

PALMER HIGH SCHOOL  
SYLLABUS

TEACHER: Mr. Egan

QUARTER / PERIOD: \_\_\_\_\_ / \_\_\_\_\_

COURSE TITLE: AUTOMOTIVE TECHNOLOGY ONE

RECOMMENDED OR REQUIRED GRADE LEVEL : 10 - 12

**COURSE DESCRIPTION:** This course covers training in the brakes, steering and suspension, and the electrical/electronic systems of automobiles. This course is designed to teach the student 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	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 One

## 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 2<sup>nd</sup> 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.**

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

Course Name Automotive Service Tech 1

District Name Matanuska-Susitna Borough School District

Adapted from:

Developed by: Ed Clawson, John Egan, Jack Simpson, Rob Wissler

Date: June 2005

Prerequisite Course(s): Introduction to Auto; Algebra 1 or Integrated Math 1

High School Credit = 1 (Post Secondary Credit \* ) This course will be offered: x every year? OR every other year?

Pathway: Industrial and Engineering

Career Cluster Area:

Transportation, Distribution and Logistics

Source of Occupational Skills Standards: Occupational Standards:

National Skills Standards Board, http://www.nssb.org

National Automotive Technician Education Foundation

http://www.natef.org

National Institute for Automotive Service Excellence,

http://www.asecert.org

Characteristics of Competency: Measurement Criteria for

Entry-Level Electronics Technician Skills, Electronic Industries

Association and Electronic Industries Foundation,

http://www.nssb.org/projects/eifstd.html

standardsBook.pdf

http://www.nssb.org/projects/eifstd.html

Eligibility for Nationally Recognized Skill Certificate(s)/State License: No OR Yes, and identify Certificate: With AST 2, 3, & 4 ASE Exams

Tech Prep: No OR x Yes

\*If Yes, list post secondary institution, name of course and number of post secondary credits. With AST 2, 3, UAA ADT A162 Suspension and Alignment, ADT A150 Brake Systems, 6SH and with AST 2, 3, 4, UAA ADT A121 Auto Electrical I, 3 SH

Is this course brokered through another institution or agency? x No OR Yes, and list institution/agency:

District Course Number: 8851/8852

CIP Number: 47.06041

Course Description: Automotive Service Technician 1 covers troubleshooting, maintenance, and light duty repair of the brakes, steering and suspension, and the electrical/electronic systems of automobiles. This course is designed to teach the student 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 Brake System Diagnosis and Repair
- ◆ General Suspension/ Steering System Diagnosis and Repair
- ◆ General Electrical System Diagnosis and Repair
- ◆ General Engine Performance Diagnosis and Repair
- ◆ Encourage Career and Technical Student Organization (CTSO) Involvement

Course Name Automotive Service Tech 1

District Name Matanuska-Susitna Borough School District

Adapted from:

Ed Clawson, John Egan, Jack Simpson, Rob Wissler

Date:

June 2005

<b>Performance Standards (Learner Outcomes)</b>		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	T-E2	A6	B1	Hlth/Safety	AK EED Safety Manual		
Select and operate appropriate hand tools, power tools, and related equipment.	ONET 26	T-A 1-5	A6	B4	Tech/Prod	AK EED Safety Manual		
Exhibit responsibilities of employment standards including exhibiting dependability and meeting organizationally defined expectations.	EIA LA.01 LA.04		A1	B3	Wk Habits	Skills-USA (VICA)		
Identify and investigate career opportunities and duties of an automotive technician.	ASE NATEF	LA M.Conn S.B	B	B C	ALL	Skills-USA (VICA) / AKCIS		
Diagnose hydraulic brake systems and determine necessary action.	ASE NATEF	R; S.B; W	A		Tech/Prod	ASE A-5 Brakes		
Inspect master cylinder and hydraulic lines of the system.	ASE NATEF	M.M; R	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	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-5 Brakes		
Bleed and flush brake cylinders, master cylinder and hydraulic lines.	ASE NATEF	R; S.B; W	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-5 Brakes		
Diagnose drum brake systems and determine necessary action.	ASE NATEF	R; S.B; W	A		Tech/Prod	ASE A-5 Brakes		
Remove, clean, and inspect drum brake assemblies.	ASE NATEF	M.Conn M.M; M.P; R	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-5 Brakes		
Repair, replace, and adjust drum brake assemblies.	ASE NATEF	M.Conn M.M; M.P; R	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-5 Brakes		
Diagnose disc brake systems and determine necessary action.	ASE NATEF	R; S.B; W	A		Tech/Prod	ASE A-5 Brakes		
Remove, clean, and inspect disc brake components.	ASE NATEF	M.Conn M.M; M.P; R	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-5 Brakes		
Diagnose steering systems and determine necessary action.	ASE NATEF	R; S.B; W	A		Tech/Prod	ASE A-4 Susp &		

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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
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
Clean, remove, and inspect steering linkage components.	ASE NATEF	M.M.; R	LA; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-4 Susp & Steering
Diagnose 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 replace front and rear shock absorbers and stabilizer 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 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 steering and tire wear problems, and determine necessary action.	ASE NATEF	M.Conn M.F; M.G; M.M; M.P; R	LA; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-4 Susp & Steering
Dismount, inspect, repair and mount tire and wheel assemblies.	ASE NATEF	M.M; M.P; R	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
Solve electrical problems using Ohm's Law.	ASE NATEF	M.Conn M.M; M.P; R; S	LA; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-6 Electronics
Identify common electrical circuit components.	ASE NATEF	M.Conn M.M; M.P; R; S	LA; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-6 Electronics
Check electrical systems for shorts, opens, and grounds.	ASE NATEF	M.Conn M.M; M.P; R; S	LA; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-6 Electronics
Measure resistance in electrical circuits using an ohmmeter.	ASE NATEF	M.Conn M.M; M.P; R; S	LA; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-6 Electronics

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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
Measure voltage with a voltmeter or oscilloscope.	ASE NATEF	M.Conn M.M; M.P; R;S	LA; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-6 Electronics
Measure current with an ammeter.	ASE NATEF	M.Conn M.M; M.P; R;S	LA; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-6 Electronics
Clean and inspect battery clamps, cables and connectors and perform battery condition tests.	ASE NATEF	M.M; R	LA; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-6 Electronics
Charge and install a battery.	ASE NATEF	M.Conn M.M; S; R	LA; M; S; T	A		Hlth/Safety Prin Tech Tech/Prod	ASE A-6 Electronics
Jump start a vehicle.	ASE NATEF	M.Conn M.M; S; R	LA; 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:

SkillsUSA:

AKCIS - Alaska Career Information System Information:

ASE - National Institute for Automotive Service Excellence:

<http://www.eed.state.ak.us/tis/CTE/docs/resources/safetymanual.pdf>

<http://www.skillsusa.org/contests.html>

[www.akcis.org](http://www.akcis.org)

<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			

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

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.

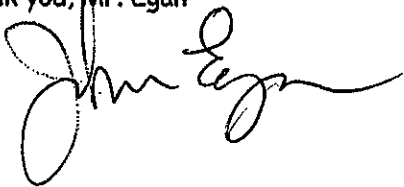
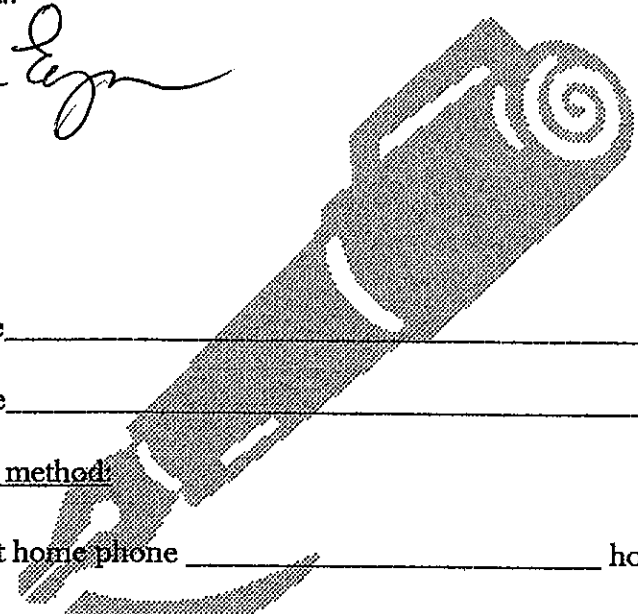
Makeup work is the sole responsibility of the student.

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 [john.egan@matsuk12.us](mailto:john.egan@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: \_\_\_\_\_



## Employability Skills Assessment

Name: \_\_\_\_\_ Week Ending: \_\_\_\_\_ Total Score: \_\_\_\_\_

Standard	Category	Deficient (0)	Developing (1)	Proficient (3)	Exemplary (4)
Punctuality	Do I show up every day?	I attended 0 to 4 days this week and did not bring a parent-signed note.	I attended school 4 full days this week and brought an excuse note.	I attended more than 4 days this week, and did my best to make up the lessons.	P+: I did not miss any classes this week.
Punctuality	Do I arrive on time?	I was late to a class more than once this week.	I was late to a class one time this week.	I was on time to class every day.	P+: I arrived early to some classes.
Punctuality	Do I meet deadlines?	This week, I had two or more late assignments	I was late with one assignment this week	All of my work was turned in on time.	P+: I turned in some work early.
Productivity	Do I stay on task during work hours?	I accomplished little in class this week. I did not stay on task for most of the work time.	I made some progress, but did not do a good job on some tasks because I wasted some class time.	I used my work time efficiently and did a good job on all of my assignments.	P+: I produced one or more exceptional products this week.
Preparedness	Do I arrive ready to start working?	I was missing materials for class more than once this week.	I arrived at class without some needed materials once this week.	I had all of my materials for every class this week.	P+: I brought extra materials just in case.
Initiative	Do I participate willingly and share my ideas and skills?	I did not share my lesson ideas in class and contributed little to partner activities.	I shared a few ideas and helped in partner activities, but not as much as other students.	I participated in all class activities, and did my full share of the work.	P+: I gave extra help to others, or shared new ideas for better methods or products.
Accuracy	Is my work of good quality?	Many of my assignments are messy, missing or are of poor quality.	One or more of my assignments is of poor quality, or I scored less than 80%.	My work is neat and complete. I got at least 80% on all scored assignments.	P+: I produced very well organized work, and/or scored 90% or better.
Respect	Do I work well with supervisors and colleagues?	I interfered with others' learning, safety or well being several times this week.	I interfered with others' learning, safety or well being once or twice this week.	I worked well with my supervisors and colleagues all week.	P+: I gave extra assistance and courtesy to my coworkers.
Integrity	Am I honest?	I copied someone else's work and turned it in as my own or I lied about my work-related activities.	I did not intervene when I knew that a coworker was cheating, but my own work was honest.	I have done my own work and have been truthful about all work activities.	P+: I have shown integrity by leading other students to value honesty.

28-36 **Congratulations! You are a valued employee. You can expect a promotion.**

24-27 **Nice going! You may keep your job.**

15-23 **You need to improve in several areas. Please meet with your supervisor to discuss a plan of improvement.**

0-14 **You are in danger of losing your job! Please meet with your supervisor and work on an immediate plan of improvement.**

## *AUTO SHOP RULES*

- ⊗ Safety glasses must be worn at all times
- ⊗ Report all accidents or injuries to instructor immediately
- ⊗ Notify instructor of equipment malfunctions
- ⊗ Notify instructor of unsafe conditions
- ⊗ No horseplay in shop area
- ⊗ All spills must be cleaned up immediately
- ⊗ No visitors unless authorized by instructor
- ⊗ No food or drink permitted in shop area
- ⊗ No loose jewelry or long hair in or around equipment or automobile engines
- ⊗ No open-toed shoes



# PALMER HIGH SCHOOL

Home of the "Moose"

1170 West Arctic Avenue  
Palmer, Alaska 99645  
<http://pbs.matsuk12.us>

~ Life-long Learners ~ Community Assets ~ Citizens of Integrity ~

Dear Parent / Guardian,

Your student is enrolled in the automotive technology program here at Palmer High School. Your student will have the opportunity to operate various types of power tools and equipment. I would like to stress that before a student is allowed to operate power tools and equipment that:

- She / He will be instructed in the safe use of each power tool that she/he will be allowed to use.
- Her / His operating procedures will be checked and approved by the teacher.
- She / He will be supervised while operating the equipment.

Student safety is a very important issue. Safety is stressed in this department and throughout the school. We feel we have an excellent record in the prevention of student injuries in our career and technology education classes. In order for us to have awareness of your knowledge of your student's activities, we must have your consent before allowing your student to use any power equipment. We invite you to visit the school laboratories at any time; please check in through the school office.

Yours truly,

Automotive instructor

I hereby give permission for \_\_\_\_\_ to use  
(student name)  
power tools and equipment in the automotive program at Palmer High School.

\_\_\_\_\_  
Parent / Guardian signature

\_\_\_\_\_  
Date

# CLASSROOM RULES:

**BE PROMPT**

**BE POLITE**

**BE PREPARED**

**BE POSITIVE**

**BE PRODUCTIVE**