

DIXIE COLLEGE
Engine Performance II/ Alternative Fuels
Spring 2009
AUTO 2530-01 CRN 20963

PRE-REQUISITES: None

CREDIT HOURS: Six Credits

INSTRUCTOR: Mel Jensen Office: TE 104 Phone: 652-7853
 Office Hours MTWR- 7:00am - 8:00 am
 W-3:00pm-4:00pm
 Email jensenm@dixie.edu

CLASS SCHEDULE: Jan. 1 2009-May 1 2009
 MTWR 1:00 Pm - 2:50 Pm

TEXT: Latest Addition per ASE Requirements

CLASS DESCRIPTION:

This course is designed for auto technicians and other students interested in automotive computer controls, fuel systems and alternative energies. Studies operation, diagnosis, adjustment and repair of computer and/or fuel systems and is instructed to Automotive Service Excellence (ASE) standards, Course curriculum includes: lab and lecture, guest speakers, audio/visual tapes, and hands-on performance on vehicles. Completers should be able to pass ASE Certificate Test and should be able to work on computer and or fuel systems for an entry level job.
Lab is required.

REQUIRED MATEIALS:

One pair of safety glasses or goggles.

SAFETY REQUIREMENTS:

Students must complete safety training before live work. All lab work complies with OSHA and EPA safety standards. Students are required to read and obey safety rules posted in the shop.

ATTENDANCE & GRADING

This is a performance class. Student must be in attendance to perform, and grades are in direct relation to standards of performance. Grades will be based on the following:

| | | |
|----------|----------------|-------------------|
| Grading: | Attendance | 600 points |
| | Task List | 390 points |
| | Work Orders | 400 points |
| | Research Paper | 300 Points |
| | Midterm | 100 points |
| | <u>Final</u> | <u>100 points</u> |
| | Total | 1890 points |

If you are a student with a medical, psychological or a learning difference and requesting reasonable academic accommodations due to this disability, you must provide an official request of accommodation to your professor(s) from the Disability Resource Center within the first two weeks of the beginning of classes. Students are to contact the center on the main campus to follow through with, and receive assistance in the documentation process to determine the appropriate accommodations related to their disability.

You may call (435) 652-7516 for an appointment and further information regarding the Americans with Disabilities Act (ADA) of 1990 per Section 504 of the Rehabilitation Act of 1973.

Our office is located in the Student Services Center, Room #201 of the Edith Whitehead Building.

3-34 ACADEMIC DISCIPLINE

34.1 Cheating: Academic dishonesty in any form will not be tolerated at Dixie State College, including but not limited to plagiarism on written assignments, submitting other person's work as one's own, and cheating on exams or quizzes. Teachers at Dixie State College may discipline students proven guilty of academic dishonesty by:

34.1.1 Giving a failing grade on the specific assignment where dishonesty occurred,

34.1.2 Failing the student in the entire course,

34.1.3 Immediately dismissing and removing the student from the course, and/or

34.1.4 Referring the student to Student Affairs, a committee which may reprimand, place on probation, suspend, and/or expel the student.

34.2 Disruptive Behavior: Teachers at Dixie State College have the right to manage the classroom environment to ensure a good learning climate. Toward this end, teachers (or college security) may dismiss and remove disruptive students from individual class activities. If a student's behavior continues to disrupt class activities, the teacher may dismiss and cause the removal of disruptive students from their course.

The following is required of all Automotive Students enrolled in any Automotive Class:

- 1) Each student is required to purchase their own safety glasses or goggles.
- 2) If you are working on another person's car, the car's owner is required to furnish all parts and expenses for the repair.
- 3) NO LABOR FEES CAN BE CHARGED on any repairs or work performed in the Dixie College automotive shop.
- 4) A basic hand tool set is required for each student it should include the following: 3/8 drive socket set, 1/4 drive socket set, 4 pc. Pliers set, a Phillips and flat blade screwdriver set, and metric- standard wrench sets.

I understand and will comply with the above statements:

Name _____

Date _____

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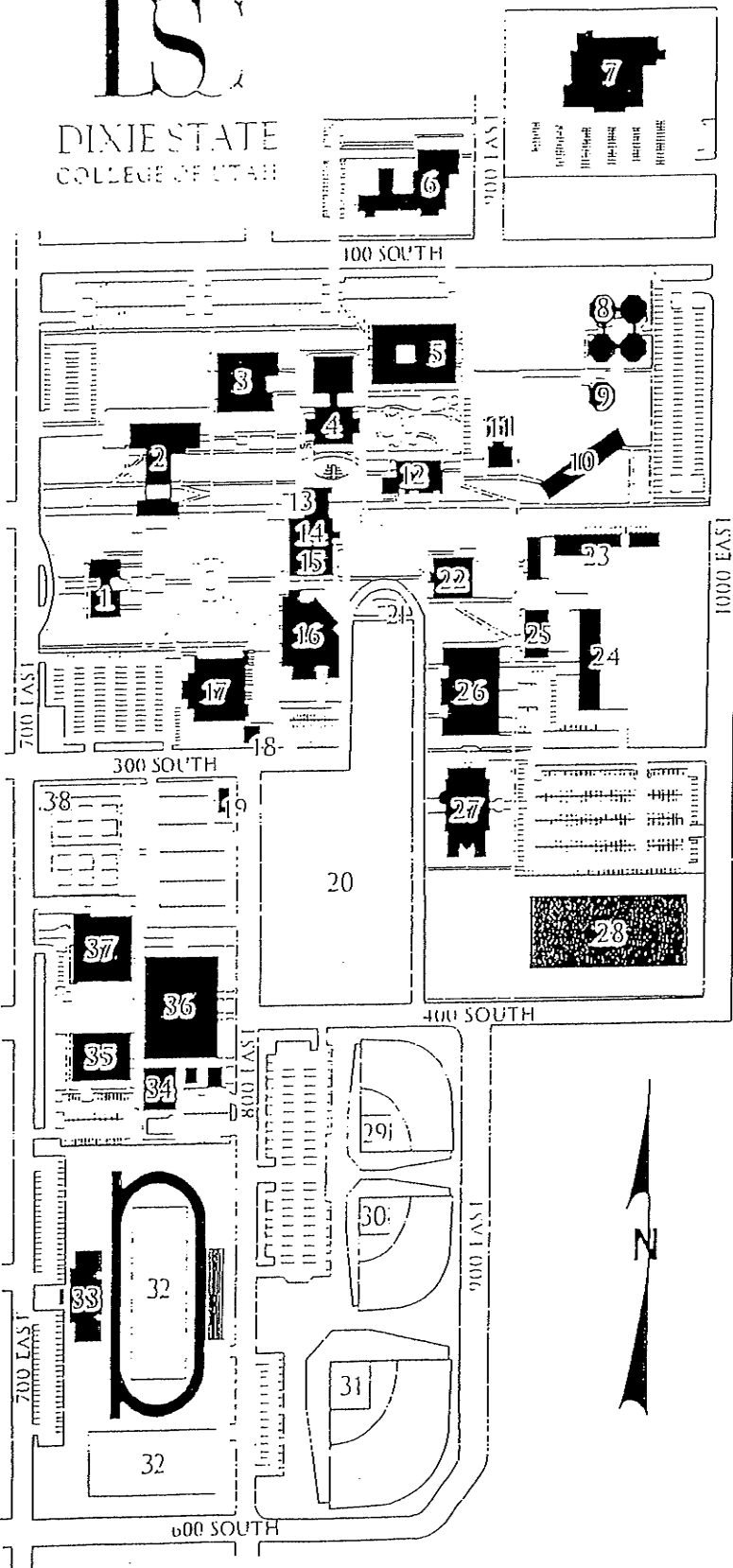
I understand and will comply with the above statements:

Name _____

Date _____

CAMPUS MAP

DS
DIXIE STATE
COLLEGE OF UTAH



DIRECTORY








1. Administration (ADM)
2. Graff Fine Arts Center (FAC)
3. Family and Health Building (FCS)
4. Val A. Browning Library (LIB)
5. Science & Math Building (SCI)
6. Present Institute Building
7. North Plaza (NPZ)
8. Nisson Towers
9. Housing Office
10. Shiloh Dorms
11. Plant Operations
12. Browning Learning Resource Center (BRN)
13. Advisement Center & Financial Aid (ADV)
14. Edith S. Whitehead Student Services Center (SSC)
15. Cafeteria
16. Kenneth N. Gardner Student Center (GAR)
17. Gymnasium (GYM)
18. Racquetball Courts (RAQ)
19. Community Education (CED)
20. Encampment Mall
21. Encampment Mall Monument
22. McDonald Center for the Humanities and Social Sciences (MCD)
23. Heating Plant
24. Automotive Technology Building (AUT)
25. Technology (TEC)
26. Jennings Technology (JEN)
27. Udvar-Hazy School of Business (UHB)
28. Future Institute Building
29. Eccles Field @ Cooper Diamonds
30. Brooks Field @ Cooper Diamonds
31. Hurst Baseball Field (HST)
32. Football Fields
33. Hansen Football Stadium (HAN)
34. Eccles Fitness Center (FIT)
35. Smith Computer Center (SCC)
36. Burns Arena (BUR)
37. Cox Auditorium (COX)
38. Tennis Courts (TEN)

DIXIE STATE COLLEGE

2008-2009 ACADEMIC CALENDAR

| | | | | |
|----|---------------------|----|--------------|---|
| S | Start of Class | CD | Career Day | <i>Note: Faculty & Staff Workshops take place August 17th thru August 22, 2008.</i> |
| L | Last Day of Class | R | Reading Day | |
| H | Holiday | F | Final Exams | |
| SB | Semester Break* | SB | Spring Break | |
| B | Block Classes Begin | G | Graduation | |

[Printer Friendly Version \(pdf\)](#)

| | | | | | | | |
|------------------|----|---|---|---|---|---|----|
| <i>August</i> | 24 | 25 | S | 27 | 28 | 29 | 30 |
| <i>September</i> | 31 |  | 2 | 3 | 4 | 5 | 6 |
| | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| | 21 | 22 | 23 | 24 | 25 | 26 | 27 |
| <i>October</i> | 28 | 29 | 30 | 1 | 2 | 3 | 4 |
| | 5 | B | 7 | 8 | 9 | 10 | 11 |
| | 12 | 13 | 14 | 15 |  |  | 18 |
| | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| | 26 | 27 | 28 | 29 | 30 | 31 | 1 |
| <i>November</i> | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| | 16 | 17 |  | 19 | 20 | 21 | 22 |
| | 23 | 24 | 25 |  |  |  | 29 |
| <i>December</i> | 30 | 1 | 2 | 3 | 4 | 5 | 6 |
| | 7 | 8 | 9 | 10 | 11 | L | 13 |
| | 14 | F | F | F | F | F | 20 |

| | | | | | | | |
|-----------------|----|----|----|----|----|----|----|
| <i>January</i> | 4 | S | 6 | 7 | 8 | 9 | 10 |
| | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| | 18 | H | 20 | 21 | 22 | 23 | 24 |
| | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
| <i>February</i> | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| | 15 | H | B | 18 | 19 | 20 | 21 |
| | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| <i>March</i> | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| | 15 | SB | SB | SB | SB | SB | 21 |
| | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| <i>April</i> | 29 | 30 | 31 | 1 | 2 | 3 | 4 |
| | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| | 19 | 20 | 21 | 22 | L | F | 25 |
| <i>May</i> | 26 | F | F | F | F | G | 2 |

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**Please note that you can add and drop your classes online until
January 7th 2009**

REGULAR SEMESTER DATES

Nov 17 -Registration - Seniors (> 90 credits)
 Nov 18 - Registration Juniors (> 60 credits)
 Nov 19 - Registration for Sophomores (> 30 credits)
 Nov 20 - Open Registration
 Jan 5 -Classes Begin
 Jan 7 - Last Day to Add Without Signature
 Jan 19 - Martin Luther King Day
 Jan 20 - \$50 Late Registration/Payment Fee
 Jan 27 - Last Day for Refund
 Jan 27 - Last Day to drop without receiving a W grade
 Jan 27 - Pell Grant Census
 Jan 28 - Students dropped for non-payment
 Jan 30 - Last Day to Add Classes
 Feb 16 - Presidents Day
 Feb 23 - Mid-Term Grades Due
 Feb 27 - Last Day to Drop/Audit Classes
 Mar 16-20 - Semester Break
 Mar 27 - Last Day for Complete Withdrawal
 Apr 23 - Classwork Ends
 Apr 24-30 - Final Exams
 May 1 - Commencement

BLOCK SCHEDULE DATES

Feb 17 - Classes Begin
 Feb 19 - Last Day to Add Without Signature
 Feb 23 - Pell Grant Census
 Feb 23 - \$50 Late Registration/Payment Fee
 Feb 26 - Last Day for Refund
 Feb 26 - Last Day to drop without receiving a W grade
 Feb 27 - Students dropped for non-payment
 Mar 2 - Last Day to Add Classes
 Mar 16-20 - Semester Break
 Mar 23 - Last Day to Drop/Audit Classes
 Mar 27 - Last Day for Complete Withdrawal
 April 23 - Classwork Ends
 Apr 24-30 - Final Exams
 May 1 - Commencement

USEFUL PHONE NUMBERS

(435) 652 - XXXX

| | |
|----------------------|------|
| Problems registering | 7708 |
| Admissions Issues | 7706 |
| Need Advisement | 7690 |
| Tuition question | 7605 |
| Campus Operator | 7500 |

SPRING SEMESTER FIVE-DAY FINAL EXAM SCHEDULE

| Friday, April 24 | | Monday, April 27 | | Tuesday, April 28 | | Wednesday, April 29 | | Thursday, April 30 | |
|------------------------|------------|------------------------|-------------|----------------------|------------|------------------------|-------------|---------------------------|------------|
| Daily, MWF; MW, M Only | | Daily, MWF; MW, M Only | | TR, T Only | | Daily, MWF; MW, M Only | | TR, T Only | |
| Class Time | Exam Time | Class Time | Exam Time | Class Time | Exam Time | Class Time | Exam Time | Class Time | Exam Time |
| 7:00 | 7:00-9:00 | 8:00 | 7:30-9:30 | 9:00 | 8:00-10:00 | 9:00 | 10:00-12:00 | 7:30/8:00 | 7:00-9:00 |
| 10:00 | 9:30-11:30 | 11:00 | 10:00-12:00 | 12:00 | 11:00-1:00 | 12:00 | 12:30-2:30 | 10:30 | 9:30-11:30 |
| 1:00 | 12:00-2:00 | 2:00 | 12:30-2:30 | 2:30 | 2:00-4:00 | 3:00 | 3:00-5:00 | 1:00 | 12:30-2:30 |
| 4:00 | 2:30-4:30 | | | | | | | | |
| Friday Only Classes | | MW or M Only Classes | | TR or T Only Classes | | W Only Classes | | R (Thursday) Only Classes | |
| 5:00 | 5:00 | 5:00 | 5:00 | 5:00 | 5:00 | 5:00 | 5:00 | 5:00 | 5:00 |
| 7:30 | 7:30 | 7:30 | 7:30 | 7:30 | 7:30 | 7:30 | 7:30 | 7:30 | 7:30 |

REGISTRATION INSTRUCTIONS

REPAIR ORDER

Dixie State College
Automotive Department

Name _____ Day Phone _____

Make _____ Model _____

Year _____ Color _____ Mileage _____

Description of Complaint: _____

Cause of complaint: (explain in detail)

NOTICE: I understand the primary purpose of this repair is to provide students with hands-on experience. There is no warranty for work performed and any other parts, breakage, or damage expense will be borne by the customer.

Signature of acceptance: _____

Correction: Diagnostic procedure used: (explain in detail)

Student name(s) _____

Instructor auth. _____

GRADING

Sat. Unsat.

| | |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |

Job completed to last detail

Cleanliness, doors, hood, steering wheel, seat, upholstery

Effort shown on this job

Work efficiency, planning, pre-study, pre-ordering parts, etc

Performance Rating: 1 2 3 4

Lug torque spect: _____ Inst. witness _____

Engine Performance II Auto 2530
Dixie State College
Mel Jensen Assoc. Professor

Name: _____ School Year _____

Note: Task completion date must be initialed by instructor.

| ENGINE PERFORMANCE | Date Completed | I n t l |
|--|-----------------------|----------------------------|
| | | |
| Fuel, Air Induction, and Exhaust Systems Diagnosis and Repair | | |
| 1. Diagnose hot or cold no-starting, hard starting, poor drivability, incorrect idle speed, poor idle, flooding, hesitation, surging, engine misfire, power loss, stalling, poor mileage, dieseling, and emissions problems on vehicles with carburetor-type fuel systems; determine necessary action. | | |
| 2. Diagnose hot or cold no-starting, hard starting, poor drivability, incorrect idle speed, poor idle, flooding, hesitation, surging, engine misfire, power loss, stalling, poor mileage, dieseling, and emissions problems on vehicles with injection-type fuel systems; determine necessary action. | | |
| 3. Inspect fuel tank and fuel cap, fuel lines, fittings, and hoses; perform necessary action. | | |
| 4. Check fuel for contaminants and quality; determine necessary action. | | |
| 5. Inspect and test mechanical and electrical fuel pumps and pump control systems; perform necessary action. | | |
| 6. Replace fuel filters. | | |
| 7. Inspect and test fuel pressure regulation system and components of injection-type fuel systems; perform necessary action. | | |
| 8. Inspect and test cold enrichment system and components; perform necessary action. | | |
| 9. Remove, service, and install throttle body; adjust related linkages. | | |
| 10. Inspect, test, and clean fuel injectors. | | |

| | | |
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| 11. Inspect throttle body mounting plates, air induction and filtration system, intake manifold, and gaskets; perform necessary action. | | |
| 12. Check idle speed and fuel mixture. | | |
| 13. Adjust idle speed and fuel mixture. | | |
| 14. Remove, inspect, and test vacuum and electrical circuits, components and connections of fuel system; perform necessary action. | | |
| 15. Inspect exhaust manifold, exhaust pipes, muffler(s), catalytic converter(s), resonator(s), tail pipe(s), and heat shield(s); perform necessary action. | | |
| 16. Perform exhaust system backpressure test; determine necessary action. | | |
| 17. Test the operation of turbocharger/supercharger systems; determine necessary action | | |
| | | |
| Emissions Control Systems Diagnosis and Repair | | |
| 1. Positive Crankcase Ventilation | | |
| 1. Diagnose oil leaks, emissions, and drivability problems resulting from failure of the positive crankcase ventilation (PCV) system; determine necessary action. | | |
| 2. Inspect and test positive crankcase ventilation (PCV) filter/breather cap, valve, tubes, orifices, and hoses; perform necessary action. | | |
| 2. Exhaust Gas Recirculation | | |
| 1. Diagnose emissions and drivability problems caused by failure of the exhaust gas recirculation (EGR) system; determine necessary action. | | |
| 2. Inspect and test valve, valve manifold, and exhaust passages of exhaust gas recirculation (EGR) systems; perform necessary action. | | |
| 3. Inspect and test vacuum/pressure controls, filters, and hoses of exhaust gas recirculation (EGR) systems; perform necessary action. | | |
| 4. Inspect and test electrical/electronic sensors, controls, and wiring of exhaust gas recirculation (EGR) systems; perform necessary action. | | |
| 3. Exhaust Gas Treatment | | |
| 1. Diagnose emissions and drivability problems resulting from failure of the secondary air injection and catalytic converter systems; determine necessary action. | | |
| 2. Inspect and test mechanical components of secondary air injection systems; perform necessary action. | | |

| | | |
|---|--|--|
| 3. Inspect and test electrical/electronically-operated components and circuits of air injection systems; perform necessary action. | | |
| 4. Inspect and test components of catalytic converter systems; perform necessary action. | | |
| 4. Intake Air Temperature Controls | | |
| 1. Diagnose emissions and drivability problems resulting from failure of the intake air temperature control system; determine necessary action. | | |
| 2. Inspect and test components of intake air temperature control system; perform necessary action. | | |
| 5. Early Fuel Evaporation (Intake Manifold Temperature) Controls | | |
| 1. Diagnose emissions and drivability problems resulting from failure of early fuel evaporation control system; determine necessary action. | | |
| 2. Inspect and test components of early fuel evaporation control system; perform necessary action. | | |
| 6. Evaporative Emissions Controls | | |
| 1. Diagnose emissions and drivability problems resulting from failure of evaporative emissions control system; determine necessary action. | | |
| 2. Inspect and test components and hoses of evaporative emissions control system; perform necessary action. | | |
| | | |
| Engine Related Service | | |
| 1. Adjust valves on engines with mechanical or hydraulic lifters. | | |
| 2. Verify correct camshaft timing; determine necessary action. | | |
| 3. Verify engine operating temperature; determine necessary action. | | |
| 4. Perform cooling system pressure tests; check coolant condition; inspect and test radiator, pressure cap, coolant recovery tank, and hoses; perform necessary action. | | |
| 5. Inspect and test thermostat, by-pass, and housing; perform necessary action. | | |
| 6. Inspect and test mechanical/electrical fans, fan clutch, fan shroud/ducting, air dams, and fan control devices; perform necessary action. | | |