposed curriculum change has been submitted deleting a few courses and bringing AAS total credit hours down from 75cr hours to 62cr hours. The current Curriculum change requests seek to modify courses and requirements within existing majors and programs or to create new majors or programs. The current curriculum has yet to be updated in over a decade.

Budget Increase

FY 2016-2017 was both an exciting and challenging year for the UNM-Gallup Automotive Department. Some examples are:

- In the fall 2016, we successfully established a partnership with several automotive shops and dealerships around the Gallup Community and surrounding area through a Cooperative Education program.
- Our graduation rates have increased - as well as our enrollment capacity.
- More of UNM-Gallup students in particular are in demand for potential employment opportunities around the Gallup community.
- We are working with local high schools to create an on-site dual credit program to help recruit and retain future students at a secondary level.
- We are taking measures to apply for NATEF accreditations to certify the UNM-Gallup Automotive program.
- We have improved our curriculum and teaching methods to deliver a more meaningful program for the students.

However, this work is exhausting for one faculty member to manage.

- UNM-Gallup received relatively stable state funding but continued to struggle as State appropriations have declined while student tuition continued to increase as evident in the last 6 years.
- Space is not sufficient to accommodate two separate programs, CCTE and College curricula.

- Technology in the classroom and in the lab area need upgrading due to out dated software and equipment.

Upgrading classroom and shop/lab may require UNM master plan facility department involvement.

UNM-Gallup also will have to provide travel and training opportunities for UNM-Gallup faculty and staff to remain at the forefront of national trends.

Approximate costs are as follows:

Planning/remodeling and Designing-	$40,000 estimate
Additional Faculty-	$55,000 direct salary (reoccurring)
New Equipment lab/classroom-	$150,000
Remaining operational costs-	$12,000

State of The Art Equipment

We are currently developing an action plan with industry partners such as Snap-On Tools. Snap-on has requested a blueprint to better design our shop layout and help to manage space as our current space is limited. The current budget is insufficient to cover costs to update equipment to be more state of the art.

Space Increase

An additional classroom is required that includes the technology to deliver streaming lessons. The lab shop also requires additional service bays to expand instructional delivery to accommodate both CCTE and College content. It should also contain a larger classroom that can accommodate 20-25 students. The addition of faculty members also requires additional office space. Finally, the program will need increased storage space for specialty tools and equipment. We hope to work with the Budget and Long-Term Planning Committees to improve the program while meeting other institutional goals and maintaining a suitably staffed, effective program.

Two Full Time Faculty Positions

Create a hiring plan requesting additional faculty line for an Assistant Professor of the Automotive Technology program. The commitment to the CCTE program and College program requires a second full time faculty member. Hiring an additional full time faculty will be very beneficial to the UNM-Gallup Automotive Program as the candidate will continue to help promote and build the auto technology program. The successful candidate should be equipped to lead the program, manage and create curriculum, and help to establish the brand. The individual will also be able to teach classes in class lectures and shop demonstrations. The second candidate should have industry certifications and must be up to date with all certifications. Furthermore, once hired this faculty will manage the college program and become a representative for the UNM-Gallup Automotive Technology program for recruitment.

Advisory Board Committee

This committee is broadly based on former students, current UNM-Gallup automotive full-time and adjunct faculty, employed technicians, service managers and representatives for consumer interests. The advisory committee must convene at least two working meetings a year to provide information, counsel and recommendations on behalf of the Gallup community served by the training program.

The UNM-Gallup auto technology program hosted an advisory committee meeting twice in the academic years of 2016/2017 and 2017/2018. The committee provided input, recommendations, suggestions concerning the auto technology program and reviewed budget funds. The advisory committee will continue to provide guidance and also help approve all tasks added to the mandatory NATEF task list required for the accreditation this program seeks.

The Automotive Technology program will share the standards its meeting with potential student employers and program partners and sponsors.

APPENDIX

0A-Syllabus

1A-Ernesto Watchman CV
1B-Felix Benally CV
1C-Abel Johnson CV

2A-Shop Layout
2B-Tools/Equipment

3A-Strategic Action Plan
3B-5Year Plan

0A-Syllabus

UNM GALLUP

Name of Division: **Semester:**	**Automotive Technology** **Spring 2018**
Instructor Name: Office Location Office Hours E-mail Telephone Class Meeting Days/Times Location	**Ernesto Watchman** GH 1311B or CH 167E (preferred) 8:00-9:00am Mon-Fri, 11:15am -12:15pm Mon-Fri (or schedule an appointment) *Ewatch10@unm.edu* (505) 863-7529 or (505) 863-7641 Tuesday and Thursday 1230pm to 0530pm GGH 1310
Syllabus *(Common across all sections)*	
Title of Course:	**Automotive Suspension and Steering**
Course Number	**AUTT 157-400**
Course Description	A detailed study of steering and suspension components and their repair and alignment
Credit Hours and Contact Hours	6 credit hours / 160 contact hours
Pre-requisites/co-requisites	N/A
Course Content and Scope: Understand overall Suspensions and Steering Systems and Become ASE Certified	**Learning Objectives and Outcomes** Upon successful completion of this course the student should be able to: 1. Understand the basic components of the Steering system. • Diagnosis and repair of the Steering System 2. Understand the basic components of the Suspension system.

	• Diagnosis and repair of the Suspension System 3. Understand the basic alignment procedures for front and rear wheel alignments • Perform front wheel inspection • Perform rear wheel inspection 4. Use repair manuals and reference manuals, both printed and computer data base 5. Perform proper repair or replacement of defective components 6. Complete ASE/NATEF task lists relevant to ASE/NATEF Standards

Disabilities Policy:

FACULTY SYLLABUS STATEMENT SEMESTER SPRING / 2018 YEAR

In keeping with University of New Mexico policy (UNIVERSITY BUSINESS POLICIES AND PROCEDURES MANUAL: "POLICY 2310: ACADEMIC ADJUSTMENTS FOR STUDENTS WITH DISABILITIES") and defined sections: **Section 504** of the Rehabilitation Act of 1973, **Section 508:** The Rehabilitation Act Amendments of 1998, **ADA:** The Americans with Disabilities Act of 1990, and the **ADAA:** The American with Disabilities Act Amendments of 2008 - of providing equal access to individuals with disabilities, instructors are strongly encouraged to include a statement on their syllabus informing students that academic accommodations can be provided on the basis of disability if the student follows the protocol described. The following statement contains all of the elements that should be present. Instructors may want to make changes based on style preference or particular course content. It is strongly recommended that you also read this statement to the students at the start of each semester when reviewing course policies. Early intervention can make all the difference in helping students achieve academic success. It also shows that the instructor made a good faith effort to inform students of their rights and responsibilities in this area, and that this effort was done in a timely manner.

Please include the Notice of Non Discrimination at the bottom, as it is a required addition to this document.

In keeping with the university's policy of providing equal access for students with disabilities, any student with a disability who needs academic accommodations is welcome to meet with (Instructor Name) _____ privately.

All conversations will be kept confidential (between student and instructor). Students requesting any accommodations will also need to contact:

STUDENT SERVICES – CAREER &ACCESSIBILITY RESOURCE CENTER (ARC)

By Appointment:

Mary Lou Mraz, MSEd, LMSW
UNM Student Success Specialist
Phone: (505) 863-7527
Location: Gurley Hall 1127 Email: mloumraz@unm.edu

To contact office:
Administrative Assistant
Phone: (505) 863-7757
Front Desk
Location: Gurley Hall 1127

ARC will conduct an intake and, if appropriate, will provide an approved academic accommodation notification that will be sent to you. At that point, you may contact me to review the letter and discuss these accommodations in relation to your course.

e of Non-Discrimination: The University of New Mexico-Gallup, as an equal opportunity/affirmative action employer and educator, lies with all applicable federal and state laws regarding nondiscrimination and affirmative action. The University of New Mexico-p is committed to a policy of equal opportunity for all persons and does not discriminate on the basis of race/ethnicity, color, national , age, spousal affiliation, sex, sexual orientation, gender identity, medical condition, disability, religion, pregnancy, genetic nation, or veteran status in employment, educational programs and activities, and admissions, and provides equal access to the Boy s and other designated youth groups. Inquiries or complaints may be addressed to the Office of Equal Opportunity whose Director as the 504/ADA Coordinator and Title IX Coordinator on UNM main campus: 505-277-5251. For referrals to main campus see: Gallup Title IX Coordinator; Director of Student
s, SSTC Room 276. Telephone: 505-863-7508. For Referrals to main campus regarding Section 504 compliance; Student Success alist, Gurley Hall Room 2205 B. Telephone: 505-863-7527.

Course Outline

(May vary according to Instructor)

Teaching Methods

1) **Lecture with, or without, various visual aids:** Lecturing conveys information that an instructor feels is most important, according to the lesson plan. Various visual aids will be utilized.
2) **Group problem solving, Collaborating, discussion, debate, and/or critique:** Group collaboration will allow students to actively participate in the learning process by talking with each other and listening to other points of view.
3) **Demonstration in shop and classroom:** demonstrating will allow students to personally relate to the presented information. Demonstrations help to raise student interest and reinforce memory retention.
4) **Computer assisted instruction:** this method involves interaction of the student with programmed instructional material such as, Computer Aided Instruction, Computer Based Education, Computer Assisted Learning with various Tutorials, Simulations, and
5) **Hands-on shop assignments:** Students learn by giving them the training to take initiative for their own learning experiences. Learners are actively involved. Instructor facilitates a process of learning in which students are encouraged to be responsible and active.

Evaluation/Grading Methods (Attach Rubric if available)

A student's grade will be based on multiple measures of performance, and will reflect the level of accomplishment of the objectives set forth above as well as a level of understanding of the topics enumerated under "Content and Scope." A final grade of "C" or better will indicate that the student has the ability to successfully apply the principles taught in this course to subsequent courses, to the work-place, or to personal goals as appropriate. The assessment process will also measure independent critical thinking skills and will reflect the student's ability to demonstrate their accomplishments by:

1) Performance on written or oral examinations
2) Performance on outside assignments including shop assignments
3) Contributing to class discussion
4) Maintaining attendance per current policy
5) Hands-on diagnosis and repair
6) Completion of assigned ASE/NATEF task lists

FINAL GRADE SCALE: (possible 100% score) Subject to change

1) Attendance 15%
2) Work assignments 25%
   - ➢ End of Chapter questionnaires, activities, discussions
3) Participation 40%
   - ➢ Lab Work, Shop Performance, presentation, Job sheets
4) Mid-Term Exam 10%
5) Final Exam 10%

Grading scale: *(course completion would require a grade C average and above)*

98-100 = A+	87-89 = B+	77-79 = C+	67-69 = D+
93-97 = A	83-86 = B	74-76 = C	63-66 = D
90-92 = A-	80-82 = B-	70-73 = C-	60-62 = D-

59 & Below = F

Required Text(s) & Supporting Materials

- **Today's Technician Automotive Suspension and Steering, 6th Edition, Mark Schnubel** (MindTap for Pickerill's Automotive Suspension and Steering Systems)
- Safety glasses **(MANDATORY)**
- Personal Tools **(OPTIONAL)**
- Work Shirt (Mandatory) and Leather Work Boots
- Test Light
- DVOM Meter

Assessment Methods

- Competencies, written and hands on activities set forth by the National Automotive Technicians Education Foundation.

Attendance Policy, shop/classroom rules and classroom behavior

- **If student needs accommodations, refer back to the disability policy included**
- **After repeated unexcused absences (4 consecutive), the student will be put on probation or dropped from the course.**
  - 20 minutes tardy will affect your grade
  - More than an hour late will result in unexcused absence
  - If excused, need show proper documentation.
  - Must present documentation if employed (from employer)
- **No personal calls or texting during class lecture**
  - Cell phones must be put on silent during class lecture
  - 1st violation will result in warning
  - 2nd violation will result in 2 points deducted from final grade and every time caught
  - If need to answer emergency call, 4 minutes outside of class is permitted
  - Cell phone usage may be permitted by instructor only for class/shop related projects
- **Absolutely!! No drugs or alcohol permitted in the classroom, shop or on campus!**
  - Campus police and local police will immediately be notified without warning
- **No smoking in or near the shop and on campus.** (there is no designated smoking areas

on campus)

- **No horse play**
- **Safety orientation and test must be completed before students entering shop**
- **Safety glasses to be worn during all Lab assignments.**
  - **No safety glasses, no shop.** If caught in shop without safety glasses on, student will immediately return to classroom and watch video on safety. An oral test will follow.
- **All shop projects must be approved by the instructor.**
- **Shop projects and rules**
  - No work order, no work done! (work order must be filled out prior to vehicle service, customer signature required)
  - fender covers on every vehicle with hood open
  - seat covers and floor mates in vehicles
  - tools must returned to its box or cabinets
  - Computers are to be used only for vehicle repair information, specifications, Mindtap assignments, and shop related projects
  - Work shirts to be worn at all times during class and lab projects
  - **No shorts, tank tops, sandals, flip flops, sweat pants allowed in shop (use common sense)**
  - No vehicle will remain in shop stalls for a period of 1 week. Unless permitted by instructor (after which, vehicle will be pushed to parking area)
  - No vehicle will remain in parking area for more than 3 weeks. Unless permitted by instructor (vehicles will be towed at owners expense)
  - All project vehicle must have proper tags
  - Do not take any keys out of shop area unless permitted by instructor
  - Report all incidents or accidents to the instructor immediately
  - Student participation in shop clean up required (weekly)
  - **NO PARKING IN BACK UNLESS YOUR VEHICLE IS BEING WORKED ON WITH PROPER TAGS VISIBLE**
    - ➢ Campus police will be notified and a ticket will be issued
- **Must sign syllabus, safety, emergency contact, lab, class rules and eye protection agreement forms**
- **Abide by all rules and regulations set forth by the University of New Mexico Student Hand Book.**

Weekly Schedule of Topics, Readings, Assignments, Tests and other Activities
(SUBJECT TO CHANGE)

Week One	**<u>Introductory to the Automotive industry:</u> Tools and Shop Procedures (Shop Manual), Safety Orientation (Videos, Lecture) and Safety Test, Shop Clean up**
Week Two	**<u>Chapter 1:</u> Introductory to suspension and steering systems (classroom manual)** **<u>Chapter 2:</u> Basic theories**

	(classroom manual) **(½ lab and ½ classroom instruction) Job Sheets**
Week Three	**Chapter 3: Tires and Wheels; Servicing and balancing (classroom and Shop Manual)** **Chapter 4: Wheel Bearings; and Services (classroom and shop manual)** **(½ lab and ½ classroom instruction) Job Sheets**
Week Four	**Chapter 5: Shock Absorbers and Struts; Diagnosis and Services(classroom and shop manual)** **(½ lab and ½ classroom instruction) Job sheets**
Week Five	**Chapter 6: Front Suspension Systems; services (classroom and shop manual)** **Chapter 7: Rear Suspension Systems; services (classroom and shop manual)** **(½ lab and ½ classroom instruction) Job sheets**
Week Six	**Chapter 8: Steering columns and steering Linkage Mechanism; Diagnosis and services (classroom and shop)** **(½ lab and ½ classroom instruction) Job sheets**
Week Seven	**Chapter 9: Four Wheel Alignments; Procedures part 1, Primary Angles (classroom and shop)** **Chapter 10: Four Wheel Alignment; part 2, Diagnosis and Angles and Frame Damage; Diagnosis (classroom and shop)** **(½ lab and ½ classroom instruction) Job Sheet**
Week Eight	***(Chapters 1-8 due! Classroom manual)*** **Continuation of chapters 9 & 10** **MID TERM QUIZ** (written or demonstrative)
Week Nine	**Chapter 11: Computer Controlled Suspension Systems (classroom manual)** **Chapter 12: Power Steering Pumps; Diagnosis and Services**

	(classroom and shop manual) **(½ lab and ½ classroom instruction) Job Sheet**
Week Ten	**Chapter 13: Rack and Pinion Gears and Four Wheel Steering; Diagnosis and services (classroom and shop manual)** **(½ lab and ½ classroom instruction) Job Sheet**
Week Eleven	**Chapter 14: Recirculating Ball Steering gears** **(½ lab and ½ classroom instruction)**
Week Twelve	**Review chapters 12-14** Lab work and complete assignments
Week Thirteen	Lab work and complete assignments
Week Fourteen	Lab work and complete assignments
Week Fifteen	**Review Suspension and Steering systems in order to prepare for final. All Assignments due!** (Job sheets, Classroom manual review questionnaire, etc.)
Week Sixteen	**FINAL WEEK**

UNM GALLUP

Name of Division: **Semester:**	**Automotive Technology** **Fall 2018**
Instructor Name: Office Location Office Hours E-mail Telephone Class Meeting Days/Times Location	**Ernesto Watchman** CE 1311B or CH 167E (preferred) 8:00-9:00am Mon-Fri, 11:15am -12:15pm Mon-Fri (or schedule an appointment) *Ewatch10@unm.edu* Shop: (505) 863-7529 or Office: (505) 863-7641 Tuesday and Thursday 1230pm to 0530pm CE 1310
Syllabus *(Common across all sections)*	
Title of Course:	**Brake Systems**
Course Number	**AUTT 115-400**
Course Description	The study of modern brake theory including drum and disc-type brakes. Mechanical and hydraulic principles as they pertain to brakes will be covered.
Credit Hours and Contact Hours	6 credit hours / 160 contact hours
Pre-requisites/co-requisites	N/A
Course Content and Scope: Understand overall Suspensions and Steering Systems and Become ASE Certified	**Learning Objectives and Outcomes** Upon successful completion of this course the student should be able to: 1. Understand the basic components of the Brake system. • Diagnosis and repair of the Brake system 2. Understand the basic components of the Brake system. • Diagnosis and repair of the Brake system

	3. Understand the basic fundamentals functions of Brake systems and procedures for front and rear wheel inspections • Perform front wheel inspection • Perform rear wheel inspection 4. Use repair manuals and reference manuals, both printed and computer data base 5. Perform proper repair or replacement of defective components 6. Complete ASE/NATEF task lists correlations relevant to ASE/NATEF Standards • 95% P1 • 85% P2 • 70% P3 (subject to change)

Disabilities Policy:

FACULTY SYLLABUS STATEMENT SEMESTER FALL / 2017 YEAR

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STUDENT SERVICES – CAREER &ACCESSIBILITY RESOURCE CENTER (ARC)

By Appointment:

Mary Lou Mraz, MSEd, LMSW
UNM Student Success Specialist
Phone: (505) 863-7527
Location: Gurley Hall 1127 Email: mloumraz@unm.edu

To contact office:

Administrative Assistant
Phone: (505) 863-7757
Front Desk
Location: Gurley Hall 1127

ARC will conduct an intake and, if appropriate, will provide an approved academic accommodation notification that will be sent to you. At that point, you may contact me to review the letter and discuss these accommodations in relation to your course.

e of Non-Discrimination: The University of New Mexico-Gallup, as an equal opportunity/affirmative action employer and educator, lies with all applicable federal and state laws regarding nondiscrimination and affirmative action. The University of New Mexico-p is committed to a policy of equal opportunity for all persons and does not discriminate on the basis of race/ethnicity, color, national n, age, spousal affiliation, sex, sexual orientation, gender identity, medical condition, disability, religion, pregnancy, genetic mation, or veteran status in employment, educational programs and activities, and admissions, and provides equal access to the Boy ts and other designated youth groups. Inquiries or complaints may be addressed to the Office of Equal Opportunity whose Director s as the 504/ADA Coordinator and Title IX Coordinator on UNM main campus: 505-277-5251. For referrals to main campus see: Gallup Title IX Coordinator; Director of Student rs, SSTC Room 276. Telephone: 505-863-7508. For Referrals to main campus regarding Section 504 compliance; Student Success alist, Gurley Hall Room 2205 B. Telephone: 505-863-7527.

Course Outline

(May vary according to Instructor)

Teaching Methods

1) **Lecture with, or without, various visual aids:** Lecturing conveys information that an instructor feels is most important, according to the lesson plan. Various visual aids will be utilized.
2) **Group problem solving, Collaborating, discussion, debate, and/or critique:** Group collaboration will allow students to actively participate in the learning process by talking with each other and listening to other points of view.
3) **Demonstration in shop and classroom:** demonstrating will allow students to personally relate to the presented information. Demonstrations help to raise student interest and reinforce memory retention.
4) **Computer assisted instruction:** this method involves interaction of the student with programmed instructional material such as, Computer Aided Instruction, Computer Based Education, Computer Assisted Learning with various Tutorials, Simulations, and
5) **Hands-on shop assignments:** Students learn by giving them the training to take initiative for their own learning experiences. Learners are actively involved. Instructor facilitates a process of learning in which students are encouraged to be responsible and active.

Evaluation/Grading Methods (Attach Rubric if available)

A student's grade will be based on multiple measures of performance, and will reflect the level of accomplishment of the objectives set forth above as well as a level of understanding of the topics enumerated under "Content and Scope." A final grade of "C" or better will indicate that the student has the ability to successfully apply the principles taught in this course to subsequent courses, to the work-place, or to personal goals as appropriate. The assessment process will also measure independent critical thinking skills and will reflect the student's ability to demonstrate their accomplishments by:

1) Performance on written or oral examinations
2) Performance on outside assignments including shop assignments
3) Contributing to class discussion
4) Maintaining attendance per current policy
5) Hands-on diagnosis and repair

6) Completion of assigned ASE/NATEF task lists

FINAL GRADE SCALE: (possible 100% score)

1) Attendance 5%
2) Work assignments 20%
   - ➢ End of Chapter questionnaires, activities, discussions
3) Work attire, safety practices, glasses 10%
4) Participation 40%
   - ➢ Lab Work, Shop Performance, presentation
5) Mid-Term Exam 10%
6) Final Exam 15%

Grading scale:

98-100 = A+	87-89 = B+	77-79 = C+	67-69 = D+
93-97 = A	83-86 = B	73-76 = C	63-66 = D
90-92 = A-	80-82 = B-	70-72 = C-	60-62 = D-

59 & Below = F

Required Text(s) & Supporting Materials

- **Today's Technician Automotive Brakes Systems, 7th edition**
  MindTap for Pickerill's Automotive Brakes Systems
- Safety glasses **(MANDATORY)**
- Personal Tools **(OPTIONAL)**
- Work Shirt (Tucked in) and Leather Work Boots
- Test Light
- DVOM Meter

Assessment Methods

- Competencies, written and hands on activities set forth by the National Automotive Technicians Education Foundation.

Weekly Schedule of Topics, Readings, Assignments, Tests and other Activities
(SUBJECT TO CHANGE)

Week One	**Introductions, Safety Orientation, Review and Safety Test, Shop Clean up**
Week Two	**Chapter 1: Introductory to brake system fundamentals** • *List and describe the operation of basic parts of a brake system* • *Describe a typical brake hydraulic system* • *Describe the operation of the brake system during and after pedal application* • *Discuss the general operation of electronic and active braking systems* **Chapter 2: Principles and theories of brake operation** • *Discuss the conversion of energy from one type to another* • *Discuss braking dynamics*

	• *Explain the importance of kinetic and static friction in a brake system* • *Explain how work is accomplished* • *Discuss hydraulic principles* • *Define and explain the basic electrical term: Amperes, Voltage, and Resistance* • *Explain how to use Ohms Law* (classroom instruction)
Week Three	**Review Chapters 1 and 2.** **Chapter 3: Related Systems: Tires, Wheels, Bearings, and suspensions** • *Describe the basic kinds of tire construction and identify the most common construction method for modern tires* • *Explain the most important effects of tire design and condition on braking performance* • *Identify the common types of wheel and axle bearings used on cars and light trucks* • *Identify the basic wheel alignment and steering angles* • *Explain how the condition of steering and suspension parts can affect braking* (classroom instruction)
Week Four	**Review Chapter 3.** **Chapter 4: Master cylinder and Brake Fluids** • *Explain the differences between different DOT brake fluid specifications* • *Identify the parts and explain the operation of a brake pedal and pushrod* • *Explain the purpose and operation of the Front-to-rear and diagonally split hydraulic systems* • *Describe the purpose of the master cylinder* • *Identify the main parts of a master cylinder* **Chapter 5: Hydraulic lines, Valves, and Switches** • *Describe the purpose and types of hydraulic brake lines* • *Identify the two types of flares used on brake line tubing* • *List the general precautions for working with brake tubing and hoses* • *Explain the purpose, parts, and operation of a metering valve* • *Explain the purpose, parts, and operation of a proportioning valve* • *Explain the purpose, parts, and operation of a differential valve* • *Describe the purpose, parts, and operation of a brake failure warning switch* (½ lab and ½ classroom instruction)
Week Five	**Review chapters 4 and 5.** **Chapter 6: Power Brakes Systems**

	• *Explain the relationship of atmospheric pressure and vacuum* • *Describe the parts and operation of a vacuum power booster* • *Identify the three major kinds of vacuum booster* • *Describe the parts and operation of the single diaphragm with a lever-reaction vacuum booster* • *Describe the parts and operation of the single diaphragm with a reaction-disc vacuum booster* • *Describe the parts and operation of the tandem diaphragm vacuum booster* • *Describe the parts and operation of a hydro-boost hydraulic power-assist system* (½ lab and ½ classroom instruction)
Week Six	**Review chapter 6.** **Chapter 7: Disc Brakes** • *Explain the advantages and disadvantages of disc brakes* • *Describe the basic parts of a disc brake assembly* • *Describe how a caliper works to stop a vehicle* • *Describe the two principle kinds of caliper designs and variations of each* • *Explain how brake pad wear indicators operate* **Chapter 8: Drum Brakes** • *Describe the basic parts of a drum brake assembly* • *Describe how a drum brake stops a vehicle* • *Describe different types of drum brakes* • *Describe the components that make up a wheel cylinder and its functions* • *Describe the different types of self-adjusters used on duo-servo and leading –trailing shoe brake systems and their operations* (½ lab and ½ classroom instruction)
Week Seven	**Review chapters 7 and 8.** **Chapter 9: Parking Brakes** • *Explain the functions of parking brakes* • *Identify the basic types of parking brake systems* • *Identify the types of parking brake controls* • *Identify and explain the operation of disc and drum brake parking brakes* • *Explain the operation of electric parking brakes* (½ lab and ½ classroom instruction)
Week Eight	**Continuation of Chapter 9** ***Mid term quiz*** *(written or demonstrative)*

Week Nine	**<u>Chapter 10:</u> Electrical Braking Systems** • *Define and understand the electronic terms commonly associated with electrical brake systems* • *Identify the components of a typical ABS system and their operations* • *List and explain the operation of the components for a TCS and other electric controlled sensors* **<u>Chapter 11:</u> Advanced Braking Systems** • *Compare how fatality rates for miles traveled have been reduced* • *Describe the history and need for stability control systems* • *Describe active braking* • *Describe the operation of a regenerative braking system on a hybrid vehicle* (½ lab and ½ classroom instruction)
Week Ten	**<u>Review Chapters 10 and 11.</u>** Shop Demonstrations And Job Sheet Assignment
Week Eleven	Shop Demonstration And Job Sheet Assignment
Week Twelve	Shop Demonstration And Job Sheet Assignment
Week Thirteen	Shop Demonstration And Job Sheet Assignment
Week Fourteen	Shop Demonstration And Job Sheet Assignment
Week Fifteen	**Review Brake systems in order to prepare for *final test***
Week Sixteen	***FINALS WEEK TEST*** *(written or demonstrative)*

UNM GALLUP

Name of Division: **Semester:**	**Automotive Technology** **Fall 2018**
Instructor Name: Office Location Office Hours E-mail Telephone Class Meeting Days/Times Location	Felix Benally GH 1311B 1715-2200 GGH 1310 fbenalll@unm.edu (505) 863-7529 Monday and Wednesday 1620-2120 GGH 1310
Syllabus *(Common across all sections)*	
Title of Course:	**Electrical System Repair**
Course Number	**AUTT 130**
Course Description	Electrical theory and diagnosis. Starting, charging, lighting and related electrical systems in automotive application will be studied
Credit Hours and Contact Hours	6 credit hours / 160 contact hours
Pre-requisites/co-requisites	N/A
Course Content and Scope Understand overall electrical theory and become ASE Certified	**Learning Objectives and Outcomes** Upon successful completion of this course the student should be able to: • List and describe the operation of the starting and charging system. • Discuss the general electrical system diagnosis. • Describe a typical starting system

	• Explain the basic battery diagnosis and service. • Describe the basic parts of a charging system. • Explain the parasitic draw on a battery. 1. Use repair manuals and reference manuals, both printed and computer data base 2. Perform proper replacement of defective components 3. Complete ASE/NATEF task lists relevant to ASE/NATEF Standards

DISABILITY POLICY **FALL 2018**

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All conversations will be kept confidential (between student and instructor).
Students requesting any accommodations will also need to contact:
Student Services – Accessibility Resource Center (ARC)

Mary Lou Mraz, MSEd, MPA, LMSW **UNM Student Success Specialist** **Phone: (505) 863-7527** **Location: Gurley Hall 1127** **Email: mloumraz@unm.edu**	**FOR messages/appointments:** **UNM Gallup ARC** **Front Desk** **505-863-7757**

ARC will conduct an intake and, if appropriate, will provide an approved academic accommodation notification that will be sent to you. At that point, you may contact me to review the letter and discuss these accommodations in relation to your course.

Early intervention can make all the difference in helping students achieve academic success. It also shows that the instructor made a good faith effort to inform students of their rights and responsibilities in this area, and that this effort was done in a timely manner.

Notice of Non-Discrimination: The University of New Mexico-Gallup, as an equal opportunity/affirmative action employer and educator, complies with all applicable federal and state laws regarding nondiscrimination and affirmative action. The University of New Mexico-Gallup is committed to a policy of equal opportunity for all persons and does not discriminate on the basis of race/ethnicity, color, national origin, age, spousal affiliation, sex, sexual orientation, gender identity, medical condition, disability, religion, pregnancy, genetic information, or veteran status in employment, educational programs and activities, and admissions, and provides equal access to the Boy Scouts and other designated youth groups. Inquiries or complaints may be addressed to the Office of Equal Opportunity whose Director serves as the 504/ADA Coordinator and Title IX Coordinator on UNM main campus: 505-277-5251. For referrals to main campus see: UNM Gallup Title IX Coordinator; Director of Student Affairs, SSTC Room 276. Telephone: 505-863-7508. For Referrals to main campus regarding Section 504 compliance; Student Success Specialist, Gurley Hall Room 1127. Telephone: 505-863-7527.

Course Outline

(May vary according to Instructor)

Teaching Methods

1) **Lecture with, or without, various visual aids:** Lecturing conveys information that an instructor feels is most important, according to the lesson plan. Various visual aids will be utilized.
2) **Group problem solving, Collaborating, discussion, debate, and/or critique:** Group collaboration will allow students to actively participate in the learning process by talking with each other and listening to other points of view.
3) **Demonstration in shop and classroom:** demonstrating will allow students to personally relate to the presented information. Demonstrations help to raise student interest and reinforce memory retention.
4) **Computer assisted instruction:** this method involves interaction of the student with programmed instructional material such as, Computer Aided Instruction, Computer Based Education, Computer Assisted Learning with various Tutorials, Simulations, and
5) **Hands-on shop assignments:** Students learn by giving them the training to take initiative for their own learning experiences. Learners are actively involved. Instructor facilitates a process of learning in which students are encouraged to be responsible and active.

Evaluation/Grading Methods (Attach Rubric if available)

A student's grade will be based on multiple measures of performance, and will reflect the level of accomplishment of the objectives set forth above as well as a level of understanding of the topics enumerated under "Content and Scope." A final grade of "C" or better will indicate that the student has the ability to successfully apply the principles taught in this course to subsequent courses, to the work-place, or to personal goals as appropriate. The assessment process will also measure independent critical thinking skills and will reflect the student's ability to demonstrate their accomplishments by:

1) Performance on written or oral examinations
2) Performance on outside assignments including shop assignments
3) Contributing to class discussion
4) Maintaining attendance per current policy
5) Hands-on diagnosis and repair

6) Completion of assigned ASE/NATEF task lists

FINAL GRADE SCALE: (possible 100% score)

1) Attendance 10%
2) Work assignments 15%
   - ➢ End of Chapter questionnaires, activities, discussions
3) Quizzes 15%
4) Participation 30%
   - ➢ Lab Work, Shop Performance, presentation
5) Mid-Term Exam 15%
6) Final Exam 15%

Grading Scale

98-100 = A+	87-89 = B+	77-79 = C+	67-69 = D+
93-97 = A	83-86 = B	73-76 = C	63-66 = D
90-92 = A-	80-82 = B-	70-72 = C-	60-62 = D-

59 & Below = F

Required Text(s) & Supporting Materials

- **Today's Technician Automotive Electricity & Electronics,** 6th edition
  2 part system: Shop Manual and Classroom Manual
  Author: Barry Hollembeak
- Safety glasses **(MANDATORY)**
- Personal Tools **(OPTIONAL)**
- Work Shirt (Tucked in) and Leather Work Boots
- Test Light
- DVOM Meter

Assessment Methods

- Competencies, written and hands on activities set forth by the National Automotive Technicians Education Foundation.

Weekly Schedule of Topics, Readings, Assignments, Tests and other Activities
(SUBJECT TO CHANGE)

Week One	**Safety Orientation and Safety Test, Shop Clean up**
Week Two	**Chapter 1: Introduction To Automotive Electrical And Electronic Systems** • *The importance of learning automotive electrical systems* • *The role of electrical systems in today's vehicles* • *The interaction of the electrical systems* • *The purpose of the starting system* • *The purpose of the charging system* • *The role of the computer in today's vehicles* • *The purpose of vehicle communication networks* • *The purpose of various electronic accessory systems* • *The purpose of passive restraint systems* • *The purpose of alternate propulsion systems*

Week Three	**<u>Review Chapter 1.</u>** **<u>Chapter 2</u>: Basic Theories** • *Explain the theories and laws of electricity* • *Describe the difference between insulators, conductors, and semiconductors* • *Define voltage, current, and resistance* • *Define and use Ohm's law correctly* • *Explain the difference between AC and DC currents* • *Define and illustrate series, parallel, and series-parallel circuits and the electrical laws that govern them* • *Explain the theory of electromagnetism* • *Explain the principles of induction* (classroom instruction)
Week Four	**<u>Review Chapter 2.</u>** **<u>Chapter 3</u>: Electrical And Electronic Components** • *Describe the common types of electrical system components used and how they affect the electrical system* • *Explain the operation of the electrical controls, including switches, relays, and variable resistors* • *Explain the basic function of capacitors* • *Describe the basic operating principles of electronic components* • *Explain the use of electronic components in the circuit* • *Explain the purpose of circuit protection devices* • *Define circuit defects, including opens, shorts, grounds, and excessive resistance* • *Explain the effects that each type of circuit defect has on the operation of the electrical system* (½ lab and ½ classroom instruction)
Week Five	**<u>Review chapter 3.</u>** **<u>Chapter 4</u>: Wiring And Circuit Diagrams** • *When single-stranded or multistranded wire should be used* • *The use of resistive wires in a circuit* • *The construction of spark plug wires* • *How wire size is determined by the American Wire Gauge (AWG) and metric methods* • *How to determine the correct wire gauge to be used in a circuit* • *How temperature affects resistance and wire size selection* • *The purpose and use of printed circuits* • *Why wiring harness are used and how they are constructed* • *The purpose of wiring diagrams* • *The common electrical symbols that are used* • *The purpose of the component locator* (½ lab and ½ classroom instruction)

Week Six	**<u>Review chapter 4.</u>** **<u>Chapter 5</u>: Automotive Batteries** • *Describe the purpose of a battery* • *Describe the construction of conventional, maintenance-free, hybrid, and recombination batteries* • *Describe the main elements of a battery* • *Describe the chemical action that occurs to produce current in a battery* • *Describe the chemical reaction that occurs in a battery during cycling* • *Describe the function of HEV batteries* • *Describe the operation and purpose of ultra-capacitors* • *Describe the different types of battery terminals used* • *Describe the methods used to rate batteries* • *Determine the correct battery to be installed into a vehicle* • *Explain the major reasons of battery failure*
Week Seven	**<u>Review chapter 5.</u>** **<u>Chapter 6</u>: Starting Systems And Motor Designs** • *The purpose of the starting system* • *The components of the starting system* • *The difference between starter drive mechanisms* • *The operation and features of the permanent magnet starter* • *The purpose of the inverter module* • *The operating principles of integrated starter generator (ISG) systems* (½ lab and ½ classroom instruction)
Week Eight	**Continuation of Chapter 6** ***Mid term quiz*** *(written or demonstrative)*
Week Nine	**<u>Chapter 7: Charging Systems</u>** • *The purpose of the charging system* • *The major components of the charging system* • *The function of the major components of the AC generator* • *The two styles of stators* • *How AC current is rectified to DC current in the AC generator* • *The operation of charge indicator, including lamps, electronic voltage monitors, ammeters, and voltmeters* • *The purpose of the DC/DC converter for charging the HEV auxiliary battery* **<u>Chapter 8:</u> Lighting Circuits** • *The operation and construction of automotive lamps* • *The difference between conventional sealed-beam, halogen, and composite headlights lamps* • *The operation of the dimmer switch*

	• *The operation of the various exterior light systems, including parking, tail, brake, turn, side, clearance, and hazard warning lights* • *The operation of the various interior light systems, including courtesy and instrument panel lights* (½ lab and ½ classroom instruction)
Week Ten	**<u>Review Chapters 7 and 8.</u>** Shop Demonstrations And Job Sheet Assignment
Week Eleven	Shop Demonstration And Job Sheet Assignment
Week Twelve	Shop Demonstration And Job Sheet Assignment
Week Thirteen	Shop Demonstration And Job Sheet Assignment
Week Fourteen	Shop Demonstration And Job Sheet Assignment
Week Fifteen	Review Electrical systems in order to prepare for *final test*
Week Sixteen	***FINALS WEEK TEST*** *(written or demonstrative)*

UNM GALLUP

Name of Division: **Semester:**	**Automotive Technology** **Fall 2018**
Instructor Name: Office Location Office Hours E-mail Telephone Class Meeting Days/Times Location	Felix Benally GH 1311B 1620-2200 Fri *fbenalll@unm.edu* (505)*863-7529* Fridays 1620-2120 GGH 1310
Syllabus *(Common across all sections)*	
Title of Course:	**Emission Control Service**
Course Number	**AUTT 167**
Course Description	To Familiarize the student with the various emission control devices including functions, diagnosis, repair, and/or service.
Credit Hours and Contact Hours	3 credit hours / 160 contact hours
Pre-requisites/co-requisites	N/A
Learning Objectives and Outcomes	<u>Objectives:</u> Upon successful completion of this course the student should be able to: 1. List and describe the operation of the basic parts of a fuel system. 2. Discuss the increasing use of hybrid vehicles to gasoline vehicles. 3. Describe a typical emissions control system.

4. Explain the basic exhaust system and repairs.

5. Describe the basic parts of a fuel tank assembly.

6. Explain the function and types of fuel system.

7. Diagnose emissions and driveability problems resulting from malfunctions in the Evaporative emission control systems.

Course Content and Scope:

A. Topics: The topics to be addressed in this course are:

- Fuel system repairs using various equipment and repair methods
- Proper use of equipment to diagnose problems with fuel systems.
- Proper replacement of emission control systems.

B. Appropriate Readings

- Readings may be assigned from college level material such as books, reports, online service manuals, bulletins, professional journals, and similar materials associated with the course material.

C. Writing Assignments: Typical writing assignments may include:

- Completing assigned papers or reports
- Providing written answers to assigned questions
- Performing arithmetic calculations as assigned

D. Appropriate outside Assignments - Students are expected to spend a minimum of two hours outside of class in preparation for each hour of theory in class. Appropriate assignments include:

- Preparing writing assignments
- Studying as needed to perform successfully in cla

DISABILITY POLICY **FALL 2018**

In keeping with University of New Mexico policy (University Business Policies and Procedures Manual: **"Policy 2310:** Academic Adjustments for Students with Disabilities") and defined sections: **Section 504** of the Rehabilitation Act of 1973, **Section 508:** The Rehabilitation Act Amendments of 1998, **ADA:** The Americans with Disabilities Act of 1990, and the **ADAA:** The American with Disabilities Act Amendments of 2008 - of providing equal access to individuals with disabilities, instructors are strongly encouraged to include a statement on their syllabus informing students that academic accommodations can be provided on the basis of disability if the student follows the protocol described. The following statement contains all of the elements that should be present. Instructors may want to make changes based on style preference or particular course content. It is strongly recommended that you also read this statement to the students at the start of each semester when reviewing course policies.

"In keeping with the university's policy of providing equal access for students with disabilities, any student with a disability who needs academic accommodations is welcome to meet with (instructor Name) _____ privately.
All conversations will be kept confidential (between student and instructor).
Students requesting any accommodations will also need to contact:
Student Services – Accessibility Resource Center (ARC)

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Evaluation/Grading Methods *(Attach Rubric if available)*

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FINAL GRADE SCALE:	**Percentage**
End of Chapter questionnaires	20%
Mid-Term Exam	15%
Final Exam	20%
Attendance	15%
Lab Work/Shop Performance	30%

Letter Grade

100-97	=A+	96-93	=A
90-92	=A-	89-87	=B+
86-83	=B	82-80	=B-
79-77	=C+	76-73	=C
72-70	=C-	69-67	=D+

65-63 =D 62-60 =D-
Below 60 = F
also Credit /no credit

Required Text(s) & Supporting Materials

- **Automotive Fuel and Emissions Control System by James D. Halderman 4th Edition, Classroom and Shop Manuals**

Safety glasses **(MANDATORY)**

- Personal Tools **(OPTIONAL)**
- Work Shirt (Tucked in) and Leather Work Boots
- Test Light
- DVOM Meter

Assessment Methods

- Competencies, written and hands on activities set forth by the National Automotive Technicians Education Foundation.

Attendance Policy and policies on classroom behavior

- After repeated absences, the student will be dropped from the course.
- **Cell phones must be turned off and no IPod's allowed.**
- **No drugs or alcohol allowed**
- No smoking
- No horse play
- Safety glasses to be worn during all Lab assignments
- Abide by all rules and regulations set forth by the University of New Mexico Student Hand Book.
- **All shop projects must be approved by the instructor with a two week notice.**

Weekly Schedule of Topics, Readings, Assignments, Tests and other Activities
(SUBJECT TO CHANGE)

Week One	**Safety Orientation, Safety Test, and Start Lecture** **Chapter 1: Service Information, Tools, and Safety** • *Understand how vehicles are identified and how vehicle service information is retrieved.* • *Discuss how to safely use hand tools.* • *Describe the procedure and the equipment to hoist a vehicle safely.* • *Explain the purpose of using fire extinguishers, fire blankets, and eye wash stations.* **Chapter 2: Environmental and Hazardous Materials** • *Explain the storage and disposal of brake fluid, used oil, coolants, lead-acid batteries, used tires, and air-conditioning refrigerant oil.* • *Discuss the characteristics of hazardous solvents, fuel safety and storage, and airbag handling.* • *Explain the Hazardous Materials Identification Guide issued by the Environmental Protection Agency (EPA).*

Week Two	**<u>Chapter 3:</u> Gasoline Engine Operation and Specifications** • *Discuss engine construction and torque and power of an engine.* • *Identify the various engine parts and systems.* • *Explain the four-stroke cycle engine operation.* • *Discuss engine classification and construction.* • *Discuss engine bore and stroke measurements.* • *Define compression ratio, torque, and horsepower.* **<u>Chapter 4</u>: Diesel Engine Operation and Diagnosis** • *List the characteristics of diesel engines.* • *Describe the operation of fuel tanks, lift pumps, and injection pumps.* • *Understand how the hydraulic electronic unit injection system works.* • *Discuss the purpose and function of glow plugs, diesel fuel heaters, engine-driven vacuum pumps, diesel injector nozzles, and accelerator pedal position sensors.* • *Explain the purpose and function of diesel engine turbochargers.* • *Define diesel particulate matter, and discuss the function of diesel exhaust particulate filters.* • *Describe selective catalyst reduction and diesel exhaust fluid (DEF).* (classroom instruction)
Week Three	**<u>Chapter 5</u>: Gasoline** • *Discuss the chemical composition and the process of refining gasoline.* • *Explain how driveability is affected by volatility.* • *Understand the process of gasoline combustion and the means of avoiding abnormal combustion.* • *Describe gasoline additives, reformulated gasoline, and gasoline blending.* • *Discuss how to test gasoline for alcohol content and the general gasoline purchase and use recommendations.* **<u>Chapter 6</u>: Alternative Fuels** • *Discuss the alternative to gasoline.* • *Understand how alternative fuels affect driveability.* • *Explain how alternative fuels reduce CO exhaust emissions.* • *List the safety precautions to be taken when working with alternative fuels.* (classroom instruction)

Week Four	**<u>Chapter 7</u>: Diesel and Biodiesel Fuels** • *Discuss the specifications of diesel fuels.* • *Discuss API gravity* • *List the advantages and disadvantages of biodiesel.* • *Discuss E-diesel.* **<u>Chapter 8</u>: Intake and Exhaust Systems** • *Discuss air intake filtration.* • *Explain throttle-body injection and port fuel-injection intake manifolds.* • *Discuss exhaust gas recirculation passages and exhaust manifolds.* • *Understand the purpose and function of mufflers.* **<u>Chapter 9</u>: Turbocharging and Supercharging** • *Discuss airflow requirements and volumetric efficiency of engines.* • *Understand forced induction principles.* • *List the advantages and disadvantages of superchargers.* • *Explain the purpose and function of turbochargers.* • *Explain boost control and turbocharger failures.* • *Describe the purpose and function of a nitrous oxide system.* (classroom instruction)

Week Five	**<u>Chapter 10</u>: Engine Condition Diagnosis** • *Discuss typical engine-related complaints and engine smoke diagnosis.* • *Explain the importance of visual checks.* • *Discuss engine noise diagnosis.* • *Describe oil pressure testing.* • *Explain cranking and running compression tests.* • *Describe cylinder leakage test and cylinder power balance test.* • *Describe vacuum testing and discuss the testing of back pressure with a vacuum gauge and a pressure gauge.* • *Explain the operation of dash warning lights.* **<u>Chapter 11</u>: On-Board Diagnosis** • *Understand the purpose and function of on-board diagnostics generation-II (OBD-II) systems.* • *List the continuous and noncontinuous monitors.* • *Understand the information obtained from an on-board diagnostics monitor and the criteria to enable an OBD monitor.* • *Discuss the numbering designation of OBD-II diagnostic trouble codes.* • *Explain powertrain control module (PCM) tests and the modes of operation of OBD-II vehicles.* (classroom instruction)
Week Six	**<u>Chapter 12</u>: CAN and Network Communications** • *Explain the fundamentals of module communications and their configuration.* • *Explain the classifications of network communications and the communications protocols of General Motors, Ford, and Chrysler.* • *Explain the features of Controller Area Network (CAN) and European BUS Communications.* • *Discuss how to diagnose network communication faults.* **<u>Chapter 13</u>: Temperature Sensors** • *Discuss the purpose and function of engine coolant temperature sensors.* • *Explain the procedure for inspecting and testing engine coolant temperature sensors.* • *Explain the function of intake air temperature sensors and the procedure to test them.* • *Explain transmission fluid, cylinder head, engine fuel, and exhaust gas recirculation temperature sensors.* . (classroom instruction)

Week Seven	**<u>Chapter 14</u>: Throttle Position Sensors** • *Discuss the purpose and function of throttle position (TP) sensors.* • *Describe the powertrain control module (PCM) uses for the TP sensor.* • *Describe how to test the TP sensor and interpret the TP sensor diagnostic trouble codes.* **<u>Chapter 15</u>: MAP/BARO Sensors** • *Discuss purpose and function of manifold absolute pressure (MAP) sensors.* • *Explain the PCM uses of MAP sensors.* • *Explain the purpose and function of barometric pressure (BARO) sensors.* • *List the methods that can be used to test MAP sensors.* **<u>Chapter 16</u>: Mass Airflow Sensors** • *Describe the purpose and function of mass airflow (MAF) sensors.* • *List the methods that can be used to test MAF sensors.* • *Discuss the symptoms of a failed MAF sensors.* (classroom instruction)
Week Eight	***Mid term quiz/performance*** *(written or demonstrative)*
Week Nine	**<u>Chapter 17</u>: Oxygen Sensors** • *Discuss the purpose and function of oxygen sensors (O2S).* • *Understand the PCM uses of O2S.* • *Explain the ways of diagnosing O2S.* • *Describe the waveform analysis of O2S.* • *Understand the voltage readings of O2S.* **<u>Chapter 18</u>: Wide-Band Oxygen Sensors** • *Discuss the need for wide-band oxygen sensors compared to a narrow-band O2S.* • *Explain the working of dual-cell planer wide-band sensors and their diagnosis.* • *Explain the working of single-cell wide-band oxygen sensors and their diagnosis.* **<u>Chapter 19</u>: Fuel Pumps, Lines, and Filters** • *Discuss the purpose and function of the fuel delivery system.* • *Explain the types of fuel lines.* • *Discuss the different types of electric fuel pumps.* • *Describe the purpose and function of fuel filters.* • *Describe how to test and replace fuel pumps.* (classroom instructions)

Week Ten	**Chapter 20: Fuel-Injection Components and Operation** • *Describe the operation of electronic fuel-injection and compare speed-density and mass airflow fuel-injection-type systems.* • *Explain the operation of throttle-body injection and port fuel-injection systems.* • *Understand the purpose and function of a fuel-pressure regulator* • *Differentials between electronic and mechanical returnless fuel systems and discuss demand delivery systems.* • *List the types of fuel-injection systems and explain their modes of operation.* • *Understand the use of idle control and stepper motors in fuel-injection systems.* **Chapter 21: Gasoline Direct-Injection Systems** • *Explain the operation of a direct-injection fuel delivery system.* • *Understand a gasoline direct-injection fuel injector, the modes of operation.* • *Describe the port- and direct-injection systems used in Lexus vehicles.* • *Describe how to diagnose a gasoline direct-injection system.* **Chapter 22: Electronic Throttle Control System** • *Describe the purpose and function of electronic throttle control (ETC) systems.* • *Describe the operation of the throttle body assembly, accelerator pedal position (APP), and throttle position sensors.* • *Explain how to diagnose an electronic throttle control system.* • *Describe how to service an electronic throttle control (ETC) system.* (classroom instructions)
Week Eleven	**Chapter 23: Fuel-Injection System Diagnosis and Service** • *Explain the diagnosis of electronic fuel-injection systems.* • *Describe how to test for an injector pulse.* • *Understand the process of checking fuel-injector resistance.* • *Explain how to scope-test fuel injectors and conduct pressure-drop balance and injector voltage-drop tests.* **Chapter 24: Vehicle Emission Standards and Testing** • *Discuss the emissions standards for vehicles.* • *Discuss exhaust analysis testing procedures.* • *Identify the reasons for excessive HC, CO, and NOx emissions.* **Chapter 25: Evaporative Emissions Control Systems** • *Explain the purpose and function of the evaporative emission control (EVAP) systems.* • *Compare enhanced and nonenhanced evaporative control (EVAP) systems.*

	• *Describe leak detection pump systems and onboard refueling vapor recovery.* • *Describe how to diagnose EVAP system faults.* • *Discuss the functions of an evaporative system monitor and interpret the EVAP diagnostic trouble codes.* (classroom instructions)
Week Twelve	**Chapter 26: Exhaust Gas Recirculation Systems** • *Describe the purpose and functions of exhaust gas recirculation (EGR) systems.* • *Explain the strategies to monitor onboard diagnostics generation II (OBD-II) exhaust gas recirculation (EGR) systems.* • *Understand the procedures to follow when diagnosing a defective EGR system and interpret EGR-related OBD-II diagnostic trouble codes.* **Chapter 27: Positive Crankcase Ventilation and Secondary AIR-injection Systems** • *Understand the purpose and function of the positive crankcase ventilation (PCV) system and the procedure to diagnose it.* • *Explain the purpose and function of the secondary air-injection (SA) system and how to diagnose faults in the system.* **Chapter 28: Catalytic Converters** • *Explain the purpose, function, construction, operation, and performance of catalytic converters.* • *Describe how to diagnose and replace catalytic converters.* **Chapter 29: Ignition System Operation and Diagnosis** • *Understand how the ignition system and ignition coils work.* • *Discuss crankshaft position sensors and the operation of pickup coils.* • *Explain the operation of waste-spark and coil-on-plug ignition systems.* • *Discuss ignition system diagnosis.* • *Understand the construction and operation of different types of spark plugs and discuss how to inspect spark plug wires.* • *List the steps necessary to check and/or adjust ignition timing on engines equipped with a distributor.* (classroom instructions)
Week Thirteen	**Chapter 30: Scan Tools and Engine Performance Diagnosis** • *Identify the steps of a diagnostic process.* • *Identify the types of scan tools.* • *Describe the troubleshooting procedure to follow when a diagnostic trouble code is set.* • *Explain the procedure for diagnosing and testing an onboard diagnostics generation II (OBD-II) system.*

	• *Explain the methods that are used to reprogram (reflash) a vehicle computer.* • *Discuss the diagnostic routines and the procedures for resetting the PCM.* (classroom instructions)
Week Fourteen	**Chapter 31: Hybrid Safety and Service Procedures** • *Identify the safety equipment to be used with high-voltage circuits.* • *Explain how to de-power high-voltage systems.* • *Explain the procedure to move and tow a hybrid electric vehicle (HEV).* • *Discuss the steps to perform for routine services on hybrid electric vehicles.* **Chapter 32: Fuel Cells and Advanced Technologies** • *Understand the technology of fuel cells.* • *Explain fuel-cell vehicle systems.* • *Discuss hydraulic hybrid storage systems.* • *Explain homogeneous charge compression ignition (HCCI).* • *Discuss plug-in hybrid electric vehicles (PHEVs).* (classroom instructions)
Week Fifteen	Review Fuel and Emissions systems in order to prepare for *final test*
Week Sixteen	***FINALS WEEK TEST*** *(written or demonstrative)*

1A-Ernesto Watchman CV

Page break

Ernesto Watchman

865 Lewann Drive / Gallup, New Mexico 87301 / C: (505)360-6380 / Ewatch10@unm.edu

Summary

Dedicated Automotive Technician Instructor prepared to take UNM-Gallup CTE program to a new level, based on 15 years industry and 6 years supervision experience.

Education

Spring 2012-Spring 2104 / Associates in Applied Science / University of New Mexico-Gallup Automotive Program / Graduated May 2014 / Dean's List 2012 / Nominated for Instructor for the Year 2016 with the University of New Mexico / ASE Certified / FCA certified training in Automotive repairs / ACTE Region IV conference / NCSL leadership training / New Mexico ACTE Conference / Defensive Driver UNM

Highlights

- Reconfiguration, course modification and development; faculty retention and leadership building management; maintained a student centric approach and a commitment to ensuring all academic excellence
- Strongly committed to bringing new technology into the classroom and lab to further engage and capture student interest
- Developed and established an innovative program to attract and retain Students, and energized academic offerings to enhance career and professional development outcomes for students
- Developed, initiated and maintained business relationship with various dealership, independent shops, tool franchises and small business start ups

Experience

August 2016- Present Visiting lecturer / The University of New Mexico – Gallup

- Developed a Strategic Action plan for the Automotive Technology Program
- Developed and Participated in Automotive Technology Advisory Board Committee meetings
- Initiated Community outreach and dealership Internship sponsorships
- Planned and facilitated small industry funded initiatives such as Snap-On Tools partnership and discounts, O Reilly Parts/Tools discounts, Dealership providing internship uniforms, Auto Club fundraisers, various automotive tool donations for students
- Engaged in Workforce development with Zuni tribe and Navajo Nation
- Planned Community Education such as Automotive Maintenance and Light repair for a non-credited program
- Supervised large capacity of enrolled students and two part time faculty
- Coordinated day to day operations
- Attended professional development and various general manager meetings
- Developed long range plans for the Automotive Technology Program
- Initiated program assessment reports
- Initiated and monitored annual staff evaluations
- Planned and facilitated faculty development by attending training and training part time faculty
- Provided leadership for development of action plans and objectives that support the mission of the University
- Promoted and implement a strategic learning environment for students
- Collaborated and implemented Automotive Technology Advisory Committee Board's effective and efficiency strategies
- Participated and collaborated on institution effectiveness initiatives including assessment and program reviews
- Developed, implemented and monitored Faculty Chair Evaluation Agreements
- Advocated on behalf of Automotive Technology program concerns

- Actively Engaged in ensuring that all requirements are met for faculty licensure, and for program accreditation and development
- Develop and modified course schedules and facility usage schedules for academic year
- Participated and collaborated on Developing a Film and Digital Media Program for the University of New Mexico Gallup Branch and Initiated research in Revenue and costs
- Followed institutional policies and procedures

March 2016 – May 2016 **Temporary Part Time Instructor** / The University of New Mexico - Gallup

- Educator in Steering and Suspension
- Planned 5 year Automotive Technology Program strategic action plans
- Developed Automotive Technology course modifications and sequencing
- Communicated importance of community and customer satisfaction for the Automotive Technology program
- Reconfigured Automotive Technology program learning environment

2014-2015 **Independent Contractor** / Coast to Coast Carports / Gallup, NM

- Train and supervised labor employees
- Specialize in steel building construction
- Communicated with customers regarding building placement and construction
- Skillfully inventory material needed for construction
- Employed and supervised 6 laborers
- Initiated independent construction contracts

2013-2014 **Automotive technician and builder** / Recon oil / Gallup, NM

- Supervised labor employees
- Researched and repaired automotive engines
- Organize work records and file reports
- Trained labor employee to automotive repair systems

Summer 2012 **Automotive technician** /All City Automotive /Gallup, NM

- Supervised in absence of owner
- Researched heating and air conditioning belts and hoses replacement
- Specialized in ball joint replacement
- Specialized in vehicle strut replacement
- Specialized in suspension and steering repairs
- Specialized in brake systems repairs

2008 & 2009 **Seasonal automotive shop labor and farm labor** / N.A.P.I / Farmington, NM

- Train and supervise shop labor employees
- All duties that apply

The University of New Mexico

Gallup Branch

has conferred upon

Ernesto D. Watchman

the degree of

Associate of Applied Science in

Automotive Technology

with all the rights and privileges appertaining to that degree,
in testimony whereof the Regents of the University upon recommendation
of the Faculty have granted this diploma bearing the seal of the University
this seventeenth day of May, two thousand and fourteen.

Jack L Fortner
President of the Regents

Secretary of the Regents

THE UNIVERSITY OF NEW MEXICO 1889

Robert G. Frank
President of the University

Chouki Abdallah
Provost of the University

1B-Felix Benally CV

Felix Benally

P.O. Box 4299 Gallup, New Mexico 87305 (505) 879-5523 felixb57.fb@gmail.com

EXPERIENCE

- Automotive Technician, Amigo Chevrolet; Gallup, New Mexico – 1996-present
  - Expertise knowledge and experience in working with all components of a motor vehicle.
  - Experience disassembling and reassembling engines and transmissions.
  - Service and repair AIRBAG systems.
  - Perform diagnostics and drivability tests.
  - Perform maintenance intervals on vehicles.
  - Mentor co-workers concerning electrical aspects of motor vehicles.
  - Educate drivers and vehicle owners concerning maintenance and care.
  - Hosted "New Car Owner Clinics" to educate new drivers about their vehicles.

EDUCATION AND CERTIFICATIONS

- Gallup High School - High School Diploma, 1992
- Universal Technical Institute - Automotive Certificate, 1994
- ASE Master Tech Certification - 2010- Present

TRAINING

- Braking System Training Course, 2005
- Audio & Entertainment Training Course, 2006
- Diesel Drivability Training Course, 2006
- AIRBAG Training Course, 2007
- Engine Performance Training Course, 2007
- HVAC Training Course. 2007
- Body Electrical Training Course, 2008
- Chevy Hybrid Training Course, 2010

SKILLS

- Confident and capable in leading and supervising others.
- Comfortable in public speaking.
- Strong communication skills and extra
- Able to work well as a member of a team as well as independently.

REFERENCES

- Avery Kesner, 505-870-3504
- Edward Sanchez, 505-979-0264
- Hank Stokes, 505-870-4978

Felix Benally
P.O. Box 4299
Gallup, N.M. 87305
Cell:(505)879-5523

December 4, 2012

Automotive Dept.
UNM Gallup Campus
200 College Drive
Gallup, NM 87301

To whom it may concern:

I am responding to your job opening on UNMJobs, regarding the temporary position in the Automotive Department. Please find enclosed my resume showing my education, experience, and background.

I have over fifteen years experience in automotive repair. Three of those years involved mentoring fellow co-workers.

Throughout my years in this field I have had experience working on all areas of a vehicle. I have disassembled and reassembled engines, transmissions, partial teardowns of the interior and reassemble. I am currently in the electrical department where I do wiring repairs, drivability issues and diagnose "check engine" light. I also service and repair AIRBAG systems, as well as perform maintenance intervals on vehicles. I am currently serving as a mentor for an individual in how to repair vehicles with proper procedures. I enjoy mentoring and educating individuals on how a vehicle properly functions.

Thank you for your time and consideration.

Sincerely,

Felix Benally

Universal Technical Institute

10695 West Pierce Street , Avondale, AZ 85323
(623) 245-4600 or Call Toll Free (800) 859-1202

Felix J. Benally
Address: Sunset Landing #2011
Glendale, AZ 85302
Current Status: Graduated
Unofficial Transcript as of 10/9/2018

ID Number: 311709
Start Date: 9/7/1993
Graduation Date: 6/17/1994
Last Date Attended: 6/17/1994
SSN: — -- 4443

Credentials	Program	Credits Required	Outcome
Certificate Awarded	U00106 - Certified Automotive Technology I	54.0	Graduated 6/17/1994

			1	2	3	4	5		6	7
9/7/1993	ADTC-101-3	Automotive Engines & Repair	81.0	108.0	100.0	99.2	81.0	B	0.25	4.5
9/27/1993	ADTC-107-3	Brakes	80.0	88.0	100.0	98.3	80.0	B	0.50	4.5
10/18/1993	ADTA-106-3	Automotive Power Trains	74.0	95.0	100.0	99.2	74.0	C	0.25	4.0
11/8/1993	ADTC-117-3	Electronic Fundamentals	81.0	100.0	100.0	90.0	81.0	B	3.00	5.0
11/29/1993	ADTC-122-3	Electronic Technology	87.0	100.0	100.0	90.0	87.0	B	3.00	5.0
1/3/1994	ADTA-109-3	Automatic Transmissions	81.0	90.0	100.0	99.2	81.0	B	0.25	5.0
1/24/1994	ADTA-104-3	Fuel & Ignition Systems	78.0	100.0	100.0	100.0	78.0	C	0.00	5.0
2/14/1994	ADTA-105-3	Driveability & Emissions	86.0	100.0	100.0	100.0	86.0	B	0.00	4.0
3/7/1994	ADTA-125-3	Professional Applications	90.0	93.0	100.0	100.0	90.0	A	0.00	5.0
3/28/1994	ADTA-126-3	Advanced Diagnostic Systems	83.0	96.0	98.2	78.3	83.0	B	6.50	4.0
5/9/1994	ADTC-108-3	Climate Control	81.0	80.0	100.0	86.7	81.0	B	4.00	4.0
5/31/1994	ADTA-102-3	Power & Performance IA	97.0	91.0	100.0	95.0	97.0	A	1.50	4.0

1 - Class Work: Average of written quizzes and tests for the course

2 - Lab Work: Quality of lab work, Adherence to proper procedures, safety procedures, use of tools and equipment, troubleshooting.

3 - Professionalism: Adherence to school rules, attitude and initiative, tardiness, following instructions, cleanliness and appearance.

4 - Attendance: Absenteeism

5 - Course Grade

6 - Hours Absent

7 - Credit Hours

GPA	**3.00**
Attendance Rate	**98.22**
Total Credit Hours Earned	**54.00**
Average Lab Composite	**95.08%**

UNOFFICIAL TRANSCRIPT

Winter 2013 - Registration for Winter 2013 testing is now open! The deadline to register is Feb. 21, 2013. Testing will begin on Jan. 2 and continue through Feb. 28, 2013.

Certificates - Certificates from Fall testing will be mailed in December.

Alerts

One or more of your certifications is expiring soon. **Click here** to view your tests and register for recertification.

Certification Status

Fall certificates will be mailed in December. To get an official ASE Status Letter *right now*, click on the "View Status Letter" button below.

Designations

Certificates	Most Recent Testing Period	Test Series	Last Printed
Master Automobile Technician	2012 Spring	A: Auto	6/5/2012

Certification Tests

Test	Description	Expiration Date	Status
A1	Engine Repair	6/30/2015	Current
A2	Automatic Transmission/Transaxle	6/30/2014	Current
A3	Manual Drive Train & Axles	6/30/2017	Current
A4	Suspension & Steering	6/30/2013	Current
A5	Brakes	6/30/2014	Current
A6	Electrical/Electronic Systems	6/30/2014	Current
A7	Heating & Air Conditioning	6/30/2017	Current
A8	Engine Performance	6/30/2015	Current

View Status Letter

Felix Benally
Po Box 4299
Gallup, NM 87305
ASE ID: ASE-1131-2055

Account Balance: **$0.00**
Available Credits: **$0.00**

Course History

Name: FELIX BENALLY

Organization: AMIGO CHEVROLET

COURSE NUMBER	COURSE NAME	CLASS CODE	GRADE	COMPLETED	EXPIRES	DELIVERY METHOD
ASEAUT05	AUTO: BRAKES	ASEAUT0541100	Pass	12/30/1999	12/31/2004	Instructor-Led
ASEAUT02	AUTO: AUTOMATIC TRANS/TRANSAXLE	ASEAUT0241097	Pass	12/30/1999	12/31/2004	Instructor-Led
ASEAUT02	AUTO: AUTOMATIC TRANS/TRANSAXLE	ASEAUT0241097	Pass	07/31/2000	12/31/2005	Instructor-Led
ASEAUT04	AUTO: SUSPENSION & STEERING	ASEAUT0441099	Pass	07/31/2000	12/31/2005	Instructor-Led
ASEAUT01	AUTO: ENGINE REPAIR	ASEAUT0141096	Pass	07/31/2000	12/31/2005	Instructor-Led
ASEAUT03	AUTO: MANUAL DRIVETRAIN & AXLES	ASEAUT0341098	Pass	07/31/2000	12/31/2005	Instructor-Led
ASEAUT05	AUTO: BRAKES	ASEAUT0541100	Pass	07/31/2000	12/31/2005	Instructor-Led
ASEAUT02	AUTO: AUTOMATIC TRANS/TRANSAXLE	ASEAUT0241097	Pass	11/01/2004	12/31/2009	Instructor-Led
ASEAUT06	AUTO: ELECTRICAL SYSTEMS	ASEAUT0641101	Pass	11/01/2004	12/31/2009	Instructor-Led
ASEAUT05	AUTO: BRAKES	ASEAUT0541100	Pass	11/01/2004	12/31/2009	Instructor-Led
ASEAUT01	AUTO: ENGINE REPAIR	ASEAUT0141096	Pass	05/01/2005	06/30/2010	Instructor-Led
ASEAUT03	AUTO: MANUAL DRIVETRAIN & AXLES	ASEAUT0341098	Pass	05/01/2005	06/30/2010	Instructor-Led
ASEAUT08	AUTO: ENGINE PERFORMANCE	ASEAUT0841103	Pass	05/01/2005	06/30/2010	Instructor-Led
ASEAUT07	AUTO: HEATING & AIR CONDITIONING	ASEAUT0741102	Pass	11/01/2008	12/31/2011	Instructor-Led
ASEAUT04	AUTO: SUSPENSION & STEERING	ASEAUT0441099	Pass	05/01/2008	06/30/2013	Instructor-Led
ASEAUT05	AUTO: BRAKES	ASEAUT0541100	Pass	05/01/2009	06/30/2014	Instructor-Led
ASEAUT02	AUTO: AUTOMATIC TRANS/TRANSAXLE	ASEAUT0241097	Pass	05/01/2009	06/30/2014	Instructor-Led
ASEAUT06	AUTO: ELECTRICAL SYSTEMS	ASEAUT0641101	Pass	05/01/2009	06/30/2014	Instructor-Led

Course History

Name: FELIX BENALLY

Organization: AMIGO CHEVROLET

COURSE NUMBER	COURSE NAME	CLASS CODE	GRADE	COMPLETED	EXPIRES	DELIVERY METHOD
ASEAUT01	AUTO: ENGINE REPAIR	ASEAUT0141096	Pass	05/01/2010	06/30/2015	Instructor-Led
ASEAUT08	AUTO: ENGINE PERFORMANCE	ASEAUT0841103	Pass	05/01/2010	06/30/2015	Instructor-Led
ASEAUT07	AUTO: HEATING & AIR CONDITIONING	ASEAUT0741102	Pass	04/01/2012	06/30/2017	Instructor-Led
ASEAUT03	AUTO: MANUAL DRIVETRAIN & AXLES	ASEAUT0341098	Pass	04/01/2012	06/30/2017	Instructor-Led
ASEAUT04	AUTO: SUSPENSION & STEERING	ASEAUT0441099	Pass	01/01/2013	06/30/2018	Instructor-Led
ASEAUT06	AUTO: ELECTRICAL SYSTEMS	ASEAUT0641101	Pass	02/13/2014	06/30/2019	Instructor-Led
ASEAUT02	AUTO: AUTOMATIC TRANS/TRANSAXLE	ASEAUT0241097	Pass	02/13/2014	06/30/2019	Instructor-Led
ASEAUT05	AUTO: BRAKES	ASEAUT0541100	Pass	02/13/2014	06/30/2019	Instructor-Led
ASEAUT06	AUTO: ELECTRICAL SYSTEMS	ASEAUT0641101	Pass	01/01/2014	06/30/2019	Instructor-Led
ASEAUT05	AUTO: BRAKES	ASEAUT0541100	Pass	01/01/2014	06/30/2019	Instructor-Led
ASEAUT02	AUTO: AUTOMATIC TRANS/TRANSAXLE	ASEAUT0241097	Pass	01/01/2014	06/30/2019	Instructor-Led
ASEAUT08	AUTO: ENGINE PERFORMANCE	ASEAUT0841103	Pass	01/30/2015	06/30/2020	Instructor-Led
ASEAUT01	AUTO: ENGINE REPAIR	ASEAUT0141096	Pass	01/30/2015	06/30/2020	Instructor-Led
ASEAUT01	AUTO: ENGINE REPAIR	ASEAUT0141096	Pass	01/01/2015	06/30/2020	Instructor-Led
ASEAUT08	AUTO: ENGINE PERFORMANCE	ASEAUT0841103	Pass	01/01/2015	06/30/2020	Instructor-Led
ASEAUT07	AUTO: HEATING & AIR CONDITIONING	ASEAUT0741102	Pass	05/23/2017	06/30/2022	Instructor-Led
ASEAUT03	AUTO: MANUAL DRIVETRAIN & AXLES	ASEAUT0341098	Pass	05/23/2017	06/30/2022	Instructor-Led
ASEAUT03	AUTO: MANUAL DRIVETRAIN & AXLES	ASEAUT0341098	Pass	03/01/2017	06/30/2022	Instructor-Led

Course History

Name: FELIX BENALLY

Organization: AMIGO CHEVROLET

COURSE NUMBER	COURSE NAME	CLASS CODE	GRADE	COMPLETED	EXPIRES	DELIVERY METHOD
ASEAUT07	AUTO: HEATING & AIR CONDITIONING	ASEAUT0741102	Pass	03/01/2017	06/30/2022	Instructor-Led
ASEAUT04	AUTO: SUSPENSION & STEERING	ASEAUT0441099	Pass	02/28/2018	06/30/2023	Instructor-Led
ASEAUT04	AUTO: SUSPENSION & STEERING	ASEAUT0441099	Pass	01/01/2018	06/30/2023	Instructor-Led
VMVDC.M17W2	Dealer Case Management: Technical Assistance Center (TAC) Case Handling	VMVDC.M17W2 Web-based	Pass	09/18/2018		Web-based
10217.13V	10217.13V Proper Handling of Field Actions With Programming Events	10217.13V-080118-VOD	Pass	09/18/2018		Web-based
13044.19W	13044.19W Hunter GSP9700 Gen 5 Components and Operation	13044.19W95022	Pass	05/02/2018		Web-based
16044.23W4	16044.23W4 Engine Performance: Electronic Control Systems	16044.23W4-083117-WBT	Pass	05/02/2018		Web-based
14041.18W4	14041.18W4 Propshaft and Rear Axle Operation, Diagnosis and Service 4	14041.18W494987	Pass	05/02/2018		Web-based
16440.22D	16440.22D Engines: New and Updates for RPOs LV1 LFY LHN LYX L5P and LH7	16440.22D355921	Pass	04/26/2018		Online Instructor-Led
SCFGM.S18W	General Motors Dealer Safety Overview 2018	SCFGM.S18W	Pass	04/23/2018		Web-based
16060.10D	16060.10D Turbocharger Operation, Diagnosis and Service	16060.10D355818	Pass	04/10/2018		Online Instructor-Led
16048.45W	16048.45W Introduction to the Digital Storage Oscilloscope	16048.45W-091317-WBT	Pass	10/04/2017		Web-based
16043.53W4	16043.53W4 Gas / Diesel Engine Mechanical Diagnosis and Measurement 4	16043.53W492898	Pass	10/04/2017		Web-based
22048.44W	22048.44W Vehicle Rollover Protection System	22048.44W92246	Pass	08/24/2017		Web-based
ASEMASTER	ASE Master Technician	ASEMASTER43473	Pass	06/01/2017		Instructor-Led
17041.72W		17041.72W88791	Fail	04/11/2017		Web-based

Course History

Name: FELIX BENALLY

Organization: AMIGO CHEVROLET

COURSE NUMBER	COURSE NAME	CLASS CODE	GRADE	COMPLETED	EXPIRES	DELIVERY METHOD
	17041.72W 8-Speed Automatic Transmission Overview					
18420.04W5	18420.04W5 Advanced Technology Vehicle Transmission 5	18420.04W593589	Pass	04/06/2017		Web-based
18420.02W6	18420.02W6 High Voltage Energy Storage Systems 6	18420.02W693587	Pass	04/06/2017		Web-based
11044.05W3	11044.05W3 HVAC Systems and Operation Stage 3	11044.05W392965	Pass	04/05/2017		Web-based
18420.18V	18420.18V 5ET50 Transmission Unit Repair	18420.18V90980	Pass	04/05/2017		Web-based
18070.47W2	18070.47W2 eAssist Battery Storage Systems 2	18070.47W289288	Pass	04/05/2017		Web-based
18070.45W2	18070.45W2 eAssist Introduction 2	18070.45W289286	Pass	04/05/2017		Web-based
18430.05W2	18430.05W2 Battery Electric Vehicle Introduction 2	18430.05W293585	Pass	04/05/2017		Web-based
22048.42W2-R2	22048.42W2-R2 GM Safety Systems 2	22048.42W2-R294728	Pass	03/30/2017		Web-based
22048.42W3-R3	22048.42W3-R3 GM Safety Systems 3	22048.42W3-R394307	Pass	03/30/2017		Web-based
22048.42W1-R2	22048.42W1-R2 GM Safety Systems 1	22048.42W1-R294726	Pass	03/30/2017		Web-based
16440.18D-V	16440.18D-V Engines: New and Updates for RPOs LT1, LV3, LUZ, LKW, LF3, L83, L86	16440.18D-V82791	Pass	02/14/2017		Web-based
13042.14WP	Noise, Vibration and Harshness (NVH)	13042.14WP88774	Fail	02/09/2017		Online Test
16040.31W	16040.31W 12V Stop / Start System 2	16040.31W92782	Pass	02/09/2017		Web-based
13042.14W	13042.14W Noise, Vibration and Harshness (NVH)	13042.14W88741	Pass	02/09/2017		Web-based
18044.40W	18044.40W Vehicle Network Security	18044.40W92292	Pass	02/09/2017		Web-based
15045.18W6	15045.18W6 GM Braking Systems 6	15045.18W892935	Pass	02/09/2017		Web-based
10216.14V		10216.14V93348	Pass	01/16/2017		Web-based

Course History

Name: FELIX BENALLY

Organization: AMIGO CHEVROLET

COURSE NUMBER	COURSE NAME	CLASS CODE	GRADE	COMPLETED	EXPIRES	DELIVERY METHOD
	10216.14V Service Programming System Update					
18044.23V	18044.23V Data Communication System Diagnostics Overview	18044.23V90754	Pass	01/16/2017		Web-based
13042.14D2-R2	13042.14D2-R2 Noise, Vibration and Harshness (NVH) 2	13042.14D2-R292149	Pass	01/11/2017		Online Instructor-Led
16440.21D	16440.21D Engines: New and Updates for RPOs L5P, LH7 and LGZ	16440.21D93137	Pass	01/09/2017		Online Instructor-Led
16043.53D	16043.53D Gas/Diesel Engine Mechanical Diagnosis and Measurement	16043.53D91604	Pass	01/04/2017		Online Instructor-Led
16410.10W	16410.10W 2.8L Duramax Engine	16410.10W88790	Pass	01/02/2017		Web-based
14043.25D	14043.25D Truck 4WD/AWD Operation, Diagnosis, and Service	14043.25D55948	Pass	11/18/2016		Online Instructor-Led
18420.17W	18420.17W High Voltage Depower Tool Usage	18420.17W90917	Pass	11/16/2016		Web-based
18420.02W5	18420.02W5 High Voltage Energy Storage System 5	18420.02W592272	Pass	11/16/2016		Web-based
18420.04W4	18420.04W4 Advanced Technology Vehicle Transmission 4	18420.04W492283	Pass	11/16/2016		Web-based
11044.05H-R2	11044.05H-R2 HVAC Systems & Operation	11044.05H-R293616	Pass	11/10/2016		Historical Credit - DNU
18420.04W3	18420.04W3 Advanced Technology Vehicle Transmission 3	18420.04W387961	Pass	11/10/2016		Web-based
18450.00W	18450.00W Hybrid Electric Vehicle Introduction	18450.00W92276	Pass	11/10/2016		Web-based
18420.02W4	18420.02W4 High Voltage Energy Storage Systems 4	18420.02W487959	Pass	11/10/2016		Web-based
18420.01W2	18420.01W2 EREV Introduction and Safety 2	18420.01W287957	Pass	11/09/2016		Web-based
14043.17D		14043.17D55213	Pass	10/27/2016		

Course History

Name: FELIX BENALLY

Organization: AMIGO CHEVROLET

COURSE NUMBER	COURSE NAME	CLASS CODE	GRADE	COMPLETED	EXPIRES	DELIVERY METHOD
	14043.17D Passenger Car All-Wheel Drive					Online Instructor-Led
16048.36W-R2	16048.36W-R2 Data Bus Diagnostic Tool	16048.36W-R293569	Pass	10/19/2016		Web-based
17041.58W1	17041.58W1 Automatic Transmission Diagnosis and Service 1	17041.58W193573	Pass	10/15/2016		Web-based
17041.58W3	17041.58W3 Automatic Transmission Diagnosis and Service 3	17041.58W393575	Pass	10/14/2016		Web-based
17041.58W2	17041.58W2 Automatic Transmission Diagnosis and Service 2	17041.58W293574	Pass	10/14/2016		Web-based
19047.20W2-R5	19047.20W2-R5 Entertainment Systems 2	19047.20W2-R591571	Pass	10/14/2016		Web-based
19047.20W3-R3	19047.20W3-R3 Entertainment Systems 3	19047.20W3-R392247	Pass	10/14/2016		Web-based
15045.18H-R2	15045.18H-R2 GM Braking Systems	15045.18H-R2-WTLT	Pass	10/05/2016		Instructor-Led
13042.12WP	Noise, Vibration and Harshness (NVH)	13042.12WP73753	Fail	09/26/2016		Online Test
13042.12W	Noise, Vibration and Harshness (NVH)	13042.12W49575	Fail	09/26/2016		Web-based
16410.01D2	16410.01D2 Diesel Engine Performance 2	16410.01D291939	Pass	09/22/2016		Online Instructor-Led
16410.01D1	16410.01D1 Diesel Engine Performance 1	16410.01D191913	Pass	09/22/2016		Online Instructor-Led
11044.05W2-R2	11044.05W2-R2 HVAC Systems and Operation Stage 2	11044.05W2-R292962	Pass	08/13/2016		Web-based
16043.53W3	16043.53W3 Gas/Diesel Engine Mechanical Diagnosis and Measurement 3	16043.53W392903	Pass	07/26/2016		Web-based
16048.33H	16048.33H GDS2 / MDI 1 & 2	16048.33H-WTLT	Pass	06/17/2016		Instructor-Led
13042.14H-R2			Pass	06/08/2016		

Course History

Name: FELIX BENALLY

Organization: AMIGO CHEVROLET

COURSE NUMBER	COURSE NAME	CLASS CODE	GRADE	COMPLETED	EXPIRES	DELIVERY METHOD
	13042.14H-R2 Noise, Vibration and Harshness	13042.14H-R2-WTLT				Instructor-Led
13042.14D1-R2	13042.14D1-R2 Noise, Vibration and Harshness (NVH) 1	13042.14D1-R2351122	Pass	06/01/2016		Online Instructor-Led

1C-Abel Johnson CV

Page break

Abel Johnson

P.O. Box 2394
Gallup, New Mexico 87305
(505) 879-3183

Objective

To utilize my experience and education in the Automotive Technology field within an educational institution or company.

Employment

SR. AUTOMOTIVE TECHNICIAN — **MAY 2010 – PRESENT**
Navajo Nation Fleet Management — *Window Rock, AZ*

Diagnose engine noise and repair; diagnose transmission, repair or overhaul; diagnose and repair cooling systems; check and diagnose engines, transmissions, axle leaks, repair drive lines, overhaul front and rear wheel drive axles, overhaul all wheel and four wheel drive transfer cases, pull engines/transmissions, oil changes, brakes, pre-delivery inspections, electrical diagnosis, tune-ups, clutches, heating & air conditioning (service 134A system) and cooling system. Perform drivability work and engine performance. Work with scanners and Mitchell-on- Demand Technical Assistance.

HEAVY LINE TECHNICIAN — **OCTOBER 1992 – MARCH 2010**
Amigo Chevrolet — *Gallup, NM*

Diagnose engine noise and repair; diagnose transmission, repair or overhaul; diagnose and repair cooling systems; check and diagnose engines, transmissions, axle leaks, repair drive lines, overhaul front and rear wheel drive axles, overhaul all wheel and four wheel drive transfer cases, pull engines/transmissions, oil changes, brakes, pre-delivery inspections, electrical diagnosis, tune-ups, clutches, heating & air conditioning, cooling system and install A/C system in Toyota. Service 134A and R12 systems. Work with scanners and GM Technical Assistance (via telephone). Supervise two Tech Assistants.

TECHNICIAN — **OCTOBER 2007 – JANUARY 2009**
Pep Boys — *Gallup, NM*

Diagnose engine noise and repair; diagnose transmission, repair or overhaul; diagnose and repair cooling systems; check and diagnose engines, transmissions, axle leaks, repair drive lines, overhaul front and rear wheel drive axles, overhaul all wheel and four wheel drive transfer cases, pull engines/transmissions, oil changes, brakes, electrical diagnosis, tune-ups, clutches, heating & air conditioning and cooling systems.

PART-TIME LECTURER

JANUARY 2013 – PRESENT
AUGUST 2012 – DECEMBER 2012
JANUARY 2012 – MAY 2012
AUGUST 2011 – DECEMBER 2011
AUGUST 2009 – MAY 2010
AUGUST 2009 – DECEMBER 2009
AUGUST 2008 – DECEMBER 2008
AUGUST 2003 – MAY 2004
JANUARY 1995 – DECEMBER 1995

University of New Mexico-Gallup Campus — *Gallup, NM*

Taught the following Automotive Technology courses:

- Automatic Transmission
- Automotive Engine Overhaul
- Automotive Gas Engine Repair
- Automotive Testing & Diagnosis
- Drive Train (& Transmission)
- Drive Train Overhaul
- Electrical System Repair
- Emission Control Service
- Engine Performance
- Heating & Air Conditioning
- Manual Transmissions & Transaxles
- Practicum

QUICK SERVICE TECH — AUGUST 1990 – OCTOBER 1992
Sunshine Buick-GMC — *Albuquerque, NM*

Oil changes, brakes, maintenance work, service lot attendant, and washed/detailed cars.

LOT ATTENDANT/COURTESY CAB DRIVER/CUSTODIAN — MARCH 1989 – JULY 1989
Canyon Mazda — *Phoenix, AZ*

Service lot attendant, clean shop, washed detailed cars, and shop runner.

Education

ASSOCIATE OF OCCUPATIONAL STUDIES — AUGUST 1988 – JULY 1989
Universal Technical Institute (UTI) — *Phoenix, AZ*

Completed 1440 hours of theory and hands-on training in diagnosis, overhaul, repair and maintenance of both automobiles and heavy duty trucks and equipment including: tune-up and emission, fuel and electrical systems, power trains, automatic transmissions; for diesel applications: front ends, transport refrigeration, automotive and diesel engines. Covered the safety practices of all necessary tools, electronic diagnostic equipment and dynamometers. Over fifty percent of the training involved practical shop experience.

In addition to basic theory, demonstrations, diagnosis, and overhaul procedures, all UTI programs consist of approximately 50% practical shop experience performed on live equipment.

DIPLOMA — MAY 1988
Ft. Wingate High School — *Ft. Wingate, NM*

Certifications/Trainings

ASE CERTIFIED
In the following areas:

- *Engine Repair (A1)* — *Expires 06/30/2019*
- *Automatic Trans/Transaxle (A2)* — *Expires 06/30/2019*

Manual Drive Train and Axles (A3)	*Expires 06/30/2019*
Steering & Suspension (A4)	*Expired 12/31/2012*
Brakes (A5)	*Expires 06/30/2019*
Electrical/Electronic Systems (A6)	*Expires 06/30/2019*
Heating and Air Conditioning (A7)	*Expired 06/30/2019*
Engine Performance (A8)	*Expires 06/30/2019*

GM COMPUTER-BASED TRAINING

- *Fundamentals*
- *Engine Performance*
- *Diesel Engine Performance*
- *Engine Repair*
- *Electrical / Electronics*
- *Manual Drive Train & Axle*
- *Automatic Transaxle / Transmission*
- *Steering & Suspension*
- *Brakes*

References

Doug Cobb
D & A Body Shop, Owner
505-863-2900

Alvin Begay
Service Writer/Advisor, Navajo Nation Fleet Management-Window Rock
928-871-6527

Rudy Porter
Service Advisor/Asst Manager, Amigo Chevrolet
505-722-7701

National Institute for
AUTOMOTIVE SERVICE EXCELLENCE

ASE Certification Status

Abel B Johnson
Gallup, NM 87305-2394
ASE ID: ASE-2673-9557

Created: October 25, 2016
2:31:58 PM

This individual currently has the ASE certification status shown below:

Current ASE Designations

Certificates	Test Series
Automobile Technician	A: Auto

ASE Certification Details

Test	Description	Expiration Date	Status
A1	Engine Repair	06/30/2019	Current
A2	Automatic Transmission/Transaxle	06/30/2019	Current
A3	Manual Drive Train & Axles	06/30/2019	Current
A4	Suspension & Steering	12/31/2012	Expired
A5	Brakes	06/30/2019	Current
A6	Electrical/Electronic Systems	06/30/2019	Current
A7	Heating & Air Conditioning	06/30/2019	Current
A8	Engine Performance	06/30/2019	Current

To become ASE certified, you must pass an ASE test and have the required amount of relevant hands-on work experience. You can download the Work Experience Form at www.ase.com/expform.

Any expired certification can be reinstated by taking the corresponding recertification test. If you have any questions, please contact us.

Sincerely,
ASE Customer Service
E-mail: contactus@ase.com

Universal Technical Institute

Phoenix Arizona

This Diploma is presented to

ABLE B. JOHNSON

who satisfactorily completed the following program

Automotive/Diesel Technology

and in recognition of this achievement is entitled to this

Associate Of Occupational Studies Degree

Specialty courses of training include:

Automotive Engine Fundamentals	Automotive Chassis and Brakes	Truck Automatic Transmissions	Hydraulic Systems
Electronic Fundamentals	Automotive Power Trains	Diesel Engines	Truck Power Trains
Automotive Fuel & Ignition Systems	Automotive Climate Control	Diesel Fuel Systems	Transport Refrigeration
Automotive Driveability & Emissions	Truck Brakes and Chassis	Diesel Engine Accessories	Electronic Technology

In witness whereof, we have hereunto subscribed our signatures

at Phoenix, Arizona, this 21ST day of JULY 1989

Director

Director of Training

302

Certificate of Recognition

for

Outstanding Performance as Faculty
Automotive Technology

This certificate has been awarded to

Abel Johnson

Given this 17th day of May, 2017

In recognition of outstanding service to
Students, Staff, and Faculty in the UNM-Gallup Automotive Technology Program

Frank Loera

Ernesto Matchoom

STUDENT NO. _____ SCHOOL NO. 01

UNIVERSAL TECHNICAL INSTITUTE

NAME JOHNSON, ABLE B. GRADUATION DATE 7/21/89

ISSUED DATE 7/26/89 SCHOOL OFFICIAL Beverly Ellenberger

OFFICIAL TRANSCRIPT

PHASE NO.	AUTO/DIESEL TECHNOLOGY (302)		HOURS ABSENT	CLASSWORK	SHOPWORK	APPEARANCE	COURTESY	DEPENDABILITY	COOPERATION	INITIATIVE	ATTENDANCE	SAFETY	COMPOSITE EXAM GRADE	PHASE GRADE
01	AUTO. ENGINE PART I	8/08/88	.25	F	G	E	E	E	E	E	E	E	79	S
04	AUTO. FUEL & IGNITION SYS	2/06/89		G	E	E	E	E	E	E	E	E	82	S
05	AUTO. DRIVEABILITY & EMIS	2/27/89		F	G	E	E	E	E	E	E	E	77	S
06	AUTO. POWER TRAINS	6/12/89	2.25	E	E	E	G	E	E	G	E	E	91	S
07	AUTO. CHASSIS AND BRAKES	5/22/89	6.00	G	E	E	E	G	E	G	G	E	86	S
08	AUTO. CLIMATE CONTROL	4/10/89	2.75	F	G	E	E	E	E	E	E	E	70	S
12	TRUCK BRAKES AND CHASSIS	3/20/89	2.75	G	E	E	E	E	E	E	E	E	80	S
13	TRUCK AUTO. TRANSMISSIONS	7/03/89	.25	F	G	E	E	E	E	E	E	E	76	S
14	DIESEL ENGINES	10/31/88	.75	G	E	E	E	E	E	E	E	E	86	S
15	DIESEL FUEL SYSTEMS	11/21/88	2.25	G	E	E	E	E	E	E	E	E	86	S
16	DIESEL ENGINE ACCESSORIES	12/12/88	2.00	G	E	E	E	E	E	E	E	E	84	S
17	ELECTRONIC FUNDAMENTALS	10/10/88	2.00	G	E	E	E	E	E	G	E	E	84	S
18	HYDRAULIC SYSTEMS	8/29/88		G	E	E	E	E	E	E	E	E	81	S
19	TRUCK POWER TRAINS	9/19/88	3.00	F	G	E	E	G	E	G	E	E	77	S
20	TRANSPORT REFRIGERATION	5/01/89	.50	G	G	E	E	E	E	G	E	E	86	S
22	ELECTRONIC TECHNOLOGY	1/16/89		F	G	E	E	E	E	E	E	E	77	S

Grade Point Average 3.0

E - Excellent
G - Good
F - Fair
P - Poor
S - Satisfactory
U - Unsatisfactory

Dealership Name:	AMIGO CHEVROLET, CADILLAC, OLDSMOBILE
Address:	1900 S SECOND ST
City:	GALLUP
State:	NM
Zip:	87301
Report Date:	Jan 31 2004 4:06AM
Dealership Group:	C
Num Technicians:	17
Division/Product:	C,K

Technician Name	ID#	GM Master Technician Certification Courses	Training Courses: 18043.01-R2 Electrical/Electronics Stage 1 (W)	18043.02-R2 Electrical/Electronics Stage 2 (W)	18043.03-R2 Electrical/Electronics Stage 3 (W) #	18041.00 S Overview (W)	18048.15 Tech 2 Familiarization (W) #	Future Requirements: 18043.04 Electrical/Electronics Terminals and Connectors (H)
		•	•	•	•	•	•	
[redacted]			2	2	2	2	2	
						C		
			C			C		
			C				C	
			C	C	C	C	C	
			C	C	C	C	C	
JOHNSON, A	9972					C		
[redacted]			C	C	C	C	C	
			C	C	C			
							C	
			C	C	C	C	C	
						C		
			C	C	C	C	C	
			C	C	C	C	C	
			C					

Percent Minimum Training Requirement Completed	49%	
Number Technicians GM Master Technician Certified		0

$ = Not required for Body Structural Repair Area
* denotes a sublet/shared relationship

Engine Performance

Dealership Name:	AMIGO CHEVROLET, CADILLAC, OLDSMOBILE
Address:	1900 S SECOND ST
City:	GALLUP
State:	NM
Zip:	87301
Report Date:	Jan 31 2004 4:08AM
Dealership Group:	C
Num Technicians:	17
Division/Product:	C,K

		Training Courses													
		Number of Fundamental Courses Completed	AND ASE Certification (A8)	AND ASE Certification (L1)	15041.01 Battery, Charging, and Starting (M-R2)	15044-15 Body Control Systems (M)	15040.02 OBD II (M-R2)	15044.11 GM Powertrain Performance (M1,M2,M3,D1,D2,D3,H)	17041.20 Auto Trans./Transaxle Diagnostics (M-R2)	15047.05 Security Systems (M-R2)	15440.15 Engines: New & Updates (D)	% Training Complete per Technician	15940.00A Certification Assessment	GM Master Technician Certified
	GM Master Technician Certification Courses	*	*	*	*	*	*	*		*			*	
Technician Name	ID#		2	2	2	2	2	3	2	2	2			
[redacted]		1/5										7%		
		2/5										14%		
		2/5							C			21%		
		C							C			42%		
												0%		
		C							C			42%		
		1/5										7%		
JOHNSON, A	9972	C	04			C	C	1/7	C			65%		
[redacted]		3/5										21%		
												0%		
		1/5						3/7	C			17%		
		C	04	05	C	C	C	6/7	C	C		91%		
		1/5										7%		
		C			C	C	C	6/7	C	C		77%		
		C										35%		
												0%		
		1/5	08		C		C					28%		
Percent Minimum Training Requirement Completed		84%												
Number Technicians GM Master Technician Certified														0

= Not required for Body Structural Repair Area
* denotes a subset/shared relationship

Diesel Engine Performance

Dealership Name:	AMIGO CHEVROLET, CADILLAC, OLDSMOBILE
Address:	1900 S SECOND ST
City:	GALLUP
State:	NM
Zip:	87301
Report Date:	Jan 31 2004 4:06AM
Dealership Group:	C
Num Technicians:	17
Division/Product:	C,K

		Training Courses						
		Number of Fundamental Courses Completed	M048.82 OBD II (M-R2)	10045.21 Diesel Engine Perf. 2001(W,D,H)	10045.10 6.5L Diesel Engine (W)	% Training Complete per Technician	10540.10A Certification Assessment	GM Master Technician Certified
	GM Master Technician Certification Courses	*	*	*	*		*	
Technician Name	ID#		1	1	1			
		1/5				12%		
		2/5				25%		
		2/5		1/3		29%		
		C		1/3		68%		
						0%		
		C				82%		
		1/5				12%		
JOHNSON, A	9972	C	C	1/3	C	91%		
		3/5				37%		
						0%		
		1/5				12%		
		C	C	2/3	C	95%		
		1/5				12%		
		C	C	2/3	C	95%		
		C				82%		
						0%		
		1/5	C			25%		
Percent Minimum Training Requirement Completed		95%						
Number Technicians GM Master Technician Certified								0

= Not required for Body Structural Repair Area
* denotes a sublet/shared relationship

Engine Repair

Dealership Name:	AMIGO CHEVROLET, CADILLAC, OLDSMOBILE
Address:	1900 S SECOND ST
City:	GALLUP
State:	NM
Zip:	87301
Report Date:	Jan 31 2004 4:08AM
Dealership Group:	C
Num Technicians:	17
Division/Product:	C,K

		Training Courses										
		Number of Fundamental Courses Completed	OR ASE Certification (A1)	OR ASE Certification (T2)	10043.50 Engine Mech Diag/Meas (M,D,H)	11045.05 ACR2000 Familiarization (V)	13642.10 Vibration Correction (M-H2)	16440.10 Engine: New & Updates (D)	% Training Complete per Technician	16841.00A Certification Assessment	GM Master Technician Certified
	GM Master Technician Certification Courses	*	*	*	*	*	*			*	
Technician Name	ID#		2	2	2	2	2	2			
[redacted]		1/5							10%		
		2/5							20%		
		2/5	08				C		40%		
		C	05				C		70%		
									0%		
		C					C		60%		
		1/5							10%		
JOHNSON, A	9672	C	07		2/3		C		78%		
		3/5							30%		
									0%		
		1/5							10%		
		C	04			C			70%		
		1/5							10%		
		C	05		2/3	C	C		88%		
		C					C		60%		
									0%		
		1/5	08						20%		
Percent Minimum Training Requirement Completed		81%									
Number Technicians GM Master Technician Certified											0

= Not required for Body Structural Repair Area
* denotes a sublet/shared relationship

Electrical/Electronics

Dealership Name:	AMIGO CHEVROLET, CADILLAC, OLDSMOBILE	**Training Courses**													**Future Requirements**	
Address:	1900 S SECOND ST															
City:	GALLUP															
State:	NM															
Zip:	87301															
Report Date:	Jan 31 2004 4:06AM															
Dealership Group:	C															
Num Technicians:	17															
Division/Product:	C,K	Number of Fundamental Courses Completed	OR ASE Certification (A6)	OR ASE Certification (T6)	16041.01 Battery, Charging and Starting (W-R2)	16044.10 Body Control Systems (W,D1,D2,H)	22046.30 GM Supplemental Restraint Systems (W,H)	16047.06 Security Systems (W-R2)	16047.03 Entertainment Systems (M1,M2,M3,H)	OR 16040.20 OnStar Gen 2, 3 & 4 Diag & Repair (D1, D2)	OR 16040.30 OnStar System Diag & Repair (D1, D2)	% Training Complete per Technician	16840.00A Certification Assessment	GM Master Technician Certified	16046.20 GMLAN/Class Architecture and Function Diagnostics (D)	16042.04 Electrical/Electronic Terminals and Connectors (H)
	GM Master Technician Certification Courses	•	•	•	•	•	•	•	•	•	•		•			
Technician Name	ID#		2	2	2	2	2	2	2	2	2					
[redacted]		1/5										8%				
		2/5										16%				
		2/5										16%				
		C										41%				
												0%				
		C										41%				
		1/5										8%				
JOHNSON, A [redacted]	9972 [redacted]	C	05			1/4						52%				
[redacted]		3/5										25%				
												0%				
		1/5										8%				
		C	04		C	3/4	C	C	1/4	C		91%				
		1/5										8%				
		C	05		C	3/4	C	C	3/4	1/2		91%				
		C										41%				
												0%				
		1/5	08		C							25%				
Percent Minimum Training Requirement Completed		91%														
Number Technicians GM Master Technician Certified														0		

= Not required for Body Structural Repair Area
* denotes a sublet/shared relationship

Manual Drivetrain & Axle

Dealership Name:	AMIGO CHEVROLET, CADILLAC, OLDSMOBILE
Address:	1900 S SECOND ST
City:	GALLUP
State:	NM
Zip:	87301
Report Date:	Jan 31 2004 4:06AM
Dealership Group:	C
Num Technicians:	17
Division/Product:	C,K

		Training Courses												
		Number of Fundamental Courses Completed	ASE Certification (A3) OR	ASE Certification (T3) OR	17043.10 NV3500 Manual Trans. (W) OR	17043.20 NV4500 Manual Trans. (W) OR	14043.11 Four Wheel Drive Systems (W)	19042.10 Vibration Correction (M-R2,D [,D2,H]	14041.10 Rear Axle & Prop Shaft (M-R2,D [,D2,H]	17340.20 ZF 6-Speed Manual Trans (V)	% Training Complete per Technician	14040.00A Certification Assessment	GM Master Technician Certified
	GM Master Technician Certification Courses	*	*	*	*	*	*	*	*			*	
Technician Name	ID#		1	1	1	1	1	1	1	1			
[redacted]		1/5									9%		
		2/5									18%		
		2/5	08				C	C	C	C	63%		
		C	03		C	C	C	3/4	C		88%		
											0%		
		C						2/4			50%		
		1/5									9%		
JOHNSON, A	9972	C	08		C	C	C	C	1/4	C	83%		
[redacted]		3/5					C				38%		
											0%		
		1/5							C	C	27%		
		C									45%		
		1/5									9%		
		C						C	C		63%		
		C						C			54%		
											0%		
		1/5									9%		
Percent Minimum Training Requirement Completed		93%											
Number Technicians GM Master Technician Certified													0

\# = Not required for Body Structural Repair Area
* denotes a sublet/shared relationship

Automatic Transaxle/Transmission

Dealership Name:	AMIGO CHEVROLET, CADILLAC, OLDSMOBILE
Address:	1900 S SECOND ST
City:	GALLUP
State:	NM
Zip:	87301
Report Date:	Jan 31 2004 4:08AM
Dealership Group:	C
Num Technicians:	17
Division/Product:	C,K

Technician Name	ID#	Number of Fundamental Courses Completed	ASE Certification (A2)	15040.02 OBD II (M-R2)	17041.20 Auto Trans Transaxle Diag (M-R2,D1,D2,H)	15044.11 GM Powertrain Performance (M1,M2,M3)	14043.11 Four Wheel Drive Systems (M)	13042.10 Vibration Correction (M-R2)	17041.27 4L60-E Auto Transmission (M) OR	17041.32 4T65-E Auto Transaxle (M) OR	17041.28 4T80-E Auto Transaxle (M)	17041.29 4L80-E Auto Transmission (M)	17041.30 4T80-E Transaxle (M)	17340.10 Allison LCT 1000 Trans Part 1 (V)	17340.11 Allison LCT 1000 Trans Part 2 (V)	17340.12 Allison LCT 1000 Trans Diag. Issues & Proc (D)	17340.13 Allison LCT 1000 Trans Diag. Close Up (D)	% Training Complete per Technician
	GM Master Technician Certification Courses	•	•	•	•	•	•	•	•	•								
		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		1/5																5%
		2/5																10%
		2/5	08		C		C	C				C		C			C	47%
		C	04		3/4		C	C	C									51%
																		0%
		C			C			C				C						42%
		1/5																5%
JOHNSON, A	9972	C	09	C	3/4	1/3	C	C	C	C	C	C	C	C			C	84%
		3/5					C					C						26%
																		0%
		1/5			2/4									C			C	18%
		C		C	C	C						C						47%
		1/5																5%
		C		C	C	C		C										47%
		C						C										31%
																		0%
		1/5		C														10%
Percent Minimum Training Requirement Completed		84%																
Number Technicians GM Master Technician Certified																		

Training Courses

= Not required for Body Structural Repair Area
* denotes a sublet/shared relationship

Brakes

Dealership Name:	AMIGO CHEVROLET, CADILLAC, OLDSMOBILE
Address:	1900 S SECOND ST
City:	GALLUP
State:	NM
Zip:	87301
Report Date:	Jan 31 2004 4:06AM
Dealership Group:	C
Num Technicians:	17
Division/Product:	C,K

		Training Courses											
		Number of Fundamental Courses Completed	OR ASE Certification (A6)	OR ASE Certification (T4)	15045.10 Found Brakes/ABS Sys (W-R2.01,02,H)	13042.10 Vibration Correction (M-R2)	15045.20 Bosch 8 Series ABS/TCS (W)	15045.30 4WAL ABS (W)	15045.40 Delphi Chassis VSC/BC 7ABS/TCS (W)	% Training Complete per Technician	15540.00A Certification Assessment	GM Master Technician Certified
	GM Master Technician Certification Courses	*	*	*	*	*	*	*	*		*	
Technician Name	IDS		1	1	1	1	1	1	1			
[redacted]		1/5								9%		
		2/5								18%		
		2/5				C				27%		
		C	04			C				63%		
										0%		
		C	04		C	C	C	C	C	100%		
		1/5								9%		
JOHNSON, A [redacted]	9972	C	04			C				63%		
[redacted]		3/5								27%		
										0%		
		1/5								9%		
		C								45%		
		1/5								9%		
		C	05		C	C	C	C	C	100%		
		C	08		C	C	C	C	C	100%		
										0%		
		1/5								9%		
Percent Minimum Training Requirement Completed		300%										
Number Technicians GM Master Technician Certified												0

= Not required for Body Structural Repair Area
* denotes a sublet/shared relationship

Steering & Suspension

Dealership Name:	AMIGO CHEVROLET, CADILLAC, OLDSMOBILE
Address:	1900 S SECOND ST
City:	GALLUP
State:	NM
Zip:	87301
Report Date:	Jan 31 2004 4:06AM
Dealership Group:	C
Num Technicians:	17
Division/Product:	C,K

Technician Name	ID#	Number of Fundamental Courses Completed	OR ASE Certification (A4)	OR ASE Certification (T6)	15045.10 Found Brakes/ABS Sys (W-R2)	13041.10 Steering Service (W)	13044.10 Electronic Suspension Systems (W,H)	13042.10 Vibration Correction (W-R2,D1,D2,H)	13041.20 Rear Wheel Steering (Quadrasteer) (D)	% Training Complete per Technician	13640.00A Certification Assessment	GM Master Technician Certified
GM Master Technician Certification Courses		•	•	•	•	•	•	•			•	
			1	1	1	1	1	1	1			
[redacted]		1/5								9%		
		2/5								18%		
		2/5						C		27%		
		C	05					3/4		61%		
										0%		
		C	04		C	C	1/2	2/4	C	90%		
		1/5								9%		
JOHNSON, A	9972	C	05					C		63%		
[redacted]		3/5								27%		
										0%		
		1/5								9%		
		C								45%		
		1/5								9%		
		C			C	C		C		72%		
		C	08		C	C	1/2	C	C	95%		
										0%		
		1/5								9%		
Percent Minimum Training Requirement Completed		95%										
Number Technicians GM Master Technician Certified												0

= Not required for Body Structural Repair Area
* denotes a sublet/shared relationship

HVAC

Dealership Name:	AMIGO CHEVROLET, CADILLAC, OLDSMOBILE
Address:	1900 S SECOND ST
City:	GALLUP
State:	NM
Zip:	87301
Report Date:	Jan 31 2004 4:08AM
Dealership Group:	C
Num Technicians:	17
Division/Product:	C,K

		Training Courses						
		Number of Fundamental Courses Completed	ASE Certification (A7)	11044.00 Intro to Air Conditioning (M-R2, D1, D2)	11045.10 Adv. HVAC System Diag (W,J)	% Training Complete per Technician	11940.00A Certification Assessment	GM Master Technician Certified
	GM Master Technician Certification Courses	*	*	*	*		*	
Technician Name	ID#		1	1	1			
[redacted]		1/5				12%		
		2/5				25%		
		2/5				25%		
		C		2/3	1/2	77%		
						0%		
		C				82%		
		1/5				12%		
JOHNSON, A	9972	C	05	C		87%		
		3/5				37%		
						0%		
		1/5				12%		
		C	04	C	1/2	93%		
		1/5				12%		
		C	05	C	1/2	93%		
		C				82%		
						0%		
		1/5	08			25%		
Percent Minimum Training Requirement Completed		93%						
Number Technicians GM Master Technician Certified								0

8 = Not required for Body Structural Repair Area
* denotes a subset/shared relationship

Mech/Elec/Body Repair

Dealership Name:	AMIGO CHEVROLET, CADILLAC, OLDSMOBILE
Address:	1900 S SECOND ST
City:	GALLUP
State:	NM
Zip:	87301
Report Date:	Jan 31 2004 4:08AM
Dealership Group:	C
Num Technicians:	17
Division/Product:	C,K

		Training Courses										
		Number of Fundamental Courses Completed	ASE Certification (B6)	ASE Certified Master Automobile Technician OR	1184.00 Intro to Air Conditioning (M-R2, D1, D2)	2249.30 GM Supplemental Restraint System (M,H)	1945.10 Foundation Brakes/ABS Sys (M-R2,D1,D2)	2249.60 Materials and Windshield Rep (M,H)	1240.20 2003 Chevrolet SSR Retract. Roof Oper & Service Proc. (D)	% Training Complete per Technician	22841.00A Certification Assessment	GM Master Technician Certified
	GM Master Technician Certification Courses	*	*	*	*	*	*	*	*		*	
Technician Name	ID#		1	1	1	1	1	1	1			
[redacted]		1/5								9%		
		2/5	06							27%		
		2/5		3/6						21%		
		C		5/6	2/3					57%		
								C		9%		
		C		2/6			C			58%		
		1/5								9%		
JOHNSON, A	9972	C		06	C					63%		
		3/5								27%		
										0%		
		1/5								9%		
		C		4/6	C	C				68%		
		1/5	06					C		27%		
		C		4/6	C	C	C			77%		
		C		2/6			C			58%		
										0%		
[redacted]	24	1/5		4/6						13%		
Percent Minimum Training Requirement Completed		77%										
Number Technicians GM Master Technician Certified												0

= Not required for Body Structural Repair Area
* denotes a sublet/shared relationship

Body Structural Repair

Dealership Name:	AMIGO CHEVROLET, CADILLAC, OLDSMOBILE	
Address:	1900 S SECOND ST	
City:	GALLUP	
State:	NM	
Zip:	87301	
Report Date:	Jan 31 2004 4:06AM	
Dealership Group:	C	
Num Technicians:	17	
Division/Product:	C,K	

		Training Courses																
		ASE Certification (B4)	Number of Fundamental Courses Completed for Body Structural Repair	22048.30 GM Supplemental Restraint Systems (W)	OR WCS03 I-CAR Automotive Steel GMA (MIG) Welding Qual. Test	OR SPS05 I-CAR Structural Parts Steel Qualification Test	MEA01 I-CAR Measuring	FCR01 I-CAR Fundamentals of Collision Repair Program 1	DAM02 I-CAR Frontal Impact Analysis	DAM03 I-CAR Mechanical Systems Analysis	DAM04 I-CAR Restraints, Interior, Glass, Side and Rear Impact Analysis	SPS01 I-CAR Steel Unibody Front and Rear Rails, Floors and Front Structure	SPS02 I-CAR Steel Unibody A, B, C, D-Pillars and Rocker Panels	SPS03 I-CAR Steel Full-Frame Sectioning	SPS06 I-CAR Full-Frame Replacement	% Training Complete per Technician	GMC01 GM Body Structural Certification	GM Master Technician Certified
	GM Master Technician Certification Courses	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	
Technician Name	**ID#**	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
[redacted]			1/3													2%		
		06	2/3		C				C		C					35%		
			1/3													2%		
			C													7%		
																0%		
			C				C	C								23%		
			1/3													2%		
JOHNSON, A [redacted]	9972		C													7%		
[redacted]			2/3													5%		
																0%		
																0%		
			C	C												15%		
		06	1/3		C											17%		
			C	C												15%		
			C													7%		
																0%		
			1/3													2%		
Percent Minimum Training Requirement Completed		35%																
Number Technicians GM Master Technician Certified																		0

$ = Not required for Body Structural Repair Area
* denotes a sublet/shared relationship

Paint

Dealership Name:	AMIGO CHEVROLET, CADILLAC, OLDSMOBILE
Address:	1900 S SECOND ST
City:	GALLUP
State:	NM
Zip:	87301
Report Date:	Jan 31 2004 4:06AM
Dealership Group:	C
Num Technicians:	17
Division/Product:	C,K

	GM Master Technician Certification Courses	Training Courses: ASE Certification (B2) - Not Required but credit awarded	Training Courses: 22041.00 Paint Course (H)	Training Courses: % Training Complete per Technician	Training Courses: GM Master Technician Certified
Technician Name	ID#	1	1		
[redacted]	[redacted]			0%	
[redacted]	[redacted]			0%	
[redacted]	[redacted]			0%	
[redacted]	[redacted]			0%	
[redacted]	[redacted]			0%	
[redacted]	[redacted]			0%	
[redacted]	[redacted]			0%	
JOHNSON, A	0972			0%	
[redacted]	[redacted]			0%	
[redacted]	[redacted]		05	100%	Y
[redacted]	[redacted]			0%	
[redacted]	[redacted]			0%	
[redacted]	[redacted]			0%	
[redacted]	[redacted]			0%	
[redacted]	[redacted]			0%	
[redacted]	[redacted]			0%	
[redacted]	[redacted]			0%	
Percent Minimum Training Requirement Completed		100%			
Number Technicians GM Master Technician Certified					1

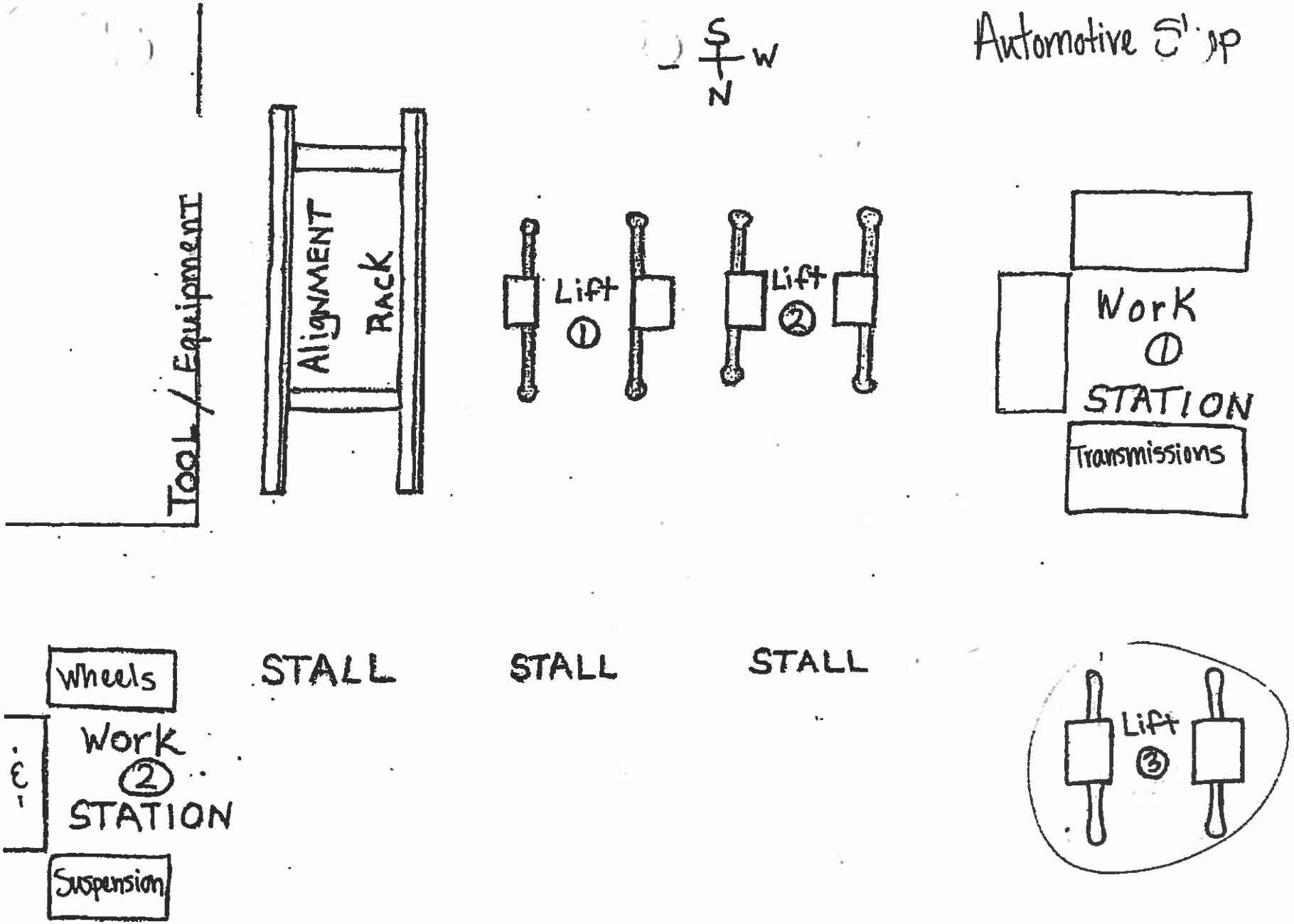
‡ = Not required for Body Structural Repair Area
* denotes a sublet/shared relationship

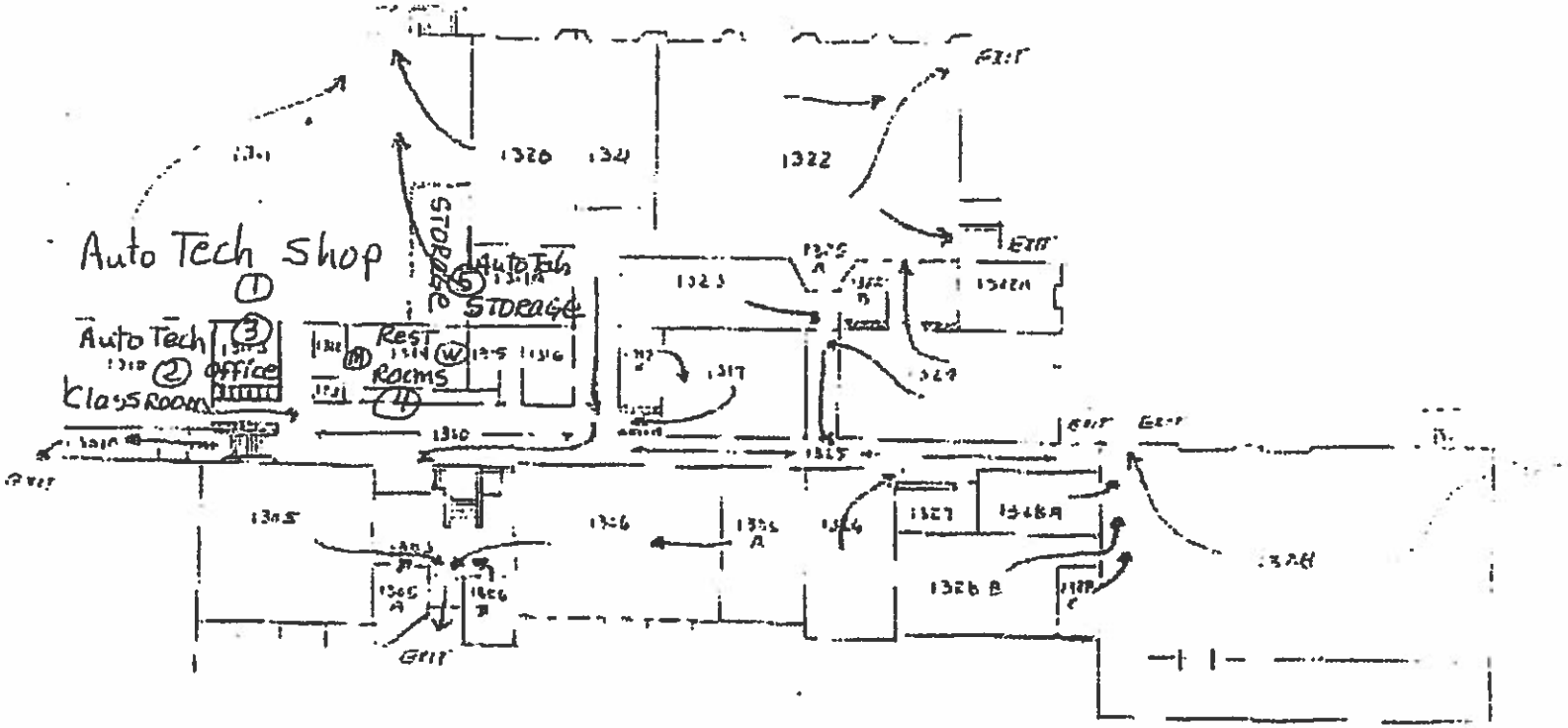
Close Window

2A-Shop Layout

Page break

Automotive Shop





1 - Shop
2 - Classroom
3 - Office
4 - Restrooms
5 - Storage

Career Education
27,911 sq. ft.

2B-Tools/Equipment

Included is a list of tools and equipment available to students for utilization, instruction and demonstration.

TOOLS AND EQUIPMENT

Local employer needs and the availability of funds are key factors for determining each program's structure and operation. The NATEF Standards recognize that not all programs have the same needs, nor do all programs teach 100 % of the NATEF tasks. Therefore, the basic philosophy for the tools and equipment requirement is as follows: for all tasks which are taught in the program, the training should be as thorough as possible with the tools and equipment necessary for those tasks. In other words, if a program does not teach a particular task, the tool from the tool list associated with that task is not required.

The NATEF tool lists are organized into three basic categories: Hand Tools, General Lab/Shop Equipment, and Tools and Equipment by Level. When referring to the tools and equipment list, please note the following:

1. The organization of the tool list is not intended to dictate how a program organizes its tool crib or student tool sets (i.e., which tools should be in a student set, if utilized, and which should be in the tool crib or shop area).
2. Quantities for each tool or piece of equipment are determined by the program needs; however, sufficient quantities to provide quality instruction should be on hand.
3. For Tools and Equipment by Level, the program need only have those tools for the level being accredited.
4. Programs may meet the equipment requirements by borrowing special equipment or providing for off-site instruction (e.g., in a dealership or independent repair shop). Use of borrowed or off-site equipment must be appropriately documented. No specific brand names for tools and equipment are specified or required.
5. Although the NATEF Standards recommend that programs encourage students to begin to build their own tool sets, this is not a requirement. However, many employers require an entry-level automobile technician provide his/her own basic hand tool set.

HAND TOOLS

(Contained in individual sets or the tool crib in sufficient quantities to permit efficient instruction)

Air Blow Gun (meeting OSHA requirements) Allen (Wrench or Socket) Set - Standard (.050" - 3/8") Allen (Wrench or Socket) Set - Metric (2mm - 8mm, 10mm, 12mm) Battery Post Cleaner Battery Terminal Pliers Battery Terminal Puller Chisels: Cape 5/16" Cold 3/8", 3/4" Chisel Holder Claw Type Pickup Tool Combination Wrenches: Standard (1/4" – 1 1/4") Metric (7mm - 24mm) Crowfoot Wrench Set - Metric Crowfoot Wrench Set – Standard Ear Protection Feeler Gauge (Blade Type): .002" - .040" .006mm - .070mm Files: Coarse 6" and 12" Fine 6" and

12" Half Round 12" Round 6" and 12" Flare Nut (tubing) Wrenches: 3/8" - 3/4" 10mm - 17mm Flashlight Fuse Puller Fused Jumper Wire Set (with various adapters) Hack Saw Hammers: 16 oz. Ball Peen Brass Dead Blow Plastic Mallet Plastic Tip Rubber Mallet Inspection Mirror Magnetic Pickup Tool Pliers: Combination 6" Hose Clamp
3
Locking Jaw Needle Nose 6" Side Cutting Slip Joint (Water Pump) Pry Bars: Rolling Head Straight Punches: Center Brass Drift Pin 1/8", 3/16", 1/4", 5/16 " Taper 3/8", 1/2", 5/8" Safety Glasses (meeting OSHA requirements) Scraper: Carbon 1" Gasket 1" Screwdriver - Blade Type: Stubby 6", 9", 12" Offset Screwdriver - Phillips: Stubby #1, #2 6" #1, #2 12" #3 Offset #2 Screwdriver - Impact Driver Set Screw Starter: Phillips Standard Socket Set - 1/4" Drive: 1/4" - 1/2" Standard Depth 1/4" - 1/2" Deep 6mm - 12mm Standard Depth 6mm - 12mm Deep Flex/Universal Type 3", 6" Extensions Ratchet Socket Set - 3/8" Drive: 5/16" - 3/4" Standard Depth (6 point) 3/8" - 3/4" Deep (6 point) 10mm - 19mm Standard Depth 10mm - 19mm Deep 3", 5", 10" Extensions Flexhead Ratchet Ratchet Spark Plug Sockets 5/8", 13/16" Speed Handle Universal Joint
4 7/1/2013
Flexible Socket Set 3/8" - 3/4" Flexible Socket Set 10mm - 19mm Socket Set - 1/2" Drive: 7/16" - 1 1/8" Standard Depth 7/16" - 1 1/8" Deep 10mm - 24mm Standard Depth 10mm - 24mm Deep 3", 6", 12" Extensions Flex Handle (Breaker Bar) Ratchet Spark Plug Feeler Gauge (Gap Tool) Tape Measure – Standard and Metric Test Light (12V and self-powered) Tire Pressure Gauge Tire Tread Depth Gauge Torque Wrench: 3/8" Drive (10 - 250 lb. in.) 3/8" Drive (5 - 75 lb. ft.) 1/2" Drive (50 - 250 lb. ft.) Torx® Set (screwdrivers and/or sockets): T-8 to T-60 Wire Brush

GENERAL LAB/SHOP EQUIPMENT

The tools and equipment on this list are used in general lab/shop work but are not generally considered to be individually owned hand tools. A well-equipped, accredited program should have all of these general tools and equipment readily available and in sufficient quantity to provide quality instruction.

Air Chisel Set (various bits) Air Compressor and Hoses Air Pressure Regulator Air Ratchet (3/8" drive) Automotive Stethoscope (electronic recommended) Axle Stands (Jack Stands) Axle Support Stands (Screw Jacks) Battery Charger Battery/Starter/Charging System Tester Bearing Packer (hand operated) Belt Tension Gauge Bench or Pedestal Grinder Coolant/Combustion Gas Detector (recommended) Coolant Tester Cooling System Pressure Tester and Adapters Creeper Cylinder Leakage Tester Dial Indicator with Flex Arm and Clamp Base Digital Multimeter (DMM) with various lead sets (sufficient quantities to meet instruction goals) Drain Pans Drill - 3/8" variable speed, reversible Drill - 1/2" variable speed, reversible Electric Heat Gun Engine Coolant Recovery Equipment or Recycler or Coolant Disposal Contract Service Extension Cords Face Shields Fender Covers Floor Jack (1½ Ton Minimum) Hand Held Vacuum Pump Hoist(s) Hood Prop Hydraulic Press with adapters Impact Socket Sets - 3/8" Drive (Standard and Metric) Impact Sockets - 1/2" Drive (7/16" - 1 1/8") Impact Sockets - 1/2" Drive (12mm – 24mm) Impact Sockets – 1/2" Drive Deep (30 mm, 32 mm, 36mm) Impact Wrench - 1/2" Drive Impact Wrench

- 3/8" Drive Jumper Cables Master Puller Set Micrometer (Depth) Micrometers - 0-1", 1-2", 2-3", 3-4", 4-5" (Outside Type) Oil Can - Pump Type Oil Filter Wrench and Sockets Oxy-Acetylene Torch Set Parts Cleaning Tank and Gloves (non-solvent based cleanser suggested) Remote Starter Switch Scan Tool OBDII w/CAN capability or Personal Computer (PC) with equivalent interface (appropriate capability to support tasks taught) Screw Extractor Set Seat Covers Serpentine Belt Tensioner Tools Snap Ring Pliers Set - external Snap Ring Pliers Set - internal Soldering Gun Soldering Iron (Pencil Tip) Spark Plug Boot Puller Tap and Die Set - Standard Tap and Die Set – Metric Temperature Sensing Device Thread Repair Insert Kit Tire Inflator Chuck Trouble/Work Lights (Non-incandescent) Tube Quick Disconnect Tool Set Tubing Bender Tubing Cutter/Flaring Set (Double-lap and ISO) Twist Drill Set - 1/64" - 1/2" Ultra Violet Leak Detection Device (Black Light) Used Oil Receptacle with extension neck and funnel Valve Core Removing Tool Vernier Calipers 0 - 6" 0 - 125mm Wheel Chocks Workbenches with vises

SPECIALTY TOOLS AND EQUIPMENT
MASTER AUTOMOBILE SERVICE TECHNOLOGY

SUSPENSION & STEERING Ball Joint Press and other Special Tools Brake Pedal Depressor Bushing Driver Set Coil Spring Compressor Tool Chassis Ear (recommended) Frame Angle Gauge or Portable Digital Protractor (appropriate for tasks being taught) Hand Grease Gun Inner Tie Rod End Tool Pitman Arm Puller Power Steering Pump Pulley Special Tool Set (appropriate for units being taught) Power Steering Pressure Gauges (recommended) Shock Absorber Tools Strut Spring Compressor Tool Steering Angle Gauge or Portable Digital Protractor (appropriate for tasks being taught) Steering Column Special Tool Set (appropriate for teaching units being utilized) Tie Rod Puller Tire Mounting Machine (rim clamp type) Tire Patching Tools and Supplies Tire Pressure Monitoring System (TPMS) Tool (appropriate for tasks being taught) Wheel Alignment Equipment-4 wheel (including alignment tools) Wheel Balancer - Electronic Type Wheel Weight Pliers

BRAKES Bearing Seal and Race Driver Set Brake Bleeder, Pressure or Vacuum Brake Disc Micrometer Brake Drum Micrometer and Calibration Equipment Brake Fluid Test Strips or Kit Brake Lathe (bench with disc and drum service attachments) Brake Lathe (on car) Brake Shoe Adjusting Gauge Brake Spring Remover/Installer Brake Spring Pliers Brake Spoon Master Cylinder Bleeder Kit Piston Retraction Set Wheel Stud Service Kit

HEATING AND AIR CONDITIONING A/C Compressor Clutch Service Tools A/C Service Port Adapter Set Dye Injection Kit Hygrometer Leak Detector (to meet current industry standards) Manifold Gauge Set or equivalent (to meet current industry standards) Refrigerant Charging Station (to meet current industry standards) or equivalent Refrigerant Identification Equipment Refrigerant Recovery/Recycling Machine (to meet current industry standards) Thermometer(s) (digital) Sealant Detector Kit

ENGINE PERFORMANCE Cylinder Power Balance Tester Four or Five Gas Exhaust Analyzer (Five Gas recommended) Fuel Injection Pressure Gauge Sets with Adapters * Graphing Multimeter (GMM) and/or Digital Storage Oscilloscope (DSO) Infrared Thermometer (or appropriate substitute) Injector Pulse Tester Leak Detector (Smoke or Nitrogen) Logic Probe (appropriate for tasks being taught) Oxygen Sensor Socket Pinch-off Pliers Sending Unit Socket(s) Spark Plug Thread Tap Spark Tester Timing Advance Light Vacuum/Pressure Gauge

* Also necessary to accomplish tasks in other MAST categories (Brakes and Electrical/Electronic Systems)

AUTOMATIC TRANSMISSION/TRANSAXLE Differential Set-up Tools Hydraulic Pressure Gauge Set Transmission Jack(s) Transmission/Transaxle Flushing Equipment (recommended) Transmission/Transaxle Removal and Installation Equipment Transmission/Transaxle Holding Fixtures Transmission/Transaxle Special Tool Sets (appropriate for units being utilized)

ELECTRICAL/ELECTRONIC SYSTEMS Connector Pick Tool Set Door Panel Trim Tool(s) Headlight Aimer or Screen Heat Gun (or equivalent for heat shrinking operations) Terminal Tension (Pin Drag) Test Kit/Terminal Probe Kit (or equivalent) Wire and Terminal Repair Kit

MANUAL DRIVE TRAIN AND AXLES Axle Nut Socket Set (or equivalent) Clutch Alignment Set Clutch Pilot Bearing/Bushing Puller/Installer Constant Velocity Joint (CV) Service Tools: Boot Installation Tool Boot Clamp Pliers or Crimping Ring Front Wheel Drive Engine Support Fixture Rotating Torque Wrench (beam-type or equivalent) Special Tools for Transmissions/Transaxles (appropriate for units being taught) Spindle Rethreader Die Set Universal Joint Tools

ENGINE REPAIR Ball (Small Hole) Gauges Cam Bearing Driver Set (suggested) Camshaft Holding Tool (appropriate for units being taught) Cylinder Deglazer Dial Bore Indicator Antifreeze/Coolant Tester Engine Stands/Benches Inside Micrometer Set: 0 - 6" 0 - 125mm Oil Pressure Gauge Outside Micrometer Set: 0 - 6" 0 - 125mm Portable Crane - 1/2 Ton Ring Compressor Ring Expander Ring Groove Cleaner Precision Straight Edge Telescopic Gauge Set Torque Angle Gauge V-Blocks Valve Spring Compressor Valve Spring Tester

3A-Strategic Action Plan

Page break

3B-5Year Plan

UNM GALLUP

Automotive Technology Department Action Plan

Department: Business and Applied Science

Prepared by: Ernesto Watchman

MISSION STATEMENT

The UNM-Gallup Automotive Technology Program mission is to provide an environment with the purpose of developing automotive technology student skills with absolute dedication to their dreams, passions, and growth. Instructors will work to develop or improve the training structure that an automotive technician needs to meet the ever-changing demands of the industry.

VISION STATEMENT

The UNM-Gallup Automotive Technology Program strives to be a thriving center of integrity and collaborative excellence in Automotive Performance, Training and Education rooted in Modern Vehicle applications.

PURPOSE STATEMENT

1. To provide a place for anyone, regardless of age or gender, to pursue their goal in Automotive Technology.
2. The UNM-Gallup Automotive Technology Center shall be a place for individuals to learn about the fundamentals and theories of automotive applications through lectures and performance diagnostics, maintenance, repairs, and addresses other vehicle performance issues, and to enhance students skills so they can perform at a professional level.

Description and Goals

The University of New Mexico-Gallup Automotive Program trains college and CCTE students through coursework in automotive technology. The courses offers instruction in Automotive Testing and Diagnosis, Brake Systems, Electrical System Repairs, Steering and Suspension, Emission Controls Service, Heating and Air Conditioning, Automotive Engine Overhaul, Drive Train Overhaul, Automatic Transmission Overhaul, Electrical System Overhaul, Practicum in Automotive Technology, Maintenance and Light Repair, and Cooperative Education.
The University of New Mexico-Gallup Branch Automotive Department continues to offer excellent instruction in past, current, and trending automotive repair and maintenance practices. Our commitment to student success comes with community Partnerships investing in the success of the program. Automotive Service Excellence (ASE) certified faculty guide students through the learning process in the automotive field of analytic and strategic

approaches to repairs, maintenance, and new build of automotive equipment. It is our continued goal to train entry level technicians who may want to become ASE-certified technicians before applying for employment or during their employment if hired as an apprentice.

Long-Range Strategic and Investment Plan

Operational Plan for the Proposed Automotive Technology Program at UNM Gallup.

1) Certification of Dual Credit Center for Career and Technology Education (CCTE) Program and College Program.

2) Recruitment and Retention.

The Automotive Industry changes every 5 years. Working on today's vehicles requires an understanding of fundamentals and principles in technology associated with modern cars and sophisticated automobile vehicles. This means schools need to stay current with the automotive industry in order to properly educate students in its industry standards. The UNM-Gallup Automotive Department has been reviewed for its strengths and weaknesses by industry partners such as Tate's Auto Group, Snap-On Tools, Gurley Motor Company, and Navajo Nation Fleet Management in Window Rock, Arizona. The Automotive Department Advisory Committee determined that National Automotive Technicians Education Foundation (NATEF) Certification is a requirement and is possible to obtain for student and program recognition in Automotive Service Excellence (ASE) training in two years if the Automotive Department has the cooperation of other departments and with enough funding and other adjustments. Attendance in the Automotive Technology Program has slowly risen and all indications are that today's UNM-Gallup Auto technology program will continue to attract new students and retain current students. Our goal is to become NATEF certified in the CCTE program as well as the College Program to better certify the individual who will pursue the automotive field in ASE certifications. ASE certification is available in eight different automobile specialty areas: Automatic Transmission/Transaxle, Brakes, Electrical and Electronic Systems, Engine Performance, Engine Repair, Heating and Air-Conditioning, Manual Drive Train and Axles, and

Suspension and Steering. To become certified, technicians must have at least 2 years of shop experience (or relevant schooling and 1 year of shop experience) and pass an exam.

Also, we must progress and improve the areas of teaching methods and equipment to stay up to date with other institutions and stay current with the ever-changing automotive industry. Instructors must also keep up to date with Industry standards in Automotive Service Excellence (ASE) certifications.

Automotive Technology faculty, UNM students, automotive club members, UNM student representatives, and UNM academic advisors assist in recruitment by on site school visits to promote and advertise the Auto Technology Program. In order for the UNM-Gallup Automotive Technology Program to reach its goal, it needs additional resources, such as, additional fulltime faculty, state of the art equipment, expanded Auto tech Lab area and classroom, increased budget, and curriculum change to bring each objective to fruition.

Action Steps to Achieve Goals: Establish a High Quality and Deliverable Curriculum and Program

- **Recap of Objectives:**
  a) NATEF Certification
  b) Curriculum Change
  c) Advisory Board Committee.
  d) Two Full Time Faculty Positions
  e) State of The Art Equipment
  f) Budget Increase
  g) Space Increase

Actions Step a): NATEF Certification

Achieving NATEF certification is a priority to the Automotive Technology Program here at the University of New Mexico Gallup campus. In order to improve student skill in ASE task related curricula, students' need to train diligently in all eight areas of ASE (classroom lecture, shop performance), and be knowledgeable in those areas upon graduating from the UNM-Gallup Automotive Technology Program Certificate or Associate Degree.

NATEF is as defined:

- 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.

Achieving accreditation:

- NATEF accreditation is available to Automobile programs, Collision Repair and Refinish programs and Medium/Heavy Duty Truck programs. The accreditation process is the same regardless of program type and can be completed in a five step process.

Step 1: Download Accreditation Documents

The accreditation documents are available for download in the Achieving Accreditation section of the NATEF website.

Step 2: Program Self-Evaluation:

Extensive self-evaluation performed by program instructors, administrators and advisory committee members

Program is compared to national standards

Opportunity exists internally to make program improvements

Program submits application with summary of self-evaluation

Step 3: NATEF Review

The application is reviewed by NATEF

Decision is made whether the program qualifies for an on-site evaluation

Step 4: On-Site Evaluation

On-site evaluation of program is conducted by and Evaluation Team Leader (ETL) who is ASE Master-certified and trained to perform the evaluation by NATEF

Step 5: Program Accreditation

Once industry requirements are met, the program becomes NATEF accredited for a five year period from the date of accreditation

UNM GALLUP

Benefits of Accreditation:

Accreditation of an automotive training program brings with it program credibility, prestige, recognition, and overall program improvement. By ensuring training programs meet the highest standards, NATEF accreditation benefits everyone from schools, students and future employers, to the automotive service industry and everyone driving on our nation's roads.

School Benefits:

Increases potential for funding from public and corporate sources

Identifies program excellence to draw more students to the school

Student Benefits:

Provides a way for students to identify quality schools and programs

Provides assurance of a higher quality education

Increases potential to secure a solid career after graduation

Employer Benefits:

Ensures a pool of highly trained entry-level technicians

Connects employers with schools who have quality graduates

Automotive Service Industry Benefits:

Encourages more respect for automotive service professions

Increases the level of professionalism in the industry

(Information extracted from NATEF website at www.natef.org)

Requirement for achieving certification can be very tedious but are attainable. An application for NATEF can be submitted for 3 different levels of accreditation: Maintenance and light repair (MLR), Automotive Service Technology (AST), and Master Automotive Service Technology (MAST). Programs applying for accreditation must also meet the following hour requirements based on level of accreditation sought: MLR-540 combined classroom and shop activities hours, AST-840 combined classroom and shop activities hours and MAST-1200 combined classroom and shop activities hours. The current UNM-Gallup Automotive Technology curriculum and

newly proposed curriculum change will be sufficient for Master level accreditation based on combined classroom and shop instructional activities contact hours. Documentation for certification application is a long and difficult process as far as time is concerned. The time involved to physically prepare the program in the areas of equipment, tools, repairs, replacement, arrangement, care, and time involved to prepare the shop for instruction and fulfill safety requirements are all obstacles. The cost to process an application for NATEF accreditation is estimated to be $1,650.00

ALSO, instituting a Topics Lab class would benefit students as certified instructor would teach and certify students in Snap-on or other industry certifications. Snap-on has provided a document (NC3) National Coalition of Certifications Centers that will partner with UNM-Gallup to certify faculty of whom would then be able to certify students. This is possible only through Snap-on equipment.

(NC3 can be viewed at http://www.nc3.net/ for more info)

Completing a vocational or other postsecondary education program in automotive service technology is considered the best preparation for entry-level positions.

Actions Step b): Curriculum change

The current Curriculum change requests seek to modify courses and requirements within existing majors and programs or to create new majors or programs. A proposed curriculum change has been submitted deleting a few courses and bringing AAS total credit hours down from 75cr hours to 62cr hours and CERT credit hours from 42 to 32. The curriculum must be updated every seven years to be in compliance with NATEF requirements. The current curriculum has yet to be updated in over a decade. Action steps of a modified curriculum change is currently in progress.

(Included is a document of proposed curriculum change for AAS and CERT programs offered at the UNM-Gallup campus Automotive Technology program).

Modification of the Automotive Certifica

Modification of the Automotive AAS Deg

Furthermore, instituting Basic Hybrid Technology as well as Diesel Technology courses will allow UNM-Gallup to attract more students and be advance in cutting edge technology by emphasizing modern vehicle diagnostics, maintenance and repairs.

Actions Step c): Automotive Advisory Board Committee.

UNM GALLUP

An advisory committee must continue consisting of minimum five members. This committee is broadly based on former students, current UNM-Gallup automotive full-time and adjunct faculty, employed technicians, service managers and representatives for consumer interests. The advisory committee must convene at least two working meetings a year to provide information, counsel and recommendations on behalf of the Gallup community served by the training program.

The UNM-Gallup auto technology program hosted an advisory committee meeting twice in the academic year of 2016-2017. The committee provided input, recommendations, suggestions concerning the auto technology program and reviewed budget funds. The advisory committee will continue to provide guidance and also help approve all tasks added to the mandatory NATEF task list required for the accreditation this program seeks. To host an advisory meeting, the UNM-Gallup automotive technology department provides lunch for its committee members as a gesture of appreciation for their time and also provides documentation concerning the state of the automotive technology program as a work in progress.

The Automotive Technology program will share the standards its meeting with potential student employers and program partners and sponsors.

Actions Step d): Additional Full time Faculty

- Visiting Full Time Lecturer Must be hired as a Full Time Automotive Technology Faculty
- Hire Second Full Time Faculty for the Automotive Technology Program
- Hire Certified Automotive Technology Professional

Create a hiring plan requesting additional faculty line for an Assistant Professor of the Automotive Technology program. The commitment to the CCTE program requires a second full time faculty member. The Advisory Committee will assist in this process by recommending a possible candidate. All instructors will be expected to maintain or reach certain requirements for NATEF certification. The final approval will be determined by the hiring committee and dean of school. The successful candidate should be equipped to lead the program, manage and create curriculum, and help to establish the brand. The individual will also be able to teach classes in class lectures and shop demonstrations. The second candidate should have industry certifications and must be up to date with all certifications. Furthermore, once hired this faculty will manage the college program and become a representative for the UNM-Gallup Automotive Technology program for recruitment. Hiring an additional full time faculty will be very beneficial to the UNM-Gallup Automotive Program as the candidate will continue to help promote and build the auto technology program.

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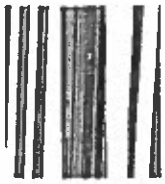
Alongside UNM's traditional hiring protocols, the search committee should include members of the advisory committee. UNM-Gallup should be earnest not only in recruiting the best faculty members for these roles, but support them with the appropriate and necessary training opportunities so they remain at the forefront of national automotive trends.

Actions Step e): State of the Art Equipment

We are currently developing an action plan with industry partners such as Snap-On Tools. Snap-on has requested a blueprint to better design our shop layout and help to manage space as our current space is limited. Provided is a document sent by Snap-on tools to give us an idea or example of tool design and layout.

(Included is a brochure from Snap-on, video animation as well as a college letter of intent)



BAB_Brochure2013_final.pdf

College_letter_of_intent.pdf

neos-toyota.mp4

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Actions Step f): Budget increase

FY 2016-2017 was both an exciting and challenging year for the UNM-Gallup Automotive Department. Some examples are:

- In the fall 2016, we successfully established a partnership with several automotive shops and dealerships around the Gallup Community and surrounding area through a Cooperative Education program.
- Our graduation rates have increased - as well as our enrollment capacity.
- More of UNM-Gallup students in particular are in demand for potential employment opportunities around the Gallup community.

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- We are working with local high schools to create an on-site dual credit program to help recruit and retain future students at a secondary level.
- We are taking measures to apply for NATEF accreditations to certify the UNM-Gallup Automotive program.
- We have improved our curriculum and teaching methods to deliver a more meaningful program for the students.

However, this work is exhausting for one faculty member to manage.

- UNM-Gallup received relatively stable state funding but continued to struggle as State appropriations have declined while student tuition continued to increase as evident in the last 6 years.
- Space is not sufficient to accommodate two separate programs, CCTE and College curricula.
- Technology in the classroom and in the lab area need upgrading due to out dated software and equipment.

Upgrading classroom and shop/lab may require UNM master plan facility department involvement.

UNM-Gallup also will have to provide travel and training opportunities for UNM-Gallup faculty and staff to remain at the forefront of national trends.

Approximate costs are as follows:

Planning/remodeling and Designing-	$40,000 estimate
Additional Faculty-	$55,000 direct salary (reoccurring)
New Equipment lab/classroom-	$150,000
Remaining operational costs-	$12,000

Actions Step g): Space increase

An additional classroom is required that includes the technology to deliver streaming lessons.

The lab shop also requires additional service bays to expand instructional delivery to accommodate both CCTE and College content.

It should also contain a larger classroom that can accommodate 20-25 students. The addition of faculty members also requires additional office space.

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Finally, the program will need increased storage space for specialty tools and equipment.

We hope to work with the Budget and Long-Term Planning Committees to improve the program while meeting other institutional goals and maintaining a suitably staffed, effective program.

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Included is a PDF of the Auto tech shop 1310 classroom and 1311 lab.

Total cost of all recommended purchases and remodeling: $260,000 approx.

Final summary

Risk Assessment: The successful completion of these goals relies upon the continuity of people dedicated to the program and funding. Should funding or people be lost, Budget & Planning would have a difficult time meeting its goals for the program in a timely fashion. This would result in a loss of funding and accreditation opportunities. Retirements or attrition in the next few years would result in the loss of institutional knowledge and impede progress. These goals also rely heavily on the institutions security, validity, and continuity of its decisiveness in data integrity. Certification from the National Institute for Automotive Service Excellence (ASE) is the standard credential for service technicians. Certification demonstrates competence and usually brings higher pay. Many employers require their service technicians to become certified.

If successful:

1. Students will be required to pass a minimum of 2 student ASE certifications in order to graduate with Certificate and 4 student ASE certifications minimum for AAS degree in their desired level of completion.
2. Students will be required to wear automotive uniform on college campus and intern work sites. (These uniforms will be furnished by industry sponsors and not reflect an additional cost to students.)
3. UNM-Gallup will create a system that will allow students to rotate in and out of college classrooms for 16 weeks, with 8 weeks in classroom/shop training for approximately 9 hour at a time. Then they would rotate for 8 weeks in their sponsored automotive shop to apply what they have learned according to their level of attainment by that time. This

represents about 320 hours per semester. The instructor will conduct and end-of-year evaluation of each student to determine if he/she advances to next level of training.

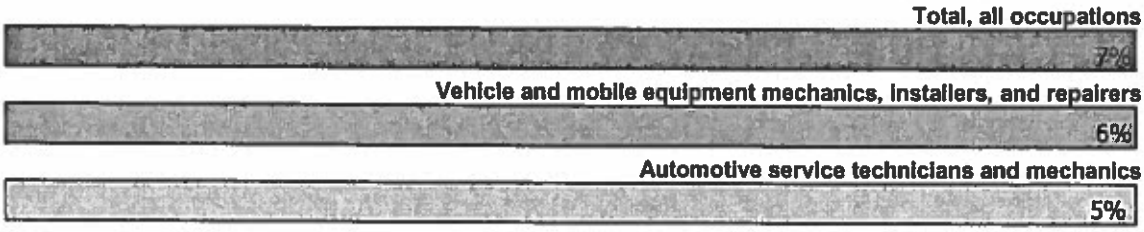
4. Building a successful program will allow UNM-G to obtain NATEF certification, GM ASAP, FCA, FORD FACT, TTEN, certification, expansion, updated state of the art equipment.

Job Outlook

Quick Facts: Automotive Service Technicians and Mechanics	
2016 Median Pay	$38,470 per year $18.50 per hour
Typical Entry-Level Education	Postsecondary non-degree award
Work Experience in a Related Occupation	None
On-the-job Training	Short-term on-the-job training
Number of Jobs, 2014	739,900
Job Outlook, 2014-24	5% (As fast as average)
Employment Change, 2014-24	39,100

Automotive Service Technicians and Mechanics

Percent change in employment, projected 2014-24



Note: All Occupations includes all occupations in the U.S. Economy.
Source: U.S. Bureau of Labor Statistics, Employment Projections program

Employment of automotive service technicians and mechanics is projected to grow 5 percent from 2014 to 2024, about as fast as the average for all occupations.

The number of vehicles in use continues to rise, and more entry-level service technicians will be needed to perform basic maintenance and repair, such as replacing brake pads and changing oil. New technologies, however, such as electric vehicles, may limit future demand for automotive service technicians and mechanics because these vehicles will be more reliable and thus require less maintenance and repair.

Job Prospects

With some employers reporting difficulty finding workers with the right skills and education, job opportunities for qualified applicants should be very good, whether they obtained their knowledge through education or experience. Of these workers, those who have completed formal postsecondary training programs or achieved ASE certification should enjoy the best job prospects.

Those without formal automotive training or certification are likely to face strong competition for entry-level jobs.

Many job openings will be in automobile dealerships and independent repair shops, where most service technicians currently work.

Employment projections data for automotive service technicians and mechanics, 2014-24

Occupational Title	SOC Code	Employment, 2014	Projected Employment, 2024	Change, 2014-24		Employment by Industry
				Percent	Numeric	
SOURCE: U.S. Bureau of Labor Statistics, Employment Projections program						
Automotive service technicians and mechanics	49-3023	739,900	779,000	5	39,100	[XLSX]

Pay

The median annual wage for automotive service technicians and mechanics was $38,470 in May 2016. The median wage is the wage at which half the workers in an occupation earned more than that amount and half earned less. The lowest 10 percent earned less than $21,470, and the highest 10 percent earned more than $64,070.

In May 2016, the median annual wages for automotive service technicians and mechanics in the top industries in which they worked were as follows:

Automobile dealers	$42,680

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Automotive mechanical and electrical repair and maintenance	36,350
Automotive parts, accessories, and tire stores	32,760

Many experienced technicians working for automobile dealers and independent repair shops receive a commission related to the labor cost charged to the customer. Under this system, which is commonly known as "flat rate" or "flag rate," weekly earnings depend on the amount of work completed. Some repair shops may pay technicians on an hourly basis instead.

Most service technicians work full time, and many work evenings or weekends. Overtime is common.

(Information taken from: https://www.bls.gov/ooh/installation-maintenance-and-repair/automotive-service-technicians-and-mechanics.htm#tab-6)

Short Term Occupational Projections

Area	Title	Base	Projected	Change	% change	Avg. anl openings
Arizona	Automotive service technician	15,180	15,460	280	1.9	540
Colorado	Automotive service technician	15,110	16,020	910	6.0	850
New Mexico	Automotive service technician	5,210	5,250	40	0.8	160
Utah	Automotive service technician	8,140	8,700	560	6.9	490

(Information Taken from: http://www.projectionscentral.com/Projections/LongTerm)

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Industry Partners

Build strategic partnerships statewide.

Provide automotive workshops to enhance community relations.

Develop collaborations and exchanges with other automotive programs.

Continue to build on community relationship with industry sponsors

Form collaborative relationships with the following: (We are currently working on fostering collaborative relationships with the following potential employers. A description of each organization is provided in order to assure reviewers of the caliber of each company UNM-Gallup hopes to work with and continue working with.)

Tate's Auto Group: "Tate's Auto Group is family owned and operated and proud to be serve its customers for 39 years. We know that you have high expectations, and as a car dealer we enjoy the challenge of meeting and exceeding those standards each and every time. Allow us to demonstrate our commitment to excellence! Our experienced sales staff is eager to share its knowledge and enthusiasm with you."

Gurley Motor Company: "Welcome to Gurley Motor Company! We are proud to be your local Ford dealer located at 701 West Coal Ave in Gallup, New Mexico. We serve the Albuquerque, Winslow, Sante Fe, Flagstaff, Grant areas and more! Don't forget about the highly skilled technicians in our Service Department, who are capable of performing all the maintenance that your Ford needs, including oil changes, tire rotations, brake inspections, tire alignments, air filter replacement, and more! You can find the parts you need for your vehicle in our Parts Department, where if you don't see it, we'll get it!"

Rico Motor Company: "Rico Auto Complex offers Certified Service and a full-service body center here in Gallup. We'll take care of anything from an oil change to restoring your vehicle after a collision, and all our work is performed by certified technicians with state-of-the-art equipment. We provide the best sales and service to our Farmington Buick and GMC customers. We even make it easy to order parts and schedule service online, so bring your Grants GMC or Buick into Rico Auto Complex! Grants Buick, GMC shoppers, our dealership has a knowledgeable sales staff ready to answer all the questions you may have. Farmington Buick and GMC customers, whether it is a regular service or a major repair, our experienced team will help you out."

J&J Truck Service: "Welcome to J & J Truck Service online, in business for over 10 years we specialize in all diesel repair. We have built our success on our loyal customers who have been coming back to us for years. We will beat dealer prices. We speak Diesel, and will work on any part of your truck. Our goal is to provide faster service for our customers with upgraded computer diagnostic equipment and new lifts for cab removal on one ton trucks. We provide 24 hour road service and will service up to 100 mile radius of Gallup, NM."

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Navajo Nation Fleet Management: "Efficiently moving the Navajo Nation with safe, reliable transportation. Provide quality automotive support services to the Navajo nation."

Snap-On Tools: "Snap-on Incorporated is a leading global innovator, manufacturer and marketer of tools, diagnostics, and equipment, software and service solutions."

O'Reillys: "We are the dominant auto parts retailer in all of our market areas. From our roots as a single store in 1957 to our current size of 4,829 locations (and growing), we've come a long way. This website is a way to help our customers and investors become more familiar with our history, as well as who we are and how we operate."

City of Gallup: "Gallup is a small city in New Mexico, on historic Route 66."

Pepboys: "PEP BOYS TIRES, AUTO PARTS AND SERVICE WHATEVER THE SERVICE, THE BOYS HAVE YOU COVERED."

D & A Body Shop: "Auto body shop in Gallup, New Mexico."

T & T distributers: "Wholesale supplies. Janitorial, Food Service, 1st Aid, Safety, Lighting, Automotive, Industrial."

Matco Tools: "Matco Tools is a manufacturer and distributor of quality professional automotive repair tools, diagnostic equipment, and toolboxes. Our product line now numbers more than 13,000 items. We also guarantee and service the automotive repair and diagnostic tools and equipment we sell."

CarQuest: "Advance Auto Parts works hard to create an environment of honesty, integrity, mutual trust and dedication. Since our founding by Arthur Taubman in 1932, these values haven't changed."

- Inspire and build the self-confidence and success of every Team Member.
- Serve our customers better than anyone else – help them succeed.
- Grow the business and profitability with integrity.

Hunter Engineering Company: "The world leader in wheel alignment & wheel balancing systems, tire changers, brake service equipment, alignment lifts, and inspection lanes."

Pro-Cut on car brake lathes: "Manufacturers have either made Pro-Cut an essential tool for their dealers, or written technical service bulletins urging dealers to use the Pro-Cut lathe. Hunter engineering company."

Gallup Mckinley County Schools:

- Empower students through partnerships with parents, schools, and communities.
- Develop students who are self-directed lifelong learners.

- Promote the essential skills and positive character traits.
- Provide a safe and healthy environment.

To list a few.

3B-5Year Plan

UNM Gallup Automotive Technologies School: Five Year Plan (goals and objectives can be modified)

Objectives and Goals

Objective: To raise the overall functionality of the faculty, and facility image of the program to present a top level automotive instructional program to potential students as well as family and industry partners.

Goals: To provide expert instruction to students in the field of Automotive Technologies to make them attractive to local and national industry. To provide the opportunity for graduating students to have as many school and industry certificates of completion in as many disciplines as possible in order to be desired employees in the industry.

YEAR ONE:

Collaborate on plan with industry partners.
Initiate apprenticeships program
Complete Snap-on Letter of Intent.
Begin gathering documents for NATEF certification
Inspect facilities to determine needed steps for furnishings and equipment.
Instructor training schedule. Free training available from Snap-on for Multi Meter and Verus Edge Diagnostics Tool, both online. Other Industry Training as available.
Plan Classroom upgrade, to include; Layout drawing, Multi Meter Certification Kit through Snap-on and NC3. Paint, signage, and cabinetry.
Equipment, Verus Scan Tool, Multi Meter Certification Kit,
Plan training for year two.
Request budget for above.

YEAR TWO

Implement Plan from year one.
Inspect Tool Room to determine needs for upgrade, organization, and retention.
Establish needed tool list for Natef Accreditation.
Hire second time faculty
Modify course curriculum
Modify credit hours for completion
Instructor training. Pro-Cut Rotor Matching, Battery, Starting and Charging Certification. Other training as needed for Natef.
Plan Training for year three.
Clean and paint Tool room to prepare for Year Three Tool Room Implementation.
Request budget for above.
Begin Issuing Multi Meter Certifications.
Implement student Job Skills Instruction.

YEAR THREE

Implement Plan from Year Two. Including Tool Room Upgrade.
Establish 8 week rotation system for internships
Instructor Training Continues, Verus Edge Diagnostics. Any Needed for NATEF.
Plan training for year four.
Request Budget for above.
Add Rotor matching and Battery Certificates to those being issued.

YEAR FOUR

Implement plan from YEAR THREE including Verus Edge Certification Kit
Inspect Shop area for equipment and storage upgrade. Present Proposal.
Continue Instructor Education, Snap-on Undercar Certification Course and any needed for NATEF.
Plan training for year five.
Request budget for above.
Continue to issue Certifications: Multi-Meter, Rotor Matching, Battery and Starting, Verus Edge.

YEAR FIVE

Implement Plan from year four, including paint, signage, equipment and storage, any other building repairs or upgrades needed in the shop area. Including Snap-on Undercar Equipment.
Continue Instructor training as needed for Certifications.
Continue to issue Snap-on/NC3 Certifications now to Include Undercar services.
Prepare new plan for future years.

Five Year Plan Achievements will be very exciting. The school will be in position to attract quality students, families and Industry to a State of the art facility that will promote success for students, faculty and UNM Gallup. Graduates will be better prepared for the Entry Level positions that are in high demand in today's industry. Graduation and retention rates should be improved.