



A Public Service Agency

Driving School Instructor Lesson Plan

**COURSE CORE TOPICS AND REQUIREMENTS
FOR STATE OF CALIFORNIA,
DEPARTMENT OF MOTOR VEHICLES APPROVED
DRIVER SCHOOL INSTRUCTOR
TRAINING PROGRAM**

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**COURSE CORE TOPICS AND REQUIREMENTS
FOR STATE OF CALIFORNIA
DEPARTMENT OF MOTOR VEHICLES APPROVED
DRIVING SCHOOL INSTRUCTOR TRAINING PROGRAM**

INTRODUCTION

- A. The Driving Instructor Training Course should include a minimum of forty (40) hours of classroom instruction, and 20 hours of laboratory instruction.
- B. All instruction shall not exceed ten (10) hours of instruction per day for each student.
- C. The course shall utilize at least five (5) films or video tapes. All those used must be listed by title and producer (source). The length of each presentation must be shown, along with a short description of its subject matter.
- D. Textbooks should be contemporary.
- E. Each lesson plan submitted for department approval shall provide sufficient detail and content to allow the department to adequately review the course for content, method of instruction, and amount of instruction time. It should be balanced as to provide a good overview of the subject matter pertinent to Driving Instructor Education. Commonly available traffic safety publications may be used as supplemental materials, The bulk of the course should be a program of original composition. It is inappropriate to substitute copied material for the detailed course content.
- F. A lesson plan should contain enough detail to explain WHAT will be covered, WHY it needs be covered, HOW it will be covered, and WHEN it will be covered. The attached lesson plan outline provides the recommended framework, or structure, for your lesson plan. You need to develop the details.
- G. The lesson plan shall either follow the format of this outline or include a detailed index indicating where each topic and sub-topic can be found.
 1. WHAT will be covered is the content of the course and sets forth what is to be taught in sufficient detail for an inexperienced instructor to conduct a thorough class. This information is usually in outline form, but other formats may be used.
 2. WHY is the learning objective for the students. This is easier to understand if stated at the beginning of each segment of instruction.
 3. HOW the material will be covered will enable the department to determine, to some degree, the effectiveness of the course. The intent is to ensure against situations where the student is left to read, with little other direction. The use of a variety of techniques, using a variety of supplemental materials is encouraged. The following are some common ways of covering the material:
 - Lecture (normally the predominant portion)
 - Films and review
 - Student reading and review
 - Tests and review
 - Demonstration or Guest Speaker
 - Discussion
 4. WHEN each topic is covered; indicating the time devoted to each topic.
- E. All topic and sub-topic areas listed on the attached class outline are to be thoroughly discussed.

TIME FRAMES FOR LESSON PLAN

TOPIC AREAS	RECOMMENDED TIME	BEHIND THE WHEEL
I. Qualifications of a Professional Driving Instructor	3 hours	
II. First Aid Relating to Vehicle Accidents	4 hours	
III. Teaching Techniques for Training Drivers	3 hours	2 hours
IV. The Driving Privilege; Licensing and Controls	2 hours	
V. Rules of the Road, and Civil Liability	10 hours	
VI. Motor Vehicle Equipment and Maintenance	3 hours	2 hours
VII. Physical and Mental Capabilities of Drivers	4 hours	
VIII. Physical Laws Affecting the Operation of Vehicles	3 hours	
IX. Student Orientation to Vehicle Features and Controls		14 hours
X. Driving Skills	4 hours	2 hours
XI. Defensive Driving	4 hours	
TOTAL HOURS	40 HOURS	20 HOURS

CLASSROOM LESSON PLAN OUTLINE

I. QUALIFICATIONS OF A PROFESSIONAL DRIVING INSTRUCTOR

A. LEGAL REQUIREMENTS

1. High school diploma or equivalent
2. Complete a training course approved by the department
3. Within three attempts, pass an examination that the department requires on traffic laws, safe driving techniques, operation of motor vehicles, and teaching methods and techniques
4. Be physically able to safely operate a motor vehicle and train others in the safe operation of a motor vehicle
5. Hold a valid California driver's license in a class appropriate for the type of vehicle in which instruction will be given
6. Not be on probation to the department as a negligent operator
7. Have no "failures to appear" on driving record
8. Be 21 years of age or older
9. Pass a medical exam and submit a form DL51

B. NECESSARY TRAITS:

1. Knowledge of traffic laws and safe driving practices
2. Ability to analyze problems
3. Ability to communicate clearly and in a meaningful manner
4. Patience, understanding and compassion
5. Ability to set a good example with a professional approach to driving
6. Knowledge and experience in operating a variety of vehicles
7. The desire to teach
8. Inspirational leadership style
9. Neatness and cleanliness
10. Ability to listen
11. Pleasant demeanor and ability to laugh at oneself
12. Caring about students and letting it show

II. FIRST AID RELATING TO VEHICLE ACCIDENTS

A. ACCIDENT SCENE PROCEDURES AND PRECAUTIONS:

1. If your vehicle is moveable or you are not involved, park well off of road surface.
2. Avoid fallen wires or spilled fuel.
3. If another person is available, the one experienced in first aid should stay and help while the other goes to call emergency services, providing detailed information regarding the nature and location of the accident

4. Use of flares and fire extinguishers
5. Reporting requirements
6. Stopping requirements when not involved

B. FIRST AID:

1. Heart stoppage
2. Obstructed airway
3. Head injuries
4. Shock
5. Burns
6. Bleeding
7. Fractures
8. Heat stroke and exposure to cold

III. TEACHING TECHNIQUES FOR TRAINING DRIVERS

A. CLASSROOM ENVIRONMENT:

1. Adequate space; cramped classrooms produce stress
2. Adequate lighting
3. Stimulating colors and decor
4. Clean air - good ventilation, air conditioning and plants help
5. Comfortable furniture - cushioned chairs along with roomy tables are best
6. Chalkboard
7. Place for students to secure bicycles
8. Free of hazards
9. Clearly stated and understood rules

B. LEARNING THEORY:

1. Comprehension
 - a. Absorption of ideas
 - b. Comprehension of a new idea requires prerequisites; it is built on a foundation of related knowledge
 - c. Needs to be introduced in a vocabulary known to the student
 - d. Requires attention - be aware of students who are distracted or may have an attention deficit or other learning disability
2. Recall
 - a. Comprehension + recall = knowledge
3. Creative thinking (applied knowledge)
 - a. Students apply their knowledge to various driving situations

C. CLASSROOM TECHNIQUES:

1. Discussion
 - a. Open ended
 - b. Raised hand vs. call out
 - c. Rhetorical
 - d. Asking questions to get attention, feedback or for reinforcement
 - e. Responding to student questions
 - f. Reflective listening - re-state student's position in your own words
 - g. Keep discussion on track
 - h. Move on before subject stagnates
2. Lecture
 - a. Broad overview
 - b. Specific issues
 - c. Current events
3. 3. Demonstration
 - a. Visual conceptualization
 - b. Traffic observation
 - c. Hand over hand steering
 - d. Hand and arm signals
4. 4. Guest Speakers
 - a. Law enforcement professionals
 - b. Medical personnel/EMTs
 - c. Mechanics
 - d. Professional Drivers (Bus or taxi drivers, race car or motorcycle drivers)
5. 5. Student reading
 - a. Appropriateness and timing
 - b. Length
 - c. Quizzes on reading
6. Films
 - a. Timing
 - b. Calm down restless students
 - c. Causing excess fatigue after breaks
 - d. Review and/or quizzes

7. Role playing
 - a. Judge and defendant
 - b. Officer and traffic law violator
 - c. DMV examiner and applicant
8. Tests
 - a. True false
 - b. Multiple choice
 - c. Fill-in
 - d. Random vs. planned
9. Group work
 - a. Split class into small groups for discussion of specific issues
 - b. Provides time for each person to express ideas, ask questions, think through
10. Drill
 - a. Mastery of skill through repetition

D. HOW TO BECOME A MORE EFFECTIVE TEACHER:

1. Keep your information fresh
2. Try to relate to the students previous accumulated knowledge
3. Avoid doing students' work for them - guide them
4. Take a sincere interest in each student
5. Be sensitive to subtle changes in attitudes and reactions
 - a. Lack of interest
 - b. Boredom
 - c. Fear and anxiety
 - d. Facial expressions, body language or restlessness
6. Visualize, in advance, how you can be of service to each individual
7. Respect students as worthwhile beings, worthy of attention , respect and love

IV. THE DRIVING PRIVILEGE; LICENSING AND CONTROLS

A. LICENSE TO DRIVE - A PRIVILEGE:

1. What your driver license means to you
2. What your license means to others

B. OPERATING A MOTOR VEHICLE IS A SERIOUS RESPONSIBILITY:

1. Motor vehicle is a weapon
2. Dangerous as a loaded gun, if not operated properly
3. Parking responsibly (to avoid runaways)

C. OBEY THE LITERAL INTERPRETATION OF EVERYDAY LAWS:

1. Why stop completely at stop signs?
2. What does yield really mean?

D. COMMON COURTESY IS A KEY TO SAFETY:

1. Roadway is shared by all drivers
2. Courtesy makes order out of chaos
3. Treat other drivers the way you want to be treated

E. THE IMPORTANCE OF DRIVER EDUCATION:

1. Provides the knowledge, understanding, skills, and attitudes needed for greater safety both as an operator of an automobile and as a pedestrian
2. Lessens the possibility of costly, injurious and sometimes deadly accidents
3. Reduces the cost of policing, property replacement, etc.

F. HISTORY OF THE AUTOMOBILE:

1. Development of the automobile
 - a. Sociological changes caused by the automobile
 - b. Economic conditions created in part by the automobile
2. The automobile and the future

G. PROVISIONAL DRIVER LICENSE:

1. Who must have a license
2. Applications
3. Fees
4. Examination
5. Permit requirements
6. Permit restrictions
7. License requirements
8. License restrictions
9. Keeping your provisional license
10. Student license
11. Non-resident drivers
12. Junior permits

H. LICENSING CONTROL MEASURES:

1. Negligent Operator Tracking System (NOTS)
2. Grounds for probation or suspension of license

V. CALIFORNIA VEHICLE CODE AND RULES OF THE ROAD

A. AUTOMOBILE OWNERSHIP AND REGISTRATION:

1. Automobile ownership (4450, 4456-4464, 4607, CVC)
2. Registration of motor vehicles (4000, 4601, 4602 CVC)
3. Change of address (4159, 4160 CVC)
4. Change of motor (4161-4166 CVC)
5. Display of registration (4454 CVC)
6. Display of license plates (4460, 5200-5203 CVC)

B. TRAFFIC LAWS FOR PEDESTRIANS AND DRIVERS:

1. Pedestrians rights and duties
 - a. Right of way at crosswalk (21950 CVC)
 - b. Vehicles stopped for pedestrians (21951 CVC)
 - c. Right of way on sidewalk (21952 CVC)
 - d. Tunnel or overhead crossing (21953 CVC)
 - e. Crossing at other than crosswalk (21954 CVC)
 - f. Crossing between controlled intersections (21955 CVC)
 - g. Pedestrian on roadway (21956CVC)
 - h. Hitchhiking (21957 CVC)
 - i. Skiing and tobogganing on roadway (21959 CVC)
 - j. Freeways (21960 CVC)
 - k. Local regulation of pedestrians (21961 CVC)
2. Basic laws for drivers
 - a. Speeding (22349-22352, 22362, 22404, 22406, CVC)
 - b. Red means “Stop” (21453 CVC)
 - c. Right of way (21800-21806 CVC)
 - d. Unsafe lane changes (21658(a) CVC)
 - e. Left or U turns (21801 CVC)
 - f. Following too closely (21703 CVC)
 - g. Slow moving vehicles (21654 CVC)
3. Other important laws for drivers
 - a. Signaling (22107-22111 CVC)
 - b. Overtaking and passing (21750-21759 CVC)
 - c. Turning movements into or out of traffic (22100-22105 CVC)
 - d. Stopping, standing or parking (22500, 22502, 22504, 22650, 22654 CVC)

- e. Traffic signs, signals and road markings (21450-21462 CVC)
- f. Stopping at streetcar or bus loading zones (21756 CVC)
- g. Stopping when school buses are loading or unloading (22112, 22454, CVC)
- h. Other special stops (22450-22452 CVC)
- i. Duty to stop, give aid and report accidents (20001-20004, 20006, 20008, 20009 CVC)
- j. Bicycles and motor driven cycles (21960, 25451 CVC)

C. CIVIL LIABILITY AND FINANCIAL RESPONSIBILITY:

- 1. Judgements against license (16250, 16251, 16370, 16371, 16373, 16374 CVC)
- 2. Proof of financial responsibility (16430, 16431, 16433-16435 CVC)
- 3. Failure to report accident to DMV (16002, 16004, 16005, 40833 CVC)
- 4. Suspension of driving privileges (13210, 14601, 16070, 16072 CVC)
- 5. Deposit of security required (16020 CVC)
- 6. Minor's liability imputed to others (17706-17711 CVC)

D. CRIMINAL OFFENSES:

- 1. Negligent operator (12810-12810.5 CVC)
- 2. Misdemeanor and felony violations (42000 CVC)
 - a. Speeding and reckless driving (23103-23105 CVC)
 - b. Drunk Driving (23152, 23153 CVC)
 - c. Drug violations (23152, 23153 CVC)
 - d. Theft and malicious mischief (10851-10853 CVC)
- 3. Suspension and revocation of license by court procedure
 - a. Speeding and reckless driving (13200 CVC)
 - b. Driving while intoxicated (13352 CVC)
 - c. Speed in excess of 100 miles per hour (13200.5 CVC)
 - d. Revocation required (13350, 13351, 13355 CVC)
 - e. Additional grounds for suspension (13201, 13361 CVC)
- 4. Offenses against licensing laws
 - a. Driving with a suspended or revoked license (14601, 42001 CVC)
 - b. Driving by unlicensed minor (12500, 14607 CVC)
 - c. Driving by unlicensed person (12500, 14604, 14607 CVC)
 - d. Misstatement on driver's license application (20 CVC)

VI. MOTOR VEHICLE EQUIPMENT AND MAINTENANCE

A. LEGAL REQUIREMENTS:

1. Brakes (26450, 26451 CVC)
2. Lights (280, 24250, 24251, 24400, 24600-24603, 24950-24953 CVC)
3. Horn (27000-27001 CVC)
4. Muffler (425, 27150 CVC)
5. Fenders and mudguards (27600 CVC)
6. Rearview mirror (26709 CVC)
7. Windshield and wipers (26700, 26701, 26706, 26707 CVC)
8. Seat belts (27302, 27304, 27315 CVC)
9. Smog control devices (27156 CVC)

B. CONSTRUCTION OF THE AUTOMOBILE:

1. Frame
2. Body
3. Engine
4. Steering system
5. Suspension system
6. Electrical system
 - a. Battery
 - b. Alternator
 - c. Starter motor
 - d. Ignition system
 - e. Lighting system
7. Fuel system
 - a. Tank
 - b. Pump
 - c. Filter
 - d. Carburetor/Fuel injection
 - e. Manifold
8. Cooling system
 - a. Radiator
 - b. Water pump
 - c. Fan and belt
 - d. Thermostat
 - e. Hoses and antifreeze

9. Brake system
 - a. Lining and drum/disc
 - b. Master cylinder and wheel cylinders/calipers
 - c. Brake fluid
 - d. Parking

C. SAFETY EQUIPMENT:

1. Lighting - Purpose and use
 - a. High/low beams
 - b. Taillights
 - c. Brake lights
 - d. Back-up lights
 - e. Turn signals
 - f. Emergency flashers
 - g. Hours of use
 - h. Visibility requirements
 - i. Signaling and dimming distances
2. Use of brakes
 - a. Maintaining control with regular vs. anti-lock brakes
 - b. Braking wastes gas - anticipate ahead
 - c. Braking smoothly
3. Windshields and mirrors
 - a. Keep windshields and mirrors clean and obstruction-free at all times
 - b. Ensure mirrors are properly adjusted before starting out
 - c. Keep defroster in good order
 - d. Replace wiper blades each fall
 - e. Do not excessively tint
4. Horn
 - a. Warning device - not to be used casually
 - b. Use to warn oncoming traffic on tight, blind curves
 - c. Audible distance
5. Tires
 - a. Required condition, inflation and tread
 - b. Tire rotation

- c. Effects of under-inflation or over-inflation
 - d. Importance of proper balance and wheel alignment
 - e. Spinning tires on fast starts = poor acceleration, excessive tire wear and possible citation for “exhibition of speed”
 - f. High cornering speeds = excessive tire wear and reduced safety margin for emergency maneuvers
6. Safety belts
- a. Most important thing a person can do to increase safety while in vehicle
 - b. Proper use and positioning
 - c. Child safety seats
 - d. Required for passengers in pick-up beds

D. ECONOMICAL AND SAFE USE OF THE AUTOMOBILE:

- 1. Avoiding fast starts and stops
- 2. Speed, fuel consumption and tire wear
- 3. Anticipating stops, and braking smoothly and gently
- 4. Maintenance costs
- 5. Calculating overall operational costs
 - a. Cost per year
 - b. Cost per mile

E. BUYING, FINANCING AND USING AN AUTOMOBILE:

- 1. Determination of needs and type of vehicle needed
- 2. Price range that is within means
- 3. Best value - new or used car?
- 4. Evaluation of mechanical condition; having car checked by known mechanic
- 5. Registration
- 6. Financing
 - a. Total deferred cost - including interest, service charges, etc.
 - b. Depreciation
 - c. Insurance
- 7. Responsibilities and costs surrounding minor’s use of family car

VII. PHYSICAL AND MENTAL CAPABILITIES OF DRIVERS

A. THE PHYSIOLOGICAL NATURE OF THE DRIVER:

1. The eyes and vision
 - a. Eye physiology
 - b. Visual acuity
 - c. Distance judgment (depth perception)
 - d. Peripheral vision
 - e. Night vision
 - f. Color vision
 - g. Compensation for sub-normal vision
2. The ears and hearing
 - a. Auditory acuity
 - b. Partial deafness
 - c. Total deafness
 - d. Compensation for impaired hearing
3. Other physical conditions that can affect one's ability to safely operate a motor vehicle
 - a. Fatigue
 - b. Illness
 - c. Deformities
 - d. Steadiness
 - e. Muscular condition
 - f. Disqualifying conditions (when applying for a driver's license)
 - 1) Cerebral palsy (depending on severity)
 - 2) Epilepsy (depending on severity)
 - 3) Heart development
 - 4) Paralysis (depending on severity)
 - 5) Insanity
 - 6) Others
4. Effects of carbon monoxide poisoning

B. THE PSYCHOLOGICAL NATURE OF THE DRIVER:

1. Attitudes essential to good driving
 - a. Readiness and motivation
 - b. Analysis of desired habit patterns
 - c. Establishment of habit patterns by repeated performance (practice)
 - d. Maintenance of habit pattern by unvarying performance

2. Causes of behavior variables
 - a. Emotional tension
 - b. Environmental conditions
 - c. Heredity
 - d. Physical conditions
 - e. Training
3. Undesirable traits of a driver
 - a. Aggressiveness
 - b. Egotism
 - c. Emotional instability
 - d. Inattentiveness
 - e. Exhibitionism
 - f. Irresponsibility

C. EFFECTS OF DRUGS AND ALCOHOL:

1. What is alcohol?
 - a. A drug; a depressant that affects the entire nervous system
 - b. Typical drink contains about three fifths of an ounce of alcohol
 - c. The following drinks contain about the same amount of alcohol:
 - 1) One twelve ounce beer that is 5% alcohol
 - 2) One five ounce glass of wine that is 10% alcohol
 - 3) One shot of 80 proof distilled spirits
 - d. When ingested, 5% is absorbed by mouth and through, remainder by digestive system
 - e. Alcohol cannot be stored in tissue
 - 1) Less than 10% is eliminated by kidneys, lungs and skin
 - 2) Two to five percent is passed unchanged by bodily functions
 - 3) The liver eliminates the other 90% by oxidation
2. How alcohol affects driving ability
 - a. Judgment
 - 1) Depth perception
 - 2) Risk taking
 - b. Awareness
 - 1) Impaired drivers tend to stare rather than scan
 - 2) Impaired drivers have difficulty performing more than one task at a time
 - 3) Impaired drivers often forget to turn on lights or dim bright
 - 4) Impaired drivers drive at erratic speeds, make frequent lane changes, miss top signs and commit other blunders

- c. Vision
 - 1) Eyes don't adjust rapidly enough to changing conditions
 - 2) Normal rapid lateral eye movement is impaired (tunnel vision)
- d. Reaction time
 - 1) Reactions to known threats and dangers slowed
 - 2) Process of identifying threats and making quick decisions slowed
 - 3) Basic reflexes slowed
- 3. Alcohol and accidents
 - a. Alcohol is involved in about 40% of all highway accidents
 - b. A young driver with a BAC of only .02 to .05 percent is at least seven times more likely to be killed in an accident than a sober driver
 - c. The same driver with a BAC of 12 % is 90 times more likely to be killed
- 4. Alcohol and the law
 - a. .08% - Adult driver is legally intoxicated
 - b. .05% - Driver can be found to be intoxicated when other factors are taken into account
 - c. .01% - Driver under 21 will lose license for one year
 - d. Implied Consent - As a condition of receiving driver's license, driver gives consent to be tested for alcohol at any time
 - e. Admin Per Se - Immediate loss of license for 90 days if found to be driving intoxicated
 - f. Penalties - first offense
 - 1) Subsequent offenses
- 5. Over the counter drugs (non-prescription)
 - a. Drowsiness from various cold and allergy medications
 - b. Many over the counter cough syrups, etc., contain alcohol
- 6. Prescription drugs
 - a. Narcotics (codeine, Demerol, and other painkillers)
 - b. Depressants (sleeping pills, tranquilizers, and barbiturates)
 - 1) Cause drowsiness, falling asleep uncontrollably, slowed reactions, and poor coordination
 - 2) Medical marijuana
 - c. Stimulants (amphetamines, and diet pills)
 - 1) Cause false sense of well-being, lack of concentration, aggressiveness and impatience
- 7. Illegal Drugs
 - a. Marijuana
 - 1) Causes drowsiness and can distort time and space
 - 2) Slows pupil response to light

- b. Narcotics (heroin)
 - 1) Cause stupor, coma, and sometimes death
 - 2) Slow reaction time, cause visual distortion, and sometimes death
 - c. Stimulants (amphetamines, cocaine, and “pep” pills)
 - 1) Same as prescription stimulants, only higher intensity
 - 2) Can lead to paranoia with continued use
 - d. Hallucinogens (LSD, mescaline, PCP, peyote)
 - 1) Cause hallucinations that can interfere with vision
 - 2) Create a feeling of super strength, causing aggressive behavior
 - e. Synergism (combining of drugs)
 - 1) Combining drugs can result in an intensified effect higher than dosage levels would suggest.
8. Drugs and the law
- a. Drivers can be found to be driving while intoxicated when any amount of illegal drugs are in their blood.
 - b. Drivers can also be found to be driving while intoxicated when it can be shown that their driving was adversely affected by prescription drugs.
9. Avoiding driving while intoxicated
- a. Abstinence - you retain control of your vehicle and your life
 - b. Use public transportation or a taxi
 - c. Appoint a designated driver
 - d. Stay where you are
 - e. Plan ahead, drink responsibly at home. Have friends come to your home and invite them to stay overnight if they over-indulge
10. Avoiding the intoxicated driver
- a. Highest incidence of DUI occurs from 10:00 P.M. to 2:00 P.M.
 - b. Typical behavior of intoxicated drivers:
 - 1) Unreasonably fast or slow speeds
 - 2) Excessive Lane changes
 - 3) Sloppy passing
 - 4) Overshooting or disregarding traffic signals
 - 5) Weaving
 - 6) Failure to turn on or dim headlights
 - c. If necessary, stop for a minute or two to put distance between you and the intoxicated driver.

VIII. PHYSICAL LAWS AFFECTING THE OPERATION OF MOTOR VEHICLES

A. NATURAL LAWS AND DRIVING AN AUTOMOBILE:

- 1. How natural laws affect the movement of an automobile
 - a. Natural laws determine how an automobile may be operated safely
 - b. Natural laws enforce themselves

B. THE FORCE OF GRAVITY:

1. 1. Definition: the force that pulls objects towards the center of the earth
2. 2. Effect of gravity on the movement of automobiles
 - a. Brakes, low gears, and their use to overcome gravity while driving uphill and downhill
 - b. Use of gears, brakes, and wheel blocks or curbs when parking on inclines

C. INERTIA AND ENERGY:

1. Definition of inertia: property in matter, if at rest, causes it to remain at rest, or if in motion, causes it to remain in motion, unless it is acted upon by an outside force
2. Counteracting inertia's effects with seat belts
3. Potential energy
 - a. Definition of potential energy: energy a body possesses because of its position or form
 - b. Example: car parked on a hill (position), or a battery(form)
4. Kinetic Energy
 - a. Definition of kinetic energy: energy a body possesses because of its motion
 - b. Effects of kinetic energy on driving
 - 1) Doubling speed quadruples kinetic energy.
 - 2) The force of gravity decreases the effect of kinetic energy as a car moves uphill.
 - 3) The force of gravity increases the effect of kinetic energy as a car moves downhill.
 - 4) A moving automobile can be stopped by applying the brakes, thus transferring kinetic energy into friction and heat.
 - 5) In a collision, kinetic energy is dissipated into damage and heat.

D. THE FORCE OF FRICTION:

1. Definition of friction: the resistance to movement of one surface over another surface
2. Friction in starting, moving and turning
 - a. Friction between the tires and the road
 - b. Friction of the engaged clutch
3. Friction in stopping
 - a. Between the brake lining and the drum or caliper and disc
 - b. Between the tires and the road
4. Road, brake and tire conditions affecting the amount of friction
5. Excessive wear due to friction
 - a. Tires - traction secured by tire tread and road surface
 - b. Moving parts of automobile other than tires
6. Friction reduction through lubrication

E. CENTRIFUGAL AND CENTRIPETAL FORCE:

1. Centrifugal force (not a real force) is the reaction to the centripetal force (force which keeps an object moving in a straight path) necessary to hold an object at a fixed amount of rotation or turning.
 - a. Means of affecting centrifugal force
 - 1) When cornering, a bicycle leans toward the inside
 - b. Means of affecting centripetal force
 - 1) Reduce speed before entering curve
 - 2) Build banked curves
 - 3) Brake gradually and gently, if braking is needed while cornering

F. FORCE OF IMPACT:

1. Factors determining force of impact
 - a. Kinetic energy; i.e. vehicle and occupant speed and weight
 - b. Vehicle characteristics; body rigidity, and “crush zones”
 - c. Above characteristics as they relate to opposing object

IX. TEACHING DRIVING SKILLS

A. BOULEVARD STOPS:

1. Stop completely at stop lights and signs
2. Stop behind limit line, crosswalk line or boulevard stop sign

B. INTERSECTIONS:

1. Identifying an intersection
 - a. Controlled
 - b. Uncontrolled
2. Skills required for crossing intersections
 - a. Judging maneuvering time, i.e. speed and distance of other vehicles
 - b. Choosing a gap in traffic to enter or cross traffic
 - c. Changing lanes in intersection is legal when safe
 - d. Covering brake pedal
 - e. Scanning for hazards - other vehicles, pedestrians, and bicycles
3. Left turns
 - a. Scan for hazards - other vehicles, pedestrians, and bicycles
 - b. Vehicle position - before and after turn
 - c. When view is blocked
 - d. May turn left into any lane when safe
4. Right turns
 - a. Check for controlled lanes and signals

- b. Scan for hazards - other vehicles, pedestrians, and bicycles
 - c. Vehicle position - before and after turn
 - d. When view is blocked
 - e. May turn right only into right lane
5. U-turns
- a. Scan for hazards other vehicles, pedestrians, and bicycles
 - b. Check for prohibitive signs
 - c. Vehicle position before and after turn
 - d. Business vs. residential district
 - 1) Permitted only at intersections without prohibitions in business district
 - 2) Permitted in the middle of a block if there are no businesses on that block
6. Signaling for turns and stops
- a. Purpose of signaling
 - b. Distance required

C. OTHER CITY DRIVING SKILLS:

- 1. Reducing speed allows more time to:
 - a. See details and identify their meaning
 - b. Analyze information and predict what might happen
 - c. React
 - d. Execute decisions or avoid dangerous situations
- 2. Looking ahead of traffic
 - a. Look ahead for traffic hazards
 - b. Leave enough distance to maneuver
 - c. Look ahead for signal changes
- 3. Covering the brake, not riding it
 - a. For reduced stopping distances
 - b. Situations in which the brake should be covered:
 - 1) Next to parked cars
 - 2) When you see brake lights of other cars
 - 3) Areas frequented by children
 - 4) Approaching signal lights
- 4. City passing
 - a. Passing over center line of travel
 - b. Passing in or near an intersection

5. Lane choice
 - a. Choose a lane appropriate to use
 - b. Choose a less congested lane unless planning to turn
6. Vehicle position
 - a. Keeping up with traffic speed while remaining within legal limits
 - b. Avoid other drivers' blind spots
 - c. Avoid letting other driver drive in your blind spot
 - d. Avoid side-by-side driving
 - e. Avoid driving in bunches or packs
7. Choosing a safe route
 - a. Time of day and traffic density
 - b. Through streets vs. side streets
 - c. One-way streets vs. two-way streets
8. Special problems associated with city traffic
 - a. Parked cars obscuring view of oncoming traffic
 - b. Detours
 - c. Two-way left turn center lane use
 - d. Driving on one-way streets
 - 1) Identifying
 - 2) Entering
 - 3) Speed
 - 4) Lane choice
 - 5) Exiting
 - 6) Dealing with wrong way drivers

D. FREEWAY DRIVING:

1. Planning a route in advance
 - a. Know how to use and read a map when traveling unknown routes
 - b. Guide signs which indicate distance and route direction
 - c. Plan time of travel to avoid unfamiliar and congested traffic situations
2. Entering the freeway using acceleration lanes
 - a. Be familiar with entrance warning signs and observe ramp speed limit
 - b. Check speed of freeway traffic
 - c. Watch vehicle ahead for sudden stops
 - d. Locate a gap in traffic
 - e. Adjust speed for merging onto freeway
 - f. Signal until freeway completely entered

3. Common mistakes made when using acceleration lane
 - a. Sudden slowing or stopping
 - b. Merging at too slow a speed
 - c. Failing to notice car ahead doing the above
4. Entering directly onto freeway - no acceleration lane
 - a. Check for yield or merge signs before entering
 - b. Wait for longer gap before entering
 - c. Accelerate sufficiently to blend into traffic
5. Special situations
 - a. Timed entrance lights
 - b. Double merge lanes
 - c. Diamond lanes
6. Leaving the freeway
 - a. Scan ahead for signs indicating desired exit lane
 - b. What to do if an exit is missed
7. Exit lanes
 - a. Deceleration lanes allow drivers to safely reduce speed
 - b. Yielding to other drivers on multiple deceleration lanes
 - c. Adjusting speed to posted speed limit and/or sharpness of curve
8. Choosing lanes of travel
 - a. Use of right and left lane on two-lane freeway
 - b. Use of right, left and center lanes on multi-lane freeways
 - c. Lane use and merging conflicts when approaching interchanges
9. Speed limits
 - a. Posted maximum speed
 - b. Minimum speed
 - c. Speed for conditions
 - d. Lane use for slower vehicles
10. Establishing and maintaining a safe space cushion
11. Helping other drivers enter or exit
 - a. Merging signs warning of freeway entrance
 - b. Adjusting speed to open up a gap
 - c. Moving into an adjacent lane

12. Freeway emergencies
 - a. Steering around partial blockages
 - b. Stopping
 - 1) Warning drivers to the rear with brake or hazard lights
 - 2) Emergency braking - pumping drum brakes, using threshold braking with disc brakes and slamming on anti-lock brakes
13. Breakdowns
 - a. Pulling to the shoulder whenever possible
 - 1) Signaling
 - 2) Shoulder use vehicle position and hazards of soft shoulders
 - 3) Hazards of soft shoulders
 - 4) Choosing a safe option with a flat tire
14. Re-entering freeway from shoulder
 - a. Signaling
 - b. Accelerating on shoulder
 - c. Entering into an adequate gap in traffic
15. Special freeway problems
 - a. Velocitation - unconsciously going too fast
 - b. Highway hypnosis - avoiding drowsiness
16. Toll booths
 - a. Reduced speed limits
 - b. Distance ahead
 - c. Designated lane for special vehicles

E. DRIVING ON OPEN HIGHWAYS:

1. Areas of Potential Hazards
 - a. Unmarked farm and field driveways
 - b. Livestock crossing areas
 - c. Rough road conditions
 - d. Unmarked shoulders
 - e. Roadside stands or gas stations
2. Other users of the roadway
 - a. Trucks and other slow moving vehicles
 - b. Animals
3. Curves - speed and banking
 - a. Off-camber curves
 - b. Increasing radius curves

4. Hills
 - a. Driving uphill
 - 1) Increasing accelerator pressure to maintain momentum and traffic position
 - 2) Downshifting
 - 3) Starting from a stop on a steep hill with manual and automatic transmission
 - 4) Parking on hills - brakes and wheel position
5. Mountain driving
 - a. Vehicle position
 - b. Speed
 - c. Allowing for other vehicles to pass
6. Special problems at high altitudes
 - a. Loss of power for hillclimbing and passing
 - b. Vapor lock and overheating
7. Meeting or approaching other vehicles on open roadways
 - a. Meeting lines of cars
 - b. Meeting at hilltops
 - c. Meeting on road with room for only one car
 - d. Meeting at night
 - e. Meeting slow-moving vehicles
8. Road conditions
 - a. Rough roads
 - b. Traction
 - c. Width of road
 - d. Field of view
 - e. Line of sight

F. PASSING:

1. Demands of proper passing
 - a. Good judgment
 - b. Rapid decision making
 - c. Knowledge of your vehicle's performance abilities
2. When passing is authorized or prohibited
 - a. Passing lanes
 - b. Pavement markings
 - c. Passing on right

3. Special situations
 - a. Without sufficient clearance
 - b. On a hill
 - c. Intersections or railroad crossings
 - d. School bus
 - e. Bridges or abutments
4. Dangerous passing situations
 - a. Long line of cars ahead
 - b. Intention to stop or turn
 - c. Oncoming car too close
 - d. Car ahead is at or near speed limit
 - e. Maneuver cannot be completed before reaching a no-passing zone
5. Assessing passing potential
 - a. Passing maneuver times
 - b. Identifying a safe distance ahead
 - c. Identify an end-of-pass gap to pull back into lane
 - d. Establish a safe response for hazards
 - e. Checking for road traffic
6. Steps for successful passing
 - a. Scan for hazards
 - 1) Oncoming vehicles
 - 2) Vehicles approaching from rear
 - 3) Merging vehicles
 - b. Check for blind spots
 - c. Signal intent
 - d. Warn the driver ahead
 - e. Obtain a speed advantage
 - f. Re-check conditions ahead
 - g. Create a return space
 - h. Signal return
7. When being passed
 - a. Maintain speed
 - b. Yield if required

G. NIGHT DRIVING:

1. 1. Hazards
 - a. Reduced visibility
 - 1) Reduced sight distances
 - 2) Glare problems and recovery from glare
 - b. Increased reaction time
 - 1) Influence of fatigue
 - 2) Other conditions
 - c. Emotional problems following athletic events, parties, congested traffic
 - d. Overdriving headlights
2. 2. Compensating for hazardous night driving conditions
 - a. Reduce speed
 - b. Look to right of headlights of oncoming vehicles
 - c. Use low beam as automobiles approach
 - d. Avoid illuminating inside of vehicle with dome light, matches, etc.
 - e. Keep windshield clean inside and out
 - f. Keep lights clean
 - g. Use low beams when following another car
 - h. Use sun visor or clear polarized glasses for glare
 - i. Use measures to reduce fatigue
 - 1) Stop in a safe place and rest
 - 2) Leave automobile and exercise
 - 3) Provide adequate ventilation
 - 4) Abstain from drugs and alcohol

H. HAZARDOUS CONDITIONS:

1. 1. Driving in the fog
 - a. Obtaining maximum visibility
 - 1) Appropriate use of headlights
 - 2) Mounting and use of fog lights
 - 3) Windshield wipers and defrosters
 - b. Reduce speed, but keep moving when entering a fog bank
 - c. Watch for slow moving vehicles ahead
 - d. Look in the rearview mirror for vehicles approaching from rear
 - e. Listen for traffic you cannot see
 - f. Avoid crossing roadways or passing long lines of cars
 - g. Keep windshield, headlights and taillights clean

- h. Consider postponing driving until conditions clear
- i. When your vehicle stalls in the fog
 - 1) Move off roadway as quickly as possible
 - 2) Move away from vehicle
 - 3) Judicious use of flashers or flares (Cars tend to drive toward red light in the fog)
- 2. Driving in the rain
 - a. Obtain maximum visibility with headlights and windshield wipers
 - b. Keep below dry road speed
 - c. Decrease speed when entering curve
 - d. Avoid using brakes while in the curve
 - e. Stay on paved portion of roadway
 - f. Drive in tracks of car ahead while continuing to scan ahead
 - g. Allow more of a space cushion
 - h. Avoid sudden turning or braking
 - i. Going through deep water
 - 1) Avoid splashing water into engine compartment by proceeding slowly
 - 2) Do not proceed through strong currents that may reach bottom of car
 - j. Hydroplaning
 - 1) A product of vehicle weight, speed , tire width and tread depth
 - 2) Regain control by taking foot off accelerator - do not brake
- 3. Driving in snow and ice
 - a. Obtain maximum visibility headlights, windshield wipers and defroster
 - b. Reduce speed in corners and shaded areas (black ice)
 - c. Maintain more of a space cushion
 - d. Watch for areas where ice collects
 - e. Avoid turning or braking suddenly or sharply
 - f. Do not downshift at too fast a speed, causing a rear end skid
 - g. When to use chains
- 4. How to stop skidding
 - a. Avoid using brakes
 - b. Look in your intended direction
 - c. Avoid oversteering - keep front tires in line with intended path
 - d. Keep clutch engaged
 - e. Lift foot from accelerator gradually
 - f. If possible, teach student skid control in large wet parking lot

5. How to rock out
 - a. Shift slowly into low gear, move gently forward until wheels spin
 - b. Shift rapidly into reverse, back until wheels spin
 - c. Shift back into low gear
 - d. Repeat as necessary
6. Mechanical failure
7. Benefits of driving smoothly when starting, stopping and cornering
 - a. Avoid “jackrabbit” starts
 - 1) Saves fuel, tires and excess mechanical wear
 - 2) Provides driver and passengers with a smooth ride
 - b. Stopping smoothly
 - 1) Begin and end application of brake pedal gradually
 - 2) Anticipate stops and slow down as much as possible without braking. Any unnecessary application of brakes is a waste of fuel, brakes and tires
 - 3) Smooth stopping prevent object in the interior from becoming projectiles
 - c. Smooth cornering
 - 1) Saves tire wear
 - 2) Leaves a safety margin for negotiating obstacles
 - 3) Turn steering wheel gradually while entering and exiting curves
 - d. Smooth starting, stopping and cornering promotes a mind set of safe, dignified driving. Professional drivers from chauffeurs to race drivers practice smooth driving techniques

X. DEFENSIVE DRIVING

A. SCANNING (SMITH SYSTEM OF DRIVING):

1. Scan ahead as much as ten seconds for:
 - a. Problems on the road
 - 1) Slow or stopped vehicles
 - 2) Accidents
 - 3) Construction areas
 - 4) Pedestrians and bicyclists
 - 5) Farm equipment
 - 6) Animals
2. Potential problems alongside the road
 - a. Children playing
 - b. Side streets, parking lots and driveways
 - c. Lawn sprinklers or overwatering causing wet road surface
 - d. Pedestrians or bicycles on sidewalks that may cross into your path

e. Roadside distractions that may cause other drivers to brake

3. Escape routes if problems occur

B. SIPDE; SEARCH, IDENTIFY, PREDICT, DECIDE AND EXECUTE:

1. Search or scan ahead for problems as listed above

2. Identify specific potential problems

3. Predict possible movements

4. Decide what action is necessary to avoid problem

a. Slow down

b. Stop

c. Choose a different route

d. Steer around

5. Execute or carry out decision smoothly and safely

C. COLLISION AVOIDANCE:

1. Defensive driving techniques

a. Be alert

b. Don't make assumptions about other drivers' intentions

c. Know skid control techniques described above in "Driving in Hazardous Conditions"

d. Three second rule

1) Always allow at least three seconds of travel time between your vehicle and the car ahead, more in rain or snow.

2) Escape techniques and scanning

3) Effective use of horn

4) Be flexible in setting appropriate speed for conditions

2. Distracted driving

a. Cell phones

1) Phone calls

2) Text messages

3) GPS and other navigation applications

4) Use of other phone applications

b. Passengers

c. Grooming

d. Other distractions

3. Avoiding a collision with the car ahead

a. Importance of vehicle lane placement

b. When to increase following distance to more than three seconds

1) When being tailgated

2) When vision is blocked or visibility is poor

- 3) When speed is increased
- 4) When adverse roadway, traffic, or weather conditions exist
- c. Momentary distractions - pick a safe time to look away
 - 1) Check the situation ahead
 - 2) Take short looks
 - 3) Have a passenger help with navigation and other non-driving chores
- d. Look ahead for trouble
 - 1) Look over and around the car ahead
 - 2) Check ahead for proper speed on hilltops and curves
 - 3) Watch brake lights in your and adjacent lanes
 - 4) Start braking early
- e. Locations to watch for trouble
 - 1) Traffic controlled intersections
 - 2) Approaching crosswalks
 - 3) Lanes next to parked cars
 - 4) Parking lot entrances
 - 5) Other interchanges where cars enter and leave
 - 6) Slippery or ice covered streets
 - 7) Where children are at play
4. Avoiding being rear-ended by another vehicle
 - a. Increase the following distances from vehicles ahead
 - b. Signal early for turns, stops, and lane changes
 - c. Brake smoothly and gradually
 - d. Keep pace with traffic when legal and safe
 - e. Check mirrors for following distances of other vehicles
 - f. Before changing lanes, check direction of travel
 - g. After stopping, keep brake pedal depressed
 - h. Keep rear lights clean and functioning
5. How to choose an alternate path of travel as an escape route
 - a. Importance of maintaining adequate visual lead
 - b. Positioning the vehicle laterally
 - 1) Select speed speeds which position vehicle between clusters of cars
 - 2) Select a safe lane position within traffic clusters
 - c. Avoiding multiple hazards
 - 1) Identify hazards early
 - 2) Predict potential hazards
 - 3) Adjust speed and position to avoid potential hazards
 - 4) Anticipate and plan escape routes

D. PROCEDURES WHEN INVOLVED IN AN ACCIDENT:

1. Stopping requirements
 - a. Victims at the scene
 - b. Property damage - unable to locate owner
 - c. Duty to stop and help when not involved
2. Aid to the injured
 - a. Sending for help
 - b. When to move an injured person (see section on first aid)
3. Preventing further damage
 - a. Reducing chances of fire
 - b. Warning oncoming vehicles
4. Reporting requirements
 - a. When a report must be filed
 - b. Use of reports
5. Exchanging information
 - a. Identifying information
 - b. Noting damage and injury
6. Additional steps
 - a. Obtain names and addresses of other witnesses
 - b. Give accurate facts to police
 - c. Seek medical attention

E. LARGE TRUCKS AND RECREATIONAL VEHICLES:

1. Never drive a large truck or recreational vehicle without proper training
 - a. License requirements for drivers of large vehicles
2. Sharing the road with large trucks
 - a. Remember that large trucks have very long braking distances
 - 1) Don't pull out in front of a large truck unless you can accelerate safely to its speed before it reaches you.
 - 2) Don't cut in front of large trucks or create other situations where they end up following you too close.
 - 3) Never pull along the right side of a large truck that is in the right lane at an intersection.
 - 4) Trucks have large blind spots - stay out of them.

F. SCHOOL BUSES:

1. Flashing red lights mean both directions of traffic must stop at a safe distance away from the school bus and remain stopped until lights stop flashing.
2. Always obey hand signals or other instructions of school bus drivers.

3. Be as courteous as possible to school buses and give them the right of way whenever possible.
4. Do not pull out in front of school buses or otherwise cause them to maneuver abruptly.
5. Be very cautious around stopped school buses, even if the red lights are not flashing. Assume that a child might dart in front of you..
6. Treat school bus stops as school zones, drive 25 M.P.H. or less if children are present.

G. PEDESTRIAN SAFETY - AS A PEDESTRIAN

1. Pedestrian/bicycle accidents are #1 cause of death for ages 8-14.
2. Safety at intersections with traffic signals
 - a. Obey all signals
 - b. Check for vehicles failing to stop
 - c. Never forcibly claim right of way
3. Safety at intersections with stop signs
 - a. Make sure you are seen by drivers before crossing.
 - b. Don't assume others will stop when one car has stopped.
4. Cross only at intersections - don't jaywalk
5. Walk facing traffic
6. Wear bright and/or reflective clothing
7. Don't wear headphones
8. Don't walk on railroad tracks

H. PEDESTRIAN SAFETY - AS A DRIVER:

1. Always yield right of way to pedestrians, regardless of who's right.
2. Watch for pedestrians near:
 - a. Crosswalks
 - b. Schools
 - c. Buses
 - d. Schoolhouses (Must stop when red lights are flashing)
 - e. Parked cars
3. Stop behind limit line, don't block crosswalks.
4. Use special care when backing.
5. Don't drive in bike lanes, except where permitted.

I. BICYCLE SAFETY:

1. For bicyclists
 - a. Wear high visibility clothing.
 - b. Obey all laws the same as cars.

- c. Wear a proper fitting helmet.
 - d. Avoid loose fitting pants.
 - e. Use proper lighting at night.
 - f. Don't "claim" your right of way.
 - g. Beware of parked cars opening doors.
 - h. Beware of cars turning right.
 - i. Stay as far to right as possible - do not ride side by side.
2. For motorists
 - a. Treat bicyclists the same as cars - they have the same rights.
 - b. Stay out of bicycle lanes, except when lane is dotted for making turns.
 - c. Beware of bicyclists when opening car door.

J. AVOIDING COLLISIONS WITH ANIMALS:

1. Vehicle damage, and human injury from larger animals
2. Animals most active an dusk and dawn
3. Don't jeopardize vehicle control when avoiding animals.

K. SHARING THE ROAD WITH MOTORCYCLES

1. Motorcycles are harder to see
 - a. Be aware of blind spots around your car.
 - b. Motorcycles can be easily obscured by other traffic.
2. Motorcycles are harder to steer in emergencies, and are committed to their previously chosen path.
3. Be aware that cyclists must make a more major adjustment in speed when:
 - a. Encountering a storm drain, gravel surface, or pothole
 - b. Driving on a rain slick road or through a puddle
 - c. Rain and/or wind is strong
4. Be on the watch for careless motorcyclists. Even if it isn't your fault, hitting a motorcyclist usually results in injury.
5. Beware of motorcyclists "splitting" lanes.

L. RIDING A MOTORCYCLE

1. Wear proper, lightly colored riding apparel, including:
 - a. Proper fitting helmet
 - b. Heavy jacket (preferably leather), and gloves
 - c. Leather boots that cover ankles
2. Pre-ride inspection
 - a. Tires should have good tread and not be dried out and/or cracked.
 - b. Rims and spokes should be in good condition.

- c. Check brakes, clutch and associated controls and cables.
 - d. Check for gas or oil leaks which can blow onto back tire and cause a skid.
 - e. Chain should have about one inch of play and be properly lubricated.
 - f. Horn, headlight, and turn signals should all be checked.
3. Ride defensively
 - a. Don't expect to be seen.
 - b. Be aware of the road surface at all times, especially when cornering.
 - c. Use the front and rear brakes for everything but leisurely stops.
 - d. When in traffic, follow the path of left rear wheel of the car ahead.
 - e. Allow for sluggish handling when carrying a passenger.
 4. Riding as a passenger on a motorcycle
 - a. Insist on a proper fitting helmet.
 - b. If possible, follow guidelines above on apparel.
 - c. Lean with the driver in turns.
 - d. Keep your feet on the passenger pegs at all times.

BEHIND THE WHEEL

XI. TEACHING TECHNIQUES FOR TRAINING DRIVERS

A. INSTRUCTION TECHNIQUES

1. Running commentary
2. Silent solo
3. Building student confidence
4. Remaining calm
5. Use of second steering wheel and/or brake
 - a. Techniques for recovering vehicle control in emergencies, when student driving improperly or does not respond to commands
 - b. Checking out of new instructor by experienced instructor and/ or owner
 - c. Sexual harassment
 - d. Customer service and courtesy begins when you open the door

XII. MOTOR VEHICLE EQUIPMENT AND MAINTENANCE

A. MAINTENANCE OF THE AUTOMOBILE

1. Inspect tires for inflation, wear, or damage

2. Electrical system
 - a. Electrolyte level in battery
 - b. Alternator belt
 - c. Lights; operation and adjustment
 - d. Windshield wipers; condition and function
3. Fuel system
 - a. Lines, pump, carburetor, and tank free of leaks
 - b. Tank secure and cap always in place and in good condition
4. Gauges and instruments - proper operation; speedometer, high beam indicator, turn signal indicator, gear shift position indicator, oil pressure gauge, ammeter, fuel gauge, and engine temperature indicator
5. Lighting, heat ,and ventilation controls
6. Safety aids
 - a. Flares
 - b. First aid kit
 - c. Fire extinguisher
 - d. Basic tools
 - e. Flashlight
 - f. Tire chains
7. Periodic lubrication and oil changes
8. Brake maintenance
 - a. Inspection at least twice a year
 - b. Replace brake linings as indicated by inspection , squeaking or fading
 - c. Inspection of rubber hoses, lines, fittings, and hydraulic cylinders for leaks
9. Engine tune-ups and transmission service as recommended
10. Shock absorber/strut operation and security of mounting
11. Exhaust system - inspect for security and leakage
12. Cooling system - inspection
 - a. Leaks, fluid level
 - b. Fluid condition
 - c. Fan belts
 - d. Water pump bearing
13. Steering and wheel alignment inspection/service
14. Ensure smog control devices are intact and connected properly

XIII. STUDENT ORIENTATION TO VEHICLE FEATURES, CONTROLS, AND OPERATION

A. BEFORE ENTERING AUTOMOBILE:

1. Check tires for proper inflation and tread wear
2. Ensure path to rear of vehicle is clear of obstacles if planning to back up
3. Check traffic if entering vehicle on traffic side

B. AFTER ENTERING AUTOMOBILE:

1. Close and lock doors
2. Adjust seat and headrest
3. Adjust and fasten seat belts
4. Adjust mirrors
5. Check brake pedal pressure
6. Check windshield and windows for unobstructed view and correct ventilation

C. STARTING THE ENGINE:

1. Check parking brake for set position
2. Press down clutch pedal if manual shift
3. Shift into park or neutral position
4. Activate starter with ignition switch
5. Do not “rev” engine while cold

D. AFTER STARTING ENGINE:

1. Check instrument panel
 - a. Oil pressure gauge
 - b. Fuel level
 - c. High beam indicator
 - d. Battery charging indicator or light (ammeter)
 - e. Speedometer/odometer
 - f. Tachometer
 - g. Water temperature gauge
 - h. Seat belt buzzer or light
 - i. Door ajar buzzer or light
 - j. Forgotten key buzzer
2. Lights and switches
 - a. Headlights/parking lights
 - b. High and low beam actuator

- c. Dash board light dimmer
 - d. Windshield wipers
 - e. Turn signals
 - f. Dome light/map light
 - g. Emergency flashers
 - h. Horn and its appropriate use
3. Clutch use
- a. Friction point
 - b. Use of hand brake in conjunction with clutch on hills
4. Automatic transmission
- a. Park
 - b. Reverse
 - c. Neutral
 - d. Drive
 - e. Lower gears and their use uphill and downhill
 - f. Overdrive
5. Heater/defroster and air conditioner
- a. Use of controls with enough familiarity to keep eyes on road
 - b. Heater
 - c. Defroster (front and rear)
 - d. Vent
 - e. Fan speeds
 - f. Automatic climate control

E. MOVING THE AUTOMOBILE FORWARD:

1. Automatic transmission
- a. Press down brake pedal
 - b. Place selector in drive
 - c. Release parking brake
 - d. Give appropriate turn or hand signal if moving out into traffic
 - e. Use of correct hand position on steering wheel (usually 10 and 2 o'clock)
 - f. Check traffic by looking over shoulder
 - g. Release foot brake and gently depress accelerator
 - h. Smoothly accelerate to appropriate road speed

2. Manual shift
 - a. Starting in low gear
 - 1) Press down clutch and brake pedals
 - 2) Shift gear lever to low position, keeping left hand at 12 o'clock on wheel
 - 3) Release parking brake
 - 4) Give appropriate signal
 - 5) Use correct hand position on steering wheel (10 and 2 o'clock)
 - 6) Check traffic by looking over shoulder
 - 7) Let clutch up slowly until friction point is felt
 - 8) Release brake pedal and continue beyond friction point while gently depressing accelerator pedal, keeping engine speed at a minimum
 - 9) Accelerate as necessary
 - 10) Keep attention on road while shifting gears
 - b. Shifting gears
 - 1) Accelerate in low gear to appropriate speed
 - 2) Press down clutch pedal while simultaneously releasing accelerator
 - 3) Shift lever into second gear while keeping left hand at 12 o'clock on wheel
 - 4) Smoothly let up clutch while gently depressing accelerator to appropriate engine speed
 - 5) Accelerate as necessary
 - 6) Repeat on up through gears
 - c. Downshifting
 - 1) Press down clutch
 - 2) Match engine speed to level necessary
 - 3) release clutch
 - 4) Accelerate or decelerate as necessary

F. STOPPING THE AUTOMOBILE:

1. Automatic transmission
 - a. Check traffic using mirrors
 - b. Give proper arm signal if necessary
 - c. Move to proper stopping position, checking blind spot over shoulder before moving right
 - d. Release accelerator and gradually apply pressure to brake pedal
 - e. Release pressure slightly on brake pedal just before stop is completed
 - f. Maintain pressure on brake pedal to avoid creeping
 - g. Set parking brake
 - h. Move gear selector to park
 - i. Turn off ignition switch
2. Manual transmission, in second or low gear
 - a. Check traffic using mirrors

- b. Give arm signal if necessary
 - c. Move to proper stopping position, checking blind spot over shoulder before moving right
 - d. Press down clutch pedal
 - e. Press down brake pedal
 - f. Release pressure slightly on brake pedal just before coming to stop
 - g. Set parking brake
 - h. Shift lever to neutral position
 - i. Turn ignition switch to off or lock position
 - j. Place in appropriate gear
 - k. Remove key
3. Manual transmission in high gear
 - a. Same as stopping in low or second, with following exceptions:
 - 1) Brake to about 10 m.p.h.
 - 2) Press down clutch and come to complete stop

G. MOVING AND STOPPING AUTOMOBILE IN REVERSE:

1. Same transmission and braking control techniques except:
 - a. Place shifter in reverse
 - b. Unless vehicle was just stopped, walk to rear of vehicle to check for obstacles
 - c. Look over right shoulder while moving in reverse
 - d. Use brake pedal to control speed with automatic transmission

H. PREPARING TO EXIT VEHICLE:

1. Place shifter in park or neutral if manual shift
2. Set parking brake
3. Turn wheels as appropriate
4. Turn off all accessories
5. Close windows
6. Turn off ignition
7. Remove seat belt
8. Unlock doors
9. Check for oncoming vehicles, motorcycles, bicycles, skateboards, etc
10. Open door the minimum necessary
11. Step out
12. Lock doors
13. Get out of traffic lane quickly

XIV. DRIVING SKILLS

A. PARKING TECHNIQUES:

1. Pre-parking exercise
 - a. Place seven stations in a straight line, twenty-five feet apart
 - b. Drive forward in and out among the poles, turning about four feet outside each pole for clearance.
 - c. Drive in reverse through the same pattern, turning to bring the rear of the car as close to the poles as possible.
2. Parking at an angle - entering space
 - a. Approach rear bumper of parked automobile, allowing clearance of about five feet
 - b. Check rear traffic
 - c. If necessary, give arm signal to stop
 - d. Turn into parking space when windshield comes in line with an imaginary extension of first line of the parking space
 - e. Center automobile in parking space while moving slowly forward toward curb (manual shift - press down clutch)
 - f. Stop just short of curb
3. Parking at an angle - leaving space
 - a. Use standard starting procedure
 - b. Sit in backing position and shift into reverse with foot on brake (manual shift - engage clutch to friction point) and release hand brake
 - c. While backing the automobile, maintain control through slow operation, giving primary attention to approaching traffic
 - d. Enter traffic lane, when safe, by turning steering wheel to the right
 - e. Obtain sufficient clearance, stop automobile, shift, and move forward into right lane of traffic
4. Parking parallel - entering space
 - a. Check traffic ahead and to the rear
 - b. If necessary, give arm signal to stop
 - c. Stop parallel to automobile in front of parking space, allowing two feet between automobiles
 - d. Shift into reverse gear
 - e. After traffic check, back slowly with right foot on brake (manual shift - clutch near friction point) while looking out rear window
 - f. Quickly turn steering wheel to right as automobile moves back slowly
 - g. Straighten wheels by turning quickly to left when automobile is at a 45 degree angle to curb
 - h. Continue to turn steering wheel to left as front right corner of automobile clears rear of car in front

- i. Begin to straighten out front wheels before stopping
 - j. Stop before striking curb or the parked automobile to the rear
 - k. Drive forward; straighten and center the automobile in the parking space.
5. Parking parallel - leaving space
- a. Use standard starting procedure
 - b. Back up as far as possible without touching car to rear, turning steering wheel to left just before stopping
 - c. Shift, check traffic, signal properly and move out into traffic lane

