

PALMER HIGH SCHOOL  
COURSE DESCRIPTION

TEACHER: Mr. Egan

SEMESTER / PERIOD: \_\_\_\_\_ / \_\_\_\_\_

COURSE TITLE: INTRODUCTION TO AUTOMOTIVE TECHNOLOGY

RECOMMENDED OR REQUIRED GRADE LEVEL : 9 - 12

**COURSE DESCRIPTION:** This course introduces the student to the responsibilities of automobile ownership, and is an introduction to automotive repair technology. Maintenance, legal issues, and owner repairs are included in this course as well as introducing the automotive repair field to youth interested in pursuing a career as an automotive technician. Labs include all phases of preventive and scheduled maintenance.

**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, follow the classroom, Palmer High School, and the Mat-Su Borough School District 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 # 746-8418

**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.

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Student signature

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Date

# MAT-SU BOROUGH SCHOOLS AUTOMOTIVE SERVICE TECHNOLOGY SYLLABUS

## INTRO TO AUTOMOTIVE SERVICE TECHNOLOGY

### Introduction

Intro to Auto is designed to acquaint the student with the basic principles, operation and maintenance of the automobile through the coordination of classroom and shop activities in which the theory and practical skills are learned. The course also includes career exploration. The course includes the study of the following subjects and systems.

- \*Automotive Shop Operation
- \*Automotive Chemicals
- \*Automotive Safety
- \*Automotive Tools and Shop Equipment
- \*Careers in Automotive and Related Fields
- \*Electrical Systems
- \*Suspension and Steering Systems
- \*Brake Systems
- \*Engine Performance
- \*Engines
- \*Cooling and Lubrication Systems
- \*Power Train Systems

### Course Objectives

- \*To develop an understanding of how the automotive labs and classes operate.
- \*To develop knowledge of the safe and proper use of automotive service tools and equipment.
- \*To develop an understanding of the basic theory and operation of the automotive systems and how all of the components relate to make a functioning vehicle.
- \*To enable the student make an informed career choice related to the automotive and related fields.

Course Name Introduction to Auto 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): None  
 High School Credit = .5 (Post Secondary Credit )  This course will be offered:  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 Automotive Technician Education Foundation, <http://www.natef.org>  
Occupational Standards: National Institute for Automotive Service Excellence, <http://www.ase.org>  
All Aspects of the Industry: *Institute for Workforce Education*, University of Missouri-Columbia

Eligibility for Nationally Recognized Skill Certificate(s)/State License: ?  No  OR  Yes, and identify Certificate:  
 Tech Prep:  No  OR  Yes If Yes, list post secondary institution, name of course and number of post secondary credits.  
 Is this course brokered through another institution or agency?  No  OR  Yes, and list institution/agency:  
 District Course Number: 8800 CIP Number: 47.06040

Course Description: Introduction to Auto introduces the student to the responsibilities of automobile ownership and is an introduction to automotive repair technology. Maintenance, legal issues, and owner repairs are included in this course as well as introducing the automotive repair field to youth interested in pursuing a career as an automotive technician. Labs include all phases of preventive and scheduled maintenance for both industry and personal use.

- Content Headings/Topics
  - ◆ Personal Safety in The Auto Lab
  - ◆ Auto Chemical Safety
  - ◆ Hand Tool Identification and Safe Use
  - ◆ Power Tool and Equipment Identification and Safe Use
  - ◆ Basic Automotive Systems
  - ◆ Driveway and Professional Repairs
  - ◆ Emergency Repairs and Procedures
  - ◆ Standard Repair Procedures
  - ◆ Estimating and Cost Analysis
  - ◆ Career Exploration
  - ◆ Encourage Career and Technical Student Organization (CTSO) Involvement

| Performance Standards<br>(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 |
|---------------------------------------------|--|----------------------------------------|--------------------------------------------------------------|--------------------------|--------------------------------|---------------------------|-------------------------|-------------|
|                                             |  |                                        |                                                              |                          |                                |                           |                         |             |

Course Name Introduction to Auto  
 Adapted from:  
 Date: June 2005

District Name Matanuska-Susitna Borough School District  
 Developed by: Ed Clawson, John Egan, Jack Simpson, Rob Wissler

| Performance Standards<br>(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<br>C5.12                          |                                                              | T-E2                     | A6                             | B1                        | Hlth/Safety             | AK EED Safety Manual |
| Select and safely operate appropriate hand tool, power tools, and related equipment.                                                   | ONET<br>.26                            |                                                              | T-A<br>1-5               | A6                             | B4                        | Tech/Prod               | AK EED Safety Manual |
| Exhibit responsibilities of employment standards including exhibiting dependability and meeting organizationally defined expectations. | EIA<br>I.A.01<br>I.A.04                |                                                              |                          | A1                             | B3                        | Wk Habits               | SkillsUSA            |
| Know the basic function and operation of the major automotive systems.                                                                 | All                                    | R-4                                                          | EB-1<br>SA-8             |                                |                           | Tech/Prod<br>Prin Tech  | AYES/<br>NATEF       |
| Estimate time and cost for a repair job.                                                                                               |                                        | MB-1<br>MD-1                                                 | MB-6<br>MB-7<br>EdIC     |                                |                           | Planning<br>Finance     | AYES/<br>NATEF       |
| Follow EPA and OSHA regulations.                                                                                                       |                                        |                                                              | GA-4                     | B-4                            |                           | Hlth/Safety             | AYES/<br>NATEF       |
| Demonstrate skills required for scheduled and preventive maintenance.                                                                  | All                                    | MB-1<br>R-4                                                  |                          |                                |                           | Tech/Prod<br>Wk Habits  | AYES/<br>NATEF       |
| Identify and Investigate career opportunities and duties of an automotive technician.                                                  | LS L-3                                 | EB2, ME1                                                     | EA 1-7<br>EB1-5          | E.A-C<br>A-1, B-2<br>EA HB1    | B-C                       | All                     | AKCIS                |

**Recommended Text:**

- 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>

## 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.

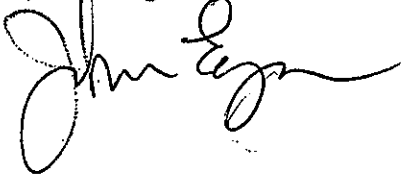
Makeup work is the sole responsibility of the student.

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: \_\_\_\_\_

# Introduction to Automotive Technology

## 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.

## INTRODUCTION TO AUTOMOTIVE TECHNOLOGY

| 0-6 | Date | A. Safety                                                                                                 | NATEF Task(s) |
|-----|------|-----------------------------------------------------------------------------------------------------------|---------------|
|     |      | 1. Identify the safe use of chemicals                                                                     | NONE          |
|     |      | 2. Identify the safe use of hand tools                                                                    | NONE          |
|     |      | 3. Identify the safe use of power tools                                                                   | NONE          |
|     |      | 4. Identify the safe use of protective clothing and equipment                                             | NONE          |
|     |      | 5. Identify the safe use of fire protection equipment                                                     | NONE          |
|     |      | 6. Identify the safe use of shop equipment.                                                               | NONE          |
|     |      | 7. Follow Environmental Protection Agency (EPA) and Occupational Safety and Health Act (OSHA) regulations | NONE          |

| 0-6 | Date | B. Shop Operation                                                         | NATEF Task(s) |
|-----|------|---------------------------------------------------------------------------|---------------|
|     |      | 1. Communicate with customers and write repair orders                     | NONE          |
|     |      | 2. Estimate time and cost for a job and order parts                       | NONE          |
|     |      | 3. Obtain appropriate repair information from service manuals             | NONE          |
|     |      | 4. Practice clean and orderly work habits (vehicle, tools, and work area) | NONE          |

| 0-6 | Date | C. Components and Careers                                                             | NATEF Task(s) |
|-----|------|---------------------------------------------------------------------------------------|---------------|
|     |      | 1. Identify basic function and operation of vehicle mechanical components             | NONE          |
|     |      | 2. Identify automotive technology career opportunities and the duties of a technician | NONE          |

| 0-6 | Date | Leadership Competencies**                                             |
|-----|------|-----------------------------------------------------------------------|
|     |      | 1. Demonstrate an understanding of VICA, its structure and activities |
|     |      | 2. Demonstrate an understanding of one's personal values              |
|     |      | 3. Perform tasks related to effective personal management skills      |
|     |      | 4. Demonstrate interpersonal skills                                   |
|     |      | 5. Demonstrate etiquette and courtesy                                 |
|     |      | 6. Demonstrate effectiveness in oral and written communication        |
|     |      | 7. Develop and maintain a code of professional ethics                 |
|     |      | 8. Maintain a good professional appearance                            |
|     |      | 9. Perform basic tasks related to securing and terminating employment |
|     |      | 10. Perform basic parliamentary procedures in a group meeting         |

\*\* NOTE: These competencies are addressed in the Alaska VICA Curriculum Guide lessons.



## *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
- ⊗ No loose jewelry or long hair in or around equipment or automobile engines
- ⊗ No open-toed shoes

# STUDENT MACHINE USE EVALUATION RECORD

NAME: \_\_\_\_\_

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       |                       |                     |                         |
| Battery Charger/Tester |                       |                     |                         |
| Degreaser              |                       |                     |                         |
| Drill Press            |                       |                     |                         |
| Electric Hand Drill    |                       |                     |                         |
| Grinder                |                       |                     |                         |
| Hand Tools             |                       |                     |                         |
| Hydraulic Jack         |                       |                     |                         |
| Radiator Test Tools    |                       |                     |                         |
| Solder Iron (Electric) |                       |                     |                         |



# PALMER HIGH SCHOOL

Home of the "Moose"

1170 West Arctic Avenue  
Palmer, Alaska 99645  
<http://pfs.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**