Orientation

I INTRO
A. AUTOMOTIVE TECHNOLOGY PROGRAM
   1. Certification
      a. ASE
      b. NATEF
   2. Degree Options for Automotive Technology
      a. 18 month Certificate
      b. 18 month AAS Degree
      c. Discuss differences

B. MATERIALS NEEDED FOR FALL SEMESTER
   1. Books
   2. Coveralls
   3. Boots/Work shoes
   4. 3 ring binder (2" rings min.)
   5. Tools (see tool list)

II TOOLS/TOOL ROOM/SHOP TOUR
A. Tools
   1. Quality / Price / Availability issues
   2. Marking Tools
   3. Top box/Roll cabs & combinations
   4. Tools are not insured at NIC
B. Tool Room operation
   1. Lab Tech
   2. Checking out tools
   3. General operation

III LOCKERS
A. LOCATIONS
B. MUST HAVE OWN LOCKS (key type)
   1. Extra key for locker & tool box to be securely stored in Tool Room

IV OTHER ANNOUNCEMENTS
A. Counselor visits
B. Health nurse visit

V SYLLABUS
A. Handout

VI REVIEW SYLLABUS
A. Theory times & location
B. Lab times & locations
C. Core courses; Times & locations
D. Lunch time
E. Attendance procedure
F. Theory grading policy
G. Lab grading policy
H. Requirements to graduate
I. Requirements to enter 2nd semester
J. Requirements to enter 2nd year

VII. THE AUTOMOTIVE INDUSTRY
A. Types of shops
   1. New car dealerships
   2. Independent general repair shops
   3. Specialty shops & Franchise shops
      a. Wheel & Tire shops
      b. Muffler & Brake shops
      c. Transmission shops
      d. Quick lube shops
      e. Les Schwab, Midas Muffler, etc
   5. Fleet shops
      a. Government shops
      b. Private companies
   6. Parts departments
B. Job descriptions
   1. Light line technician
      a. brakes
      b. Exhaust
      c. Misc. general repair
      d. Pre-delivery service
   2. Heavy line technician
      a. Engines
      b. Differential
   3. Driveability technician
      a. Engine performance--ignition, fuel, electrical, computer systems, etc
      b. Air Conditioning
   4. Specialty technician
      a. Transmission
      b. Diesel engines
      c. Front end
   5. Parts counter person
   6. Service manager, service writer

VIII. WAGES/SALARIES
A. Automotive
   Wage slide
   1. $10.00 - $14.00 starting
   2. $16.00 - $26.00 Journeyman
      a. 3 - 5 years experience

IX. JOB OPPORTUNITIES
A. Placement NIC doesn't guarantee students a job, but will assist
B. ASE Certification Test dates, costs, student participation

X. WORK HABITS/SKILLS REQUIRED Use white board; get students to help define B list
A. Basic technical skills
B. Punctuality
   Reliability
   Thoroughness
   Self-motivated
Able to think & learn for self
Confident but not cocky
Clean personal hygiene & work habits

XI. BEING SUCCESSFUL
A. As a technician
   1. Being a successful technician

B. As a student
   1. Making a fresh start
      a. Changing your thinking and habits
      b. Getting rid of the “victim” mentality
   2. Motivation
      a. how to get & stay motivated
      b. what motivates
         money?
         reputation?
         power?
         personal integrity?
         loving the work?
         serving others?
         fear of failure?
   3. How to study
      a. how to know when you know it
         aa. familiarity vs. mastery
      b. how to get there
         bb. study methods
C. When taking tests
   1. How to prepare for tests
      a. methods that rob you
         aa. rote memorization
            what the teacher wants
            cramming
            "just enough" method
      b. methods that help you
         bb. classifying information
            explain it back
            visualize information
            study for mastery
            study in groups
            Eat breakfast
D. It takes time
   1. minimum of 1 hour per day just on the technical material
      a. remember, there are other classes
      b. slow readers will take longer
   2. plan now to limit your extra curricular activities
   3. long work hours & study don't mix
E. It takes a clear mind
   1. Those who party typically fail the course
      a. 95%+ of those students who drink regularly fail the course
      b. 100% of those doing drugs fail
   2. If you're partying, you're not getting enough rest to learn
XII. LOGIC AND CRITICAL THINKING
   A. Logic
      1. bringing facts to a conclusion
         a. sort & classify facts
         b. analyze them
         c. draw conclusions
   B. Critical thinking
      1. evaluating your conclusions
         a. ethical
         b. cost effective
         c. safe
         d. impact on others
         e. other options

XIII. GENERAL ED
   A. Things the college expects you to get from your experience here.
      1. General Ed Goals

XIV. TEST

SAFETY

I. Safety
   A. Handout
      1. explain & discuss safety rules
   B. Eye, hand, & foot protection
   C. Accident reporting
      1. how to handle minor & serious injuries
      2. student health services
   D. Tour shops
      1. discuss hazards & safety concerns
   E. Equipment safety procedures
   F. Fire safety procedures
   G. Vehicle safety procedures

II. HAZARDOUS MATERIALS
   A. Right To Know Laws
   B. MSDS Sheets
      1. location
      2. explanation of
   C. Types of materials in the shop
      1. Solvent
      2. Carburetor cleaner
      3. Spray cans
      4. Gasket sealers
      5. Battery acid
      6. Antifreeze
      7. Engine oil
      8. Greases
      9. Carbon Monoxide
     10. Hydrocarbons
     11. Blood
     12. Gasoline & Diesel
D. Handling & dangers of all of the above
E. Handling major spills

III. JACKS AND VEHICLE SUPPORT
A. Proper use of floor jacks
   1. Lifting locations on the vehicle
      a. Damage potential from improper lifting
   2. Vehicle movement while lifting
B. Proper supporting of a raised vehicle
   1. Jack stand locations on a vehicle
   2. Raising and supporting both ends of a vehicle
   3. Review of several dangerous methods of supporting vehicles.
      a. Blocks of wood
      b. Cement blocks
      c. Ramps

IV. TEST

GENERAL SHOP PRACTICES

I. HAND DRILLS & BITS
   NATEF 1. ENGINE REPAIR
   a. General Engine Diagnosis #14 Perform common fastener and thread repair, to include: remove broken bolt, restore internal and external threads, and repair internal threads with thread insert.
   1. Proper use of the hand drill
   2. Selection of drill bits
      a. Drill sizing systems
      b. Importance of sharpness
      c. Grinding of drill bits
   3. Drilling a straight hole
      a. Pilot holes
      b. Alignment aids

II. TAPPING HOLES FOR BOLTS
   A. Determining bolt size and thread pitch
   B. Using charts to select the proper tap drill
   C. Proper use of a thread tap
   D. Thread cutting oils
   E. Tapping a straight thread

III. CUTTING & REPAIRING THREADS
   A. Using dies & thread chasers
   B. Using thread files
   C. Using triangular file

IV. HELI COILS
   A. Types
      a. Solid inserts
      b. Wire inserts
   B. Proper use of Helicoil tools

V. REMOVING FROZEN BOLTS OR NUTS
   A. Penetrating oils
   B. Physical shock to the threads
   C. Heat
VI. REMOVING BROKEN BOLTS
   A. Non-drilling methods
      1. Turning broken piece with a punch
      2. Cutting a screwdriver slot in top of broken piece if protruding.
      3. Welding a nut onto broken piece
      4. Burning the broken piece out with a torch
   B. Determining why the bolt broke
      1. Rusted
      2. Bottomed out in the hole
      3. Overtightened & broken by stretching
   C. Drilling out broken bolts
      1. Selecting proper drill bit
         a. Pilot holes
         b. Special drill bits for hardened bolts
      2. Center punching & drilling in the center of the bolt
      3. Tapping to original size
      4. When to use "easy outs"
         a. Only if it is known the bolt was over tightened & broken by stretching

VII. DOUBLE FLARING TUBING
    NATEF V. BRAKES B. Hydraulic System Diagnosis and Repair
    8. Fabricate brake lines using proper material and flaring procedures (double flare and ISO types).
    A. Using the flaring tools
    B. Using tubing wrenches
    C. Proper way to start a flare nut into a fitting
    D. Tubing Bender

VIII. SOLDERING
      NATEF VI. ELECTRICAL/ELECTRONIC SYSTEMS A. General Electrical System Diagnosis
    17. Perform solder repair of electrical wiring.
      A. Theory of soldering
      B. Metal preparation
         1. Tinning
         2. Types of soldering flux
      C. Soldering with a soldering gun
      D. Soldering with an Iron
      E. Soldering with a torch

IX. FASTENERS
   A. USS & SAE Bolts
      1. Grades of hardness
      2. Size designations
   B. Metric Bolts
      1. Grades of hardness
      2. Size designations
   C. Bolt/nut locking methods
      1. Loctite
      2. Lock washers
      3. Lock nuts
      4. Castle nuts
   D. Machine screws
   E. Sheet metal screws
   F. Self tapping screws
   G. Allen Screws
X. TEST