

*drop date*

INSTRUCTOR: MR. OGAWA  
OFFICE: AT 6 (Phone: 638-3641 ext. 3251)  
OFFICE HRS: MON.-WED. 1:30-2:30 pm, THURS. 1:30-2:30 pm.  
LECTURE: TUESDAY, THURSDAY, & FRIDAY  
COURSE: GEAR TRAIN  
a. Manual Transmission  
b. Clutch and Support Systems  
c. Automatic Transmission

DATE: FALL  
TEXTS:

1. MANUAL TRANS & TRANSAXLE (Class) 2nd Ed. ERJAVEC  
MANUAL TRANS & TRANSAXLE (Lab) 2nd Ed. .ERJAVEC
2. AUTOMATIC TRANS (Class) 3rd Ed. . . . . .CHEK-  
CHART  
AUTOMATIC TRANS (Lab) 3rd Ed. . . . . .CHEK-  
CHART
3. GUIDE TO AUTO CERT. EXAMINATION . . . . .HUGHES

GRADING: Straight percentage system (70% passing)

1. Quizzes. . . . . 1/3
  - a. Notebook (notes, hand-outs, tests)
2. Lab. . . . . 1/3
  - a. Technical Reports
  - b. Hands-on Evaluation
3. Final Exams. . . . . 1/3
  - a. Specific Areas
    1. Manual Drive Train and Clutch/Support Systems
    2. Automatic Transmission

TOTAL GRADE

4. ATTENDANCE may play a factor if you are to successfully pass this course.
  - a. Three absences allowed per semester for all Instructors.
  - b. Three tardies equal one absence. Please be on time.
5. Mid-term grade will be calculated by quiz and exam scores only. The deadline to drop the course without penalty will be Oct. 16 (Friday).
6. A computer print-out will be distributed or posted periodically with your grade total. It is your responsibility to keep returned tests, quizzes, and homework assignments for grade disputes. **KEEP TRACK OF YOUR PERFORMANCE.**

ASSIGNMENTS:

1. Reading assignments will be assigned after each lecture period or student will follow assignment schedule.
2. Tests and quizzes can be given at any time.
3. Make-up of tests and quizzes
  - a. It is the students responsibility to contact Instructor.
  - b. Test or quiz cannot be made-up if:
    1. Reviewed in class.
    2. Excuse for absence unacceptable.
    3. Student is limited to two make-ups per semester.
  - c. Make-up quizzes will be arranged by instructor.
4. All homework, special assignments, and technical (lab) reports, will be handed-in on the assigned date. All late assignments will be penalized a minimum of one grade and one grade for each day late if allowed to be handed in late (discretion of Instructor).

LAB:

1. Time (approx.) in lab per group.
  - a. 12 days Manual Transmission and Clutch and support systems
    - (1) 6 days manual transmission
    - (2) 6 days demos and live-car repair
  - b. 12 days Automatic Transmission
    - (3) 6 days automatic transmission
    - (4) 6 days demos and live-car repair

CLASS LECTURE AND READING SCHEDULE

- TEXTS: (1) Manual Transmissions and Transaxle (Class & Lab)  
 (2) Automatic Transmission (Class & Lab)

Week 1 . . . . .Metrics  
 Week 2-7. . . . .Manual Transmission and Clutch/Support Systems  
 Week 8-13 . . . . .Automatic Transmission

Manual Transmission and Clutch/Support Systems

Saginaw four speed transmission . . . . . Hand-out

1. Safety (Class). . . . . Chapter 1  
 Safety (Lab). . . . . Chapter 1  
 Basic Tools/Procedures (Lab). . . . . Chapter 2
2. Drive Train Theory (Class). . . . . Chapter 2
3. Manual Transmission/Transaxles (Class). . Chapter 4  
 Servicing Transmissions/Transaxles (Lab). Chapter 4
4. Bearings and Seals. . . . . Lecture
5. Clutches (Class). . . . . Chapter 3  
 Servicing Clutches (Lab). . . . . Chapter 3

- 6. Four-Wheel-Drive Systems (Class). . . . . Chapter 8  
Servicing Four-Wheel-Drive Systems (Lab). Chapter 8
- 7. Drive Train Electrical  
Electronic Systems (Class). . . . . Chapter 9  
Servicing Drive Train  
Electrical Systems (Lab). . . . . Chapter 9

Automatic Transmission

THM 350 . . . . . Handout

- 1. Introduction to Automatic Trans-  
missions and Transaxles . . . . .Chapter 1 (Class)  
Shop Practices, Measuring, and  
Conversion . . . . .Chapter 1 (Lab)
- 2. Gears and Gearsets . . . . .Chapter 2 (Class)
- 3. Apply Devices . . . . .Chapter 6 (Class)  
In Chassis Adjustment and Service .Chapter 3 (Lab)
- 4. Transmission Fluids, Filters, and  
Coolers . . . . .Chapter 7 (Class)  
Transmission Fluid, Filter, and  
Cooler Service . . . . .Chapter 2 (Lab)
- 5. Hydraulic Fundamentals . . . . .Chapter 3 (Class)
- 6. Transmission Hydraulic Systems . .Chapter 4 (Class)
- 7. Fluid Coupling and Torque Con-  
verters . . . . .Chapter 5 (Class)  
Torque Converter Testing and  
Service . . . . .Chapter 8 (Lab)
- 8. Electronic Control System  
Fundamentals . . . . .Chapter 9 (Lab)
- 9. Electronic Control Systems . . . .Chapter 10 (Class)  
Electronic Control System  
Service . . . . .Chapter 5 (Lab)

Lab Reading Assignment:

- 1. Disassembly, Cleaning, and  
Inspection . . . . .Chapter 9 (Lab)
- 2. Gaskets, Seals, Bushings, Bearings,  
Washers, and Snaprings . . . . .Chapter 8 (Class)
- 3. Gasket, Seal, Bushing Replacement,  
and Thread Repair . . . . .Chapter 10 (Lab)
- 4. Unit Assembly . . . . .Chapter 11 (Lab)
- 5. Transmission Bench Testing . . . .Chapter 12 (Lab)

**COURSE DESCRIPTION AND GOAL:**

To comprehend and critically evaluate the operation of the automotive gear train: manual transmission and clutch/support systems and automatic transmission. The combination of lecture and lab will enable the student to successfully trouble-shoot, disassemble, and assemble to specifications all the gear train systems listed above. The student will be evaluated by technical and oral reports, hands-on efficiency, and quizzes and exams. A grade of 70% must be obtained to successfully pass the course.  
GLAD TO HAVE YOU THIS FALL!

REEDLEY COLLEGE  
INSTRUCTOR: MR. GUZMAN

AUTOMOTIVE TECHNOLOGY  
FALL 1998

OFFICE NUMBER: 638-3641 EXT. 3292

LOCATION: AUTOMOTIVE SHOP

OFFICE HOURS: MON. 1:30-2:30 PM TUE. 1:30-2:30 PM WED. 1:30-2:30

TEXT: AUTOMOTIVE ENGINE REBUILDING by JAMES G. HUGHES

SUGGESTED SUPPLEMENTAL READING: HOW TO REBUILD YOUR SMALL BLOCK  
CHEVY BY JAMES HUGHES

READING ASSIGNMENTS: ALL PRESCRIBED READING ASSIGNMENTS ARE DUE ON  
DATES SPECIFIED IN THE STUDY SCHEDULE.  
ADDITIONAL ASSIGNMENTS MAY BE REQUIRED AS  
HANDOUTS.

QUIZZES: THERE ARE NO MAKEUP FOR QUIZZES MISSED. QUESTIONS ON  
QUIZZES WILL COME FROM LECTURES AND READINGS ASSIGNMENTS.

EXAMS: THERE WILL BE ONE MIDTERM AND ONE FINAL EXAM. QUESTIONS ON  
MIDTERM WILL COME PRIMARILY FROM THE A. S. E. NATIONAL EXAM.

NOTEBOOK: A NOTEBOOK WILL BE REQUIRED FOR THE FALL SEMESTER. IT  
WILL INCLUDE A TITLE PAGE, TABLE OF CONTENTS, STUDY  
SCHEDULE, TASK SHEET, CLASS NOTES, ATTENDANCE RECORD,  
HANDOUTS, QUIZZES AND TESTS.

ATTENDANCE: IN THE WORK PLACE ATTENDANCE IS CRUCIAL. IF YOU ARE  
ABSENT MORE THAN THREE TIMES IN THE FIRST NINE WEEKS  
YOU WILL BE DROPPED FROM CLASS. THREE TARDIES EQUALS  
ONE ABSENCE.

GRADING: QUIZZES AND NOTES..... 35%  
EXAMS..... 35%  
LAB..... 30%

COURSE OBJECTIVES: TO PROVIDE THE STUDENTS WITH THE BASIC SKILLS  
AND KNOWLEDGE NEEDED TO ENTER THE AUTOMOTIVE SERVICE TRADE AT THE  
ADVANCED APPRENTICE LEVEL. UPON COMPLETION OF THE PROGRAM, THE  
STUDENT SHOULD QUALIFY FOR THE (ASE) EXAMINATIONS AND QUALIFY AS A  
CERTIFICATED GENERAL AUTOMOTIVE TECHNICIAN ONCE THE A.S.E.  
EXPERIENCE REQUIREMENTS ARE MET.

ENGINE REBUILDING  
MR. GUZMAN  
FALL 1998

STUDY SCHEDULE  
READING ASSIGNMENTS

AUG. 17-21

CHAPTER 1 - SAFETY AND SHOP PRACTICE

AUG. 24-28

CHAPTER 2 - TOOLS AND EQUIPMENT

AUG. 31 - SEPT. 4

CHAPTER 3 - BASIC REVIEW OF ENGINE OPERATION

SEPT. 7-11

CHAPTER 4 - DIAGNOSING THE NEED FOR ENGINE TEARDOWN

SEPT. 14-18

CHAPTER 5 - ENGINE IDENTIFICATION AND REFERENCE MATERIAL

SEPT. 21-25

CHAPTER 6 - REMOVAL OF ENGINE FROM VEHICLE

SEPT. 28 - OCT. 2

CHAPTER 7 - DISASSEMBLING THE ENGINE

OCT. 5-9

CHAPTER 8 - CLEANING PARTS

OCT. 12-16

CHAPTER 9 - MEASUREMENT INSPECTION

OCT. 19-23

CHAPTER 10-11 LOCATING CRACKS - ORDERING ENGINE PARTS

OCT. 26-30

CHAPTER 12-14 BLOCK RECONDITIONING - VALVE GUIDE AND ROCKER ARM SERVICE

NOV. 2-6

CHAPTER 15 - VALVE AND SEAT SERVICE

NOV 9-13

CHAPTER 16 - VALVE COMPONENTS

NOV. 16-20  
CHAPTER 17 - ASSEMBLING THE CYLINDER HEAD  
CHAPTER 18 - CAMSHAFT AND LIFTERS

NOV. 23-25  
CHAPTER 19 - CRANKSHAFT AND FLYWHEELS  
CHAPTER 20 - CONNECTING RODS AND PISTON PINS

NOV.30 - DEC.4  
CHAPTER 21 - PISTON AND RINGS  
CHAPTER 22 - BEARINGS  
CHAPTER 23 - OIL PUMPS

DEC. 7-11  
CHAPTER 24 - SEALING THE ENGINE  
CHAPTER 25 - ASSEMBLY AND BREAK-IN

DEC. 14-18  
FINALS

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LAB LESSON PLAN

AUG. 17-21  
SHOP ORIENTATION\INSTRUCTION

AUG. 24 - SEPT. 17  
DISASSEMBLE, INSPECT, AND CLEAN ENGINE

SEPT. 18- OCT. 13  
DISASSEMBLE, INSPECT, AND CLEAN HEADS

OCT. 14 - NOV. 9  
MACHINE AND ASSEMBLE HEADS

NOV.10 - DEC. 8  
ASSEMBLE ENGINES

## Automotive Electrical

## Attendance and Grading Policy

Reading assignments are due each Mon. of each week for each subject. **QUIZZES** will be given each Mon., Wed., or Fri.. **TESTS** and **EXAMS** are given at the beginning, mid term, and end of the semester. **MAKE UP** quizzes will not be available after the third week of school. Near the end of the semester, a survey of each student's quizzes will be made, the lowest score will be dropped and not averaged.

All work submitted for grading must contain: student surname, student grade number, date, and subject. Any documentation error in the preceding will cause a grade of Zero.

<b>GRADING POLICY:</b>	Tests and Quizzes = 30%
	Final Exams = 30%
	<u>Quality Shop Work &amp;</u>
	Documentation = 30%
	Employability = 10%
	Possible Total = 100%

It is the student's responsibility to know his grade at all times during the semester. If you don't know your grade, first check the posted grades, and then ask your instructor. Be sure to retain all quiz and test cards.

The purpose of the KRCC Automotive Technician program is focused upon the employment needs of both the automotive service industry and the student. The technician training attempts to simulate the live tasks of the industry that it serves. Unfortunately, with the live industrial work comes the potential for **serious accidents** and/or property damage. The safety instructions and precautions for averting accidents precedes most shop activities. Therefore, the **tardy** or **absent** student places himself and others at risk by not being present at this critical time.

Attendance (3 absences permitted) and timeliness (3 tardys equal one absence) are considered essential to employers and the safe conduct of a business. A student exceeding the rule of 3/3 **may be dropped from class for reasons of safety**. Class begins each day at 7:30 AM. Be prepared for work at 7:25.

Acknowledged and signed by: \_\_\_\_\_, date \_\_\_\_\_

Fall 1998

Mr. Jewell

## Study Schedule

## Automotive Electrical

Lecture	Wk.#	Subject	Chapt./Text	CAC p
Aug. 13-14		Teachers Duty Day		
17-21	01	First class meeting and lecture		
24-28	02	Battery & Testing	7c, 3s	p.02
31-04	03	Basic Elec. Meas.	2S	21,26
Sept 07-11	04	Basic Electricity	1c	18,13
14-18	05	Ohm's Law	1c	06,07
21-25	06	Measurement	2s	21,26
28-02	07	Circuits & Symbols	6c	10,16
Oct. 05-09	08	Wiring & Fasteners	5c, 1s,	p.11
12-16	09	Magnetism	2c	p.14
19-23	10	Starter Systems	10c,11c 6s,7s	
26-30*	11	Engine Ignition Sys.	12c, 8s, 9s,	p.40
Nov. 02-06	12	Ign. Pri. & Sec. Cir.	13,14c 8,9s	p.62
09-13*	13	Distributor Service	10s	p.89
16-20	14	Timing & Advance Tests	15c, 10s,11s	79,87
23-25	15	Oscilloscope Testing	2s,8s,9s,	H.O. p.96
30-04	16	Basic Electronics	3c	18,19
Dec. 07-09	17	Electronic Ignition	16c, 10s,11s	p.71
10-11		Test & Shop Clean up		
14-18	18	Final Exams	Scantrons & Pencils	



**Please Note:** A Quiz may be given on the day that any of the above assignments are scheduled or any day there after. You should always be prepared with Scantron cards and at least 2, sharpened, #2 pencils inin your pocket. Scantron penalties may result, with no credit given, for poorly erased scantron selections. Answers to questions provided by the authors may be incorrect, and if used, will be graded as incorrect responses. Further: Additional assignments may be required as handouts or outside assignments. i.e. notebooks, employment app's, interviews.

Quizes may be given Monday, Wednesday, or Friday or any day in shop. Tests and exams are given at the beginning, mid term, and end of the semester. Required Texts: Automotive Electrical & Electronic Sys. by Check Chart, "c" = classroom text, "s" = shop text. Recommended Texts: Guide to the Mechanics Certification by James Hughes, Clean Air Car Course by State of California, "CAC".

**OFFICE HOURS** 7:05-7:30 AM daily. Room AT6.

Please see "Attendance and Grading Policy".

Rev. August 17, 1998

## KRCC AUTO DEPT. RULES

Please read and place your initials in the box [ ] to the right of each of each rule. If, for any reason that you do not understand any of the rules, please contact your instructor and ask for assistance.

**HONESTY AND INTEGRITY** Every student is expected and required to:

A. Perform his/her own assignments in the classroom, shop, and homework without duplication or replication of another person's work. [ ]

B. Perform individually on tests, quizzes, exams, and other instruments of individual evaluation. The use of crib notes or looking at other students papers is regarded as cheating and the student(s) involved will be ejected from class. [ ]

C. Tests, quizzes, are the property of each instructor and must be returned to the instructor at the end of each evaluation. [ ]

D. Time cards will be used for evaluating student responsibility and to provide attendance data for institution funding. Falsifying a time card is regarded as cheating and the student(s) involved will be ejected from class. [ ]

E. Thou shalt not steal or tolerate those who do. All missing items, both private and school, will be immediately reported to the police dept. for investigation. [ ]

**ATTENDANCE AND TIMELINESS** Three days of absence from class is the maximum allowable per semester. [ ]

Tardiness, whether late arrival to school or in returning from a class break will be treated as an absence. Three tardys equate to one day of absence. Safety is our primary consideration. [ ]

Leaving class early or not returning from a class break without permission of the instructor will be regarded as a day of absence. [ ]

A student will be counted as absent if for any reason he/she is asked to leave class for reasons of inappropriate behavior. [ ]

**VEHICLES AT THE SHOP** All vehicles at the shop are considered available for instructional work and are therefore under the control and responsibility of the instructor. Upon entering the shop area the owner/operator of said vehicle agrees to grant unconditional access to all compartments and components of the vehicle to the instructor. [ ]

Vehicles will not be leaned or sat on, used as a foot rest, or sat in. Audio and mirror adjustments will not be altered. [ ]

The security of the vehicle and special components thereof remain the responsibility of the vehicle owner/operator. [ ]

No vehicle may enter or be removed from the shop area without the specific permission of the instructor responsible for the instructional activity. No exceptions for lunch break. [ ]

Vehicles or parts thereof left at the shop beyond the first day of semester final exams will be considered abandoned, and the owner will be dunned for storage, and costs of disposition. [ ]

Unauthorized vehicles parked at the shop without a permit issued by an instructor will be ticketed by the campus police and towed at owner/operator expense. [ ]

All students must provide their Drivers License Number and license status to the instructor prior to operating any vehicle. [ ]

**FACILITY USE AND ACCESS** No vehicle or component repair or bench work may be performed within the shop area without specific permission of and the immediate supervision of an instructor or lab technician (Mr. Aguirre) [ ]

Shop equipment or tools may not be operated or used without specific permission and the immediate supervision of an instructor or lab technician (Mr. Aguirre). No tools will be loaned [ ]

Tools and supplies loaned to students must be resupplied with the exact quantity and part # prior to the end of the semester. Grades and transcripts will be frozen until replacement is completed. [ ]

Students will not be allowed in the shop area during break or lunch period. [ ]

**PROPER ATTIRE** Because the objective purpose of the training program is to gain and keep employment as a professional automotive technician, standards of appropriate dress are required.

Uniforms must be worn correctly at all times in the shop, and laundry service must be paid by the 3rd week of the semester. [ ]

Closed toe shoes are required at all times in the shop area. [ ]

Hair longer than collar length must be contained within a brimless hat when working in the shop area. Baseball hats OK. [ ]

Hats of any type will not be worn within the classroom. [ ]

**SAFETY AND CONDUCT** Conduct by all students at all times must reflect attitudes of safety and considerate behavior toward all personnel and the professional objectives of the program. [ ]

Safety glasses must be worn at all times in the shop area. [ ]

Horseplay in any form will not be tolerated. [ ]

Persons suspected of the influence of alcohol or a controlled substance will be asked to leave the class and reported to Health and Security Services. [ ]

#### **GENERAL CONDUCT**

Tobacco products use and sunflower seeds are not permitted within the facility, parking area, or front garden area. [ ]

Spitting on any facility area or fountain is not permitted. [ ]

Persons lacking proper toilet habits will be referred to Student Health Services for remedial training. [ ]

Food and beverages will not be permitted in the shop area. [ ]

Telephones may be used by permission only. [ ]

The teacher's desk and tool chest contains confidential and personal materials and is "OFF LIMITS" to all students. [ ]

I, \_\_\_\_\_(signature), \_\_\_\_\_(DMV#).

have read and understood the above rules of conduct of the RC Auto Tech. Dept. date \_\_\_\_/\_\_\_\_/\_\_\_\_.  
rules rev. August 17, 1998