

PALMER HIGH SCHOOL
SYLLABUS

TEACHER: Mr. Egan

QUARTER / PERIOD: _____ / _____

COURSE TITLE: AUTOMOTIVE TECHNOLOGY THREE

RECOMMENDED OR REQUIRED GRADE LEVEL : 11 - 12

This advanced course covers training in the braking systems, steering and suspension systems, and the electrical / electronic systems of automobiles. This course is designed to teach the student advanced skills necessary for future employment in the automotive field. A student successful in this course will be able to use technical skills learned in this course to help qualify for nationally recognized ASE certification.

COURSE TEXT: Modern Automotive Technology, By James E. Duffy, The Goodheart-Willcox Company, Inc.

Automotive Technology Curriculum Modules, Instructional Materials Laboratory, University of Missouri-Columbia,

COURSE MEDIA: Various filmstrips and computer based learning applications augmented with hands on laboratory demonstrations and exercises.

BEHAVIOR / CITIZENSHIP: No one has the right to interfere with the learning, safety or well being of another. Students are expected to do the best that is required of them.

CLASSROOM MANAGEMENT/PROCEDURES: Student are expected to exhibit employer desired traits, and follow the classroom rules. Problems will be dealt with according to the student hand book. Consequences vary depending on severity of infraction.

ASSIGNMENTS / PROJECTS, HOMEWORK: All assignments and projects are assigned a due date, and will be lowered one grade for each day late. Furthermore, work will not be accepted over two days late unless illness or other mitigating circumstances warrant acceptance of the work.

GRADING SCALE:

A (100-90%) Outstanding achievement, Mastery of subject.	4.0 grade points
B (89-80%) Above average comprehension and effort.	3.0 grade points
C (79-70%) Average comprehension and achievement in subject.	2.0 grade points
D (69-60%) Below average comprehension and low performance.	1.0 grade points
F (59-0%) below average to nil comprehension of subject	0 grade points

GRADING SYSTEM:

30% Formative: (Employability skills, Participation, Chapter Assignments.)

70% Summative: (Safety & Cleanup, Laboratory work, Tests and Quizzes.

LATE WORK: Work will not be accepted over two days late for credit, unless illness or other mitigating circumstances warrant acceptance of the work. (i.e. illness, sports)

PROCEDURES FOR MAKEUP WORK: It is the responsibility of the student to make sure they make up any work missed. This information is available from the instructor, another student, or the chalk board. Refer to the student hand book for make up time allowed.

ADDITIONAL INFORMATION: There is a \$20.00 lab fee to help offset materials consumed in this course. This fee is due by the second Friday of this course.

TEACHER CONTACT TIME: is from 7:00 am to 7:30 am, and 2:00 to 2:30 at the following school phone # 745-3241

Automotive Service Technology Three

Student Supplied Equipment Required for This Course:

The following classroom supplies will be needed during this course:

- Notebook or binder dedicated to this class.
- Lab Fee of \$20.00. Due no later than the 2nd Friday of this semester.
- Black or dark blue pen. No other colors acceptable for written work to be handed in.

The following safety equipment is necessary to participate in the automotive program.

- 1 Pair Safety Glasses. Clear Lenses are required. Must Meet ANSI Z87.1-1989 Safety Standards.
- Coveralls or suitable work clothes for lab work.
- Hard toed shoes (i.e.: leather boots) for lab work. No open toed shoes!

No student will be allowed to enter or work in the lab without the proper safety equipment.

The following optional equipment is recommended for your student. These two items will be valuable resources for the automotive student in this program.

- 1 Digital multimeter. A quality tool can give a lifetime of performance. Specifications will be given out in class.
- A small set of hand tools. This is an investment that potentially will last a lifetime. This should include screwdrivers, Metric & SAE sockets, Metric & SAE Wrenches, and various types of pliers.

All other tools, supplies, and equipment needed for this course will be supplied by the automotive program.

Automotive Technology Course Requirements

Homework

Homework will be assigned each week, with chapter questions answered. This homework will be done in class and is due before going into the lab. Students behind in homework will make it up while the rest of the class works on their labs. Homework must be word processed, typed, or neatly hand written in **black** or **dark blue** ink. Work handed in that is written in any other color will not be accepted for scoring. The right hand top of the page will list the student's name, class period, date and chapter.

Chapter Tests

Chapter tests will be given after the class discussion on the chapter or material. They can be either closed book or open book. Answers must be neatly hand written in **black** or **dark blue** ink. Work handed in that is written in any other color will not be accepted for scoring. We will grade them in class and discuss answers. A student that misses a test is responsible for making arraignments to make up the test within 2 days after returning to the class.

Unit Tests

Unit tests will be given at the end of each unit. Usually this test will be an A.S.E.-type test. Unit tests could also be coupled with a performance (hands-on) test. Answers must be neatly hand written in **black** or **dark blue** ink. Work handed in that is written in any other color will not be accepted for scoring.

Repair Orders

Each vehicle that comes in for work must have an approved repair order on it.

Lab Vehicles

Lab vehicles will have a basic safety check and fluid levels check (commensurate with the season) done on them. Students may bring a vehicle into the lab with the instructors consent. The service work must be identical to the lessons or instructions pertaining to the day it is brought in. Students bringing lab vehicles in for course work assume all responsibility for that vehicle, i.e. damage, theft, and/or other losses. All vehicles must be removed from the shop at the end of the class period, unless instructor's permission has been secured. Any vehicle left inside overnight must have the fuel tank removed. All derelict vehicles will be removed immediately from school property.

Time Files

All Automotive Technology students will maintain a flat rate/actual time file. This will be a copy of the repair order from the vehicle being worked on. It must be signed at the end of the lab period it was worked on.

Grades

Grades will be based on a composite of lab sheets, safety, clean up, homework, chapter tests, unit tests, employability skills, and notebooks. Each area is equally weighted as all areas are equally important for student comprehension and success in this subject area.

Course Name Automotive Service Tech 3 District Name Matanuska-Susitna Borough School District
 Adapted from: Ed Clawson, John Egan, Jack Simpson, Rob Wissler
 Date: June 2005

Prerequisite Course(s): Auto Service Tech 2
 Recommended: Physics, Chemistry, Welding, Electronics, Small Engines
 High School Credit = 1 (Post Secondary Credit *) This course will be offered: every year? OR every other year?
 Pathway: Industrial and Engineering Career Cluster Area: Logistics, Transportation and Distribution
 Source of Occupational Skills Standards: National Skills Standards Board, <http://www.nssb.org> Occupational Network Basic and Cross-functional Skills, ONET Project, U.S. Dept. of Labor ONET, <http://www.doleta.gov/programs/onet/>
 Content and Performance Standards are National Automotive Technician Education Foundation, <http://www.natef.org>
Booklet, February 2000, Alaska National Institute for Automotive Service Excellence, <http://www.asecert.org>
Department of Education and Early Characteristics of Competency: Measurement Criteria for
Development, <http://www.eed.state.ak.us/standards/pdf/standardsBook.pdf> Entry-Level Electronics Technician Skills, Electronic Industries Association and Electronic Industries Foundation, http://www.ix.org/iwe/Resources/All_Aspects.doc
 Eligibility for Nationally Recognized Skill Certificate(s)/State License: ? No OR Yes, and identify Certificate: With AST 1, 2, & 4—4 ASE Exams
 Tech Prep: No OR Yes *If Yes, list post secondary institution, name of course and number of post secondary credits. With AST 1, 2, UAA ADT A162 Suspension and Alignment, ADT A150 Brake Systems, 6 SH and with AST 1, 2, 4, UAA ADT A121 Auto Electrical I, 3 SH
 Is this course brokered through another institution or agency? No OR Yes, and list institution/agency:
 District Course Number: 8871/8872 CIP Number: 47.06043

Course Description: Automotive Service Technician 3 covers training in the diagnosis, repair, and maintenance of braking systems, steering and suspension systems of automobiles. This course is designed to teach the student advanced skills necessary for future employment in the automotive field. Instruction includes career exploration, SkillsUSA, and industry visits. A student successful in this course will be able to use technical skills learned in this course to help qualify for nationally recognized ASE (Automotive Service Excellence) certification.
 Content Headings/Topics
 Personal and Equipment Safety in The Lab
 Identification, Use and Care of Tools and Equipment.
 Investigate Career Opportunities in the Automotive Field
 General Hydraulic Brake System Diagnosis and Repair
 Drum Brake System Diagnosis and Repair
 Disc Brake System Diagnosis and Repair
 Power Assist Brake System Diagnosis and Repair
 Anti-lock Brake System Diagnosis and Repair
 Starting System Diagnosis and Repair
 Charging System Diagnosis and Repair
 Lighting System Diagnosis and Repair
 Steering Systems
 Front Suspension Diagnosis And Repair
 Rear Suspension Diagnosis And Repair
 Tire And Wheel Alignment Diagnosis And Repair
 Encourage Career and Technical Student Organization (CTSO) Involvement

Course Name Automotive Service Tech 3

District Name Matanuska-Susitna Borough School District

Adapted from:

Ed Clawson, John Egan, Jack Simpson, Rob Wissler

Date:

June 2005

Performance Standards (Learner Outcomes)		Specific Occupational Skills Standards	Alaska Reading, Writing, Math, Science Performance Standards	Alaska Content Standards	Alaska Employability Standards	Alaska Cultural Standards	All Aspects of Industry	Assessments
Demonstrate safe laboratory techniques and handling of hazardous materials.	V701 C5.12	M.A; R; W; S.B	LA; T	B	Hlth/Safety	AK EED Safety Manual		
Select and operate appropriate hand tools, power tools, and related equipment.	ONET .26	M.Conn M.M; M.P; R; S.B; W	LA; S; T	B	Tech/Prod	AK EED Safety Manual		
Exhibit responsibilities of employment standards including exhibiting dependability and meeting organizationally defined expectations.	EIA I.A.01 I.A.04	M.Conn M.E; R; S.B; W	LA; M; S; T	B	ALL	Skills-USA (VICA)		
Identify and Investigate career opportunities and duties of an automotive technician.	ASE NATEF	LA M.Conn S.B	LA HL; T	B C	ALL	Skills-USA (VICA) AKCIS		
Diagnose hydraulic brake systems and determine necessary action.	ASE NATEF	R; S.B; W	LA; M; S; T	A	Tech/Prod	ASE A-5 Brakes		
Inspect and repair or replace master cylinders, wheel cylinders, and hydraulic lines of the system.	ASE NATEF	M.M; R	LA; M; S; T	A	Hlth/Safety Prin Tech Tech/Prod	ASE A-5 Brakes		
Inspect, test and replace switches, valves, and control devices.	ASE NATEF	M.M; R	LA; M; S; T	A	Hlth/Safety Prin Tech Tech/Prod	ASE A-5 Brakes		
Repair, replace, and adjust disc brake components.	ASE NATEF	M.Conn M.M; M.P; R	LA; M; S; T	A	Hlth/Safety Prin Tech Tech/Prod	ASE A-5 Brakes		
Diagnose power assist brake systems and determine necessary action.	ASE NATEF	R; S.B; W	LA; M; S; T	A	Tech/Prod	ASE A-5 Brakes		
Remove, clean, and inspect power brake components.	ASE NATEF	M.Conn M.M; M.P; R	LA; M; S; T	A	Hlth/Safety Prin Tech Tech/Prod	ASE A-5 Brakes		
Repair, replace, and adjust power brake components.	ASE NATEF	M.Conn M.M; M.P; R	LA; M; S; T	A	Hlth/Safety Prin Tech Tech/Prod	ASE A-5 Brakes		
Remove, clean, and inspect hydro-boost components.	ASE NATEF	M.Conn M.M; M.P; R	LA; M; S; T	A	Hlth/Safety Prin Tech Tech/Prod	ASE A-5 Brakes		

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Repair, replace, and adjust hydro-boost components.	ASE NATEF	M.Comm M.M; M.P; R	LA; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-5 Brakes
Check operation of anti-lock braking systems.	ASE NATEF	M.M; M.P; R	LA; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-5 Brakes
Adjust or repair anti-lock brake components to manufacturer's specifications.	ASE NATEF	M.Comm M.M; M.P; R	LA; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-5 Brakes
Diagnose steering and suspension problems and determine necessary action.	ASE NATEF	R; S.B; W	LA; M; S; T	A		Tech/Prod	ASE A-4 Susp & Steering
Clean, remove, and inspect and replace steering linkage components.	ASE NATEF	M.M; R	LA; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-4 Susp & Steering
Clean and inspect power and manual steering gear boxes.	ASE NATEF	M.M; R	LA; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-4 Susp & Steering
Reassemble, adjust, and install power and manual steering gear boxes.	ASE NATEF	M.C; M.M; M.P; R	LA; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-4 Susp & Steering
Clean and inspect power and manual rack-and-pinion steering assemblies.	ASE NATEF	M.M; R	LA; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-4 Susp & Steering
Reassemble, install and adjust power and manual rack-and-pinion steering rack.	ASE NATEF	M.C; M.M; M.P; R	LA; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-4 Susp & Steering
Inspect, repair, and replace power steering pumps.	ASE NATEF	M.M; R	LA; M S; T	A		Hlth/Safety Prin Tech	ASE A-4

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Inspect and repair steering columns.	ASE NATEF	M.M.; R	LA; M; S; T	A		Tech/Prod	Susp & Steering ASE A-4 Susp & Steering
Diagnose conventional and electronic front suspension systems and determine necessary action.	ASE NATEF	M.M.; S.B; W	LA; M S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-4 Susp & Steering
Inspect and repair control arm and spring assemblies on conventional systems.	ASE NATEF	M.M.; R	LA; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-4 Susp & Steering
Diagnose MacPherson strut assemblies and determine necessary action.	ASE NATEF	M.M.; S.B; W	LA; M S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-4 Susp & Steering
Inspect, assemble, and replace front MacPherson strut assemblies.	ASE NATEF	M.M.; R	LA; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-4 Susp & Steering
Repair, replace, and adjust wheel spindles and bearings.	ASE NATEF	M.Conn M.M.; M.P; R	LA; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-4 Susp & Steering
Diagnose conventional and electronic rear suspension systems and determine necessary action.	ASE NATEF	M.M.; S.B; W	LA; M S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-4 Susp & Steering
Inspect and replace rear shock absorbers and spring assemblies.	ASE NATEF	M.M.; R	LA; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-4 Susp & Steering

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Inspect, assemble, and replace rear MacPherson strut assemblies.	ASE NATEF	M.M; R	L.A; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-4 Susp & Steering
Inspect and repair suspension linkages and bushings.	ASE NATEF	M.M; R	L.A; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-4 Susp & Steering
Diagnose steering and tire wear problems, and determine necessary action.	ASE NATEF	M.Conn M.F; M.G; M.M; M.P; R	L.A; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-4 Susp & Steering
Set correct alignment angles on front and rear wheels.	ASE NATEF	M.M; M.P; R	L.A; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-4 Susp & Steering
Rotate and balance wheel assemblies.	ASE NATEF	M.M; M.P; R	M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-4 Susp & Steering
Diagnose starting systems and determine necessary action.	ASE NATEF	M.M; S.B; W	L.A; M S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-6 Electronics
Remove, clean, and inspect alternator and determine necessary action.	ASE NATEF	M.M; R	L.A; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-6 Electronics
Repair or replace internal alternator or generator components.	ASE NATEF	M.Conn M.M; M.P; R	L.A; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-6 Electronics
Repair or replace charging system components.	ASE NATEF	M.Conn M.M; M.P; R	L.A; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-6 Electronics
Diagnose and repair lighting systems.		M.M; S; W	L.A; M S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-6 Electronics

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Repair or replace lights, sockets, wires and switches.		M.Conn M.M; M.P; R	L.A; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-6 Electronics

Recommended Text: Modern Automotive Technology, By James E. Duffy, The Goodheart-Willcox Company, Inc. 2000
Automotive Technology Curriculum Modules, Instructional Materials Laboratory, University of Missouri-Columbia, 1997

Resources:

- AK EED Safety Manual: <http://www.eed.state.ak.us/tls/CTE/docs/resources/safetymannual.pdf>
- SkillsUSA: <http://www.skillsusa.org/contests.htm>
- AKCIS - Alaska Career Information System Information: www.akcis.org
- ASE - National Institute for Automotive Service Excellence: <http://www.asecert.org>

STUDENT MACHINE USE EVALUATION RECORD

Teacher _____

_____ has been given the proper demonstration, has passed the required safety exams, and is, therefore, permitted to use the following items according to the accepted safety procedures.

Equipment	Date		
	Teacher Demonstration	Written Test Passed	Performance Test Passed
Air-Driven Tools			
Arc Welder			
Battery Charger/Tester			
Brake Bleeder			
Degreaser			
Drill Press			
Electric Hand Drill			
Grinder			
Hand Tools			
Hole Punch Press			
Hydraulic Jack			
Lathe			
Oxy-Acetylene Welder			
Paint Sprayer			
Portable Disk Sander			
Radiator Test Tools			
Solder Iron (Electric)			
Spark Plug Cleaner			
Valve Seat Grinder			

SAFETY: Students will be trained in the safe use of tools and equipment, as well as general and personal safety. No student will be permitted to participate in any lab activity until the student has satisfactorily completed the required safety training and test. A student may be declined lab activity privileges due to blatant unsafe acts.

Objectives of the Safety Program:

1. To assist students in becoming safety conscious through direct instruction and teacher example
2. To instruct students in the correct (safe) way of using tools and equipment in order to help them
 - To acquire a sense of responsibility for their own and others safety
 - To understand that the effective ways of doing things are the safe ways
 - To recognize hazardous situations
 - To use safe practices in their out-of-school activities
3. To instruct students in what to do in case of accident
4. To provide information on general safety rules
5. To provide information on specific safety practices for tools, appliances and machines
6. To develop some means of evaluating student's knowledge, skills, and attitudes towards safety

STUDENT / PARENT SIGNATURES: Please complete this portion and return it with appropriate signatures.

I have read the above information and understand what is expected of me in the Automotive classroom and lab.

Student signature

Date

Dear Parent / Guardian:

As part of our Career and Technical Education program, your son or daughter will have the opportunity to operate various types of power machinery. We would like to stress that, before a student is allowed to operate power tools:

1. S/he will be instructed in the safe use of each power tool s/he will be allowed to use.
2. His/her operating procedures will be checked by the teacher.
3. S/he will be supervised while operating the equipment.

We want you to know that students' safety is a very important issue and that safety is stressed in our department and throughout the school. We feel we have a good record in the prevention of student injury in vocational classes. In order for us to have an awareness of your knowledge of your child's activities, we must have your consent before allowing your child to use any power equipment. We invite you to visit the school laboratories at any time; please check through the school office.

Yours truly,

John Egan

Instructor

I give my permission for _____

To use power equipment in the Career and Technical Education program at Palmer High School.

Parent / Guardian Signature

Date

I would like to keep informed of my student's progress in class. You can reach me from _____

to _____ at this daytime phone number: _____, or by mail at the following

address: _____

Daily Employability and Participation Grade Rubric

Daily grade points will be earned based on the following criteria

10	5	0
<ul style="list-style-type: none"> • Employs a positive attitude • Pleasant and positive • Responds favorably to work requests • Work if of high quality • Uses good time management. • Tasks Completed within the allowed time • Uses all personal protective Equipment • Uses all equipment safety devices • Actively participates with lab partner(s) • Strives to keep work area clean • Excellent attendance 	<ul style="list-style-type: none"> • Negative attitude toward task or others • Unnecessary talking without working • Refuses to do assignment • Lower quality, sloppy workmanship • Takes excess time to complete task • Removes personal safety equip. occasionally • Sometimes ignores equipment safety rules • Lets lab partner do a larger portion of work • Refuses to let partner help much with task • Work areas are left somewhat messy • Tardy to class 	<ul style="list-style-type: none"> • Uses vulgar, sexual, or racial remarks • Refuses to do assignment • Improper clothing for lab • Poor quality or no work accomplished • Demonstrates endangering activities to self or others (horseplay) • Continuously ignores safety rules • Does not participate in activity • Won't let lab partner do any work • Does not clean up work areas • Absent from class

Unexcused absences result in a zero for the day. Excused absents include activities sponsored by a Palmer High School coach, sponsor or other staff member.

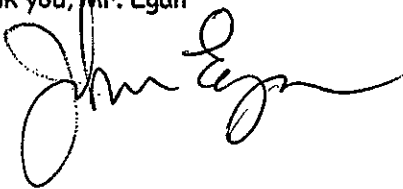
Makeup work is the sole responsibility of the student.

Parents and students please review these policies and sign and date this page and return to the teacher for credit. The document will be kept in the student's safety and signature file.

My school Email is johnmegan@matsuk12.us

Please contact me as needed.

Thank you, Mr. Egan



Student signature _____ Date _____

Parent signature _____ Date _____

Preferred contact method:

Parent home phone _____ hours available _____

Parent work phone _____ hours available _____

E-mail address: _____

CLASSROOM RULES:

BE PROMPT

BE POLITE

BE PREPARED

BE POSITIVE

BE PRODUCTIVE