

SAN MATEO COUNTY SHERIFF'S OFFICE

Driver Training Update

EXPANDED COURSE OUTLINE

- I. Introduction/Orientation
 - A. Introduction, registration and orientation
 - B. Course objectives and overview of exercises, evaluation and testing

- II. Vehicle Dynamics II(g)
 - A. Kinetic energy
 - 1. Formula for computing kinetic energy
 - 2. Braking converts kinetic energy to heat

 - B. Momentum
 - 1. A body in motion tends to remain in motion, in a straight line and at a constant speed, unless acted upon by an external unbalanced force
 - 2. Cars are under the least amount of stress when running in a straight line
 - 3. Even a car out of control tends to go in a straight line, rotating on its own axis

 - C. Centrifugal force and centripetal force
 - 1. Centrifugal force – center fleeing
 - 2. Centripetal force – center seeking

 - D. Turning radius
 - 1. Centrifugal force affects turning radius
 - 2. Turning radius is decreased as speed is decreased, even though steering input is the same
 - 3. Turning radius is increased as speed is increased

 - E. Rolling friction - front wheels must be rolling in order to steer

- F. Anti-lock braking system
 - 1. The feature prevents wheel lockup
 - 2. View CHP video outlining ABS system in the Ford Crown Victoria

- G. Weight transfer, cause and effect
 - 1. Weight distributed between front and rear wheels
 - 2. Engine location has greater part of weight distribution
 - 3. Types of weight transfer
 - a. Lateral: side to side
 - b. Longitudinal: front to rear/rear to front
 - 4. Lateral transfer created when vehicle turned left/right
 - 5. Longitudinal transfer created when:
 - a. Backing – rear/front
 - b. Accelerating – front/rear
 - c. Decelerating – rear/front
 - 6. Can't be eliminated in a moving vehicle
 - 7. Minimized by good driving techniques and smooth operation

- H. Over steer/under steer
 - 1. Over steer caused by too much weight on front wheels in a turn
 - a. Results in loss of traction to rear wheels causing vehicle to slide toward outside of turn
 - b. Correction to counter steer in direction of skid and balance weight by getting off the brakes and applying the throttle
 - c. Under steer is caused by too much weight on rear wheels when entering a turn too fast
 - d. Results in a loss of traction to the front tires, causing the vehicle to continue in a straight path
 - e. Correction to under steer is to smoothly decelerate, transferring weight to the front
 - 2. Counter steer
 - a. The front tires of most vehicles turn approximately 20 degrees
 - b. If the rear of the car skids beyond 20 degrees, efforts to regain steering control will be futile

- I. Cornering techniques
 - 1. The most important considerations in high speed cornering are:
 - a. Roadway position
 - b. Entry speed
 - c. Entry point (high)
 - d. Apex
 - e. Exit point (high)
 - 2. Roadway position
 - a. Vehicle should be driven through the turn in a line, which will make the best use of the available roadway
 - b. Minimizes the stress on the vehicle and enables the driver to accelerate as early as possible
 - c. Braking is done in a straight line
 - d. Turning is done at the lowest speed
 - e. Acceleration is done as stress is released
 - f. The car is under the least amount of stress when running in a straight line
 - g. Turns should always be entered at a speed, which is less than maximum

III. Defensive Driving

II (c)

- A. Definition of defensive driving
 - 1. One who drives in such a way that he avoids collisions, regardless of the "other guy's" faults or disregard for traffic laws
 - 2. Defensive driving is a constant awareness of potential hazards, coupled with the ability to deal with them as they occur
- B. Three basic rules of defensive driving
 - 1. Identify the hazard
 - 2. Know the defense
 - 3. Take the proper evasive actions
- C. Stopping and reaction distance
 - 1. Normal reaction time is $\frac{3}{4}$ second
 - 2. Three second rule for following distance
 - a. Computing reaction distance - take the first digit of the speed and add it to the total speed figure

- b. Total braking distance - reaction distance is always part of the total stopping distance
- c. Converting MPH into feet per second - take half your speed and add it to the total speed to get feet per second

D. Intersections II (d)

- 1. Intersections are to change directions - 16 possible directions
- 2. Avoiding the intersection hazard
 - a. Slow down at intersections
 - b. Change displacement of vehicle
 - c. If any question as to right of way, take the defense, wait until other driver commits himself
 - d. Clear intersections to the left and the right
 - e. Don't turn wheel until ready to turn

E. Space cushion

- 1. Definition: This is the area around your car, to the front, rear and side
- 2. Five keys to space cushion driving
 - a. Aim high in steering (high visual horizon)
 - b. Get the big picture
 - c. Keep your eyes moving
 - d. Leave yourself an out
 - e. Make sure they see you

F. Head on collisions

- 1. How to avoid collisions
 - a. Watch for pedestrians or bikes on the roadway where you or approaching vehicles will have to "crowd" or cross the center line
 - b. Watch for the frustrated passer in a long string of vehicles
 - c. Vehicle riding the center line, looking around other vehicles
 - d. Be ready to pull to the right and slow down - a glancing strike is better than a full head on crash

G. Backing II (e)

- 1. Backing accidents are the most common in law enforcement

2. Most people look over one shoulder and maybe the other mirror
3. Look over both shoulders and don't rely on the mirrors
4. Walk around the back of the car before backing

H. Preventable accidents

1. Definition: A preventable accident is one in which you failed to do everything possible to avoid it.

I. Tracking

1. When turning left/right the rear wheels track inside or left/right of the front tires, this is known as rear end cheat
2. You must allow extra room for the rear wheels to clear an object

J. Maneuvering course exercises

II (a,b,c,d,e, g)

1. Offset Lane exercise (accident avoidance)
2. Slalom exercise
3. "S" backing exercise
4. Chicane exercise
5. Parallel parking exercise
6. Key hole exercise
7. Offset backing exercise
8. Threshold braking / fast backing exercise
9. Diagonal parking exercise
10. Displacement exercise
11. Bootleg turn exercise
12. Offset slalom exercise
13. Rules of the road – lecture on the track

IV. Legal and Moral Aspects

II (f)

A. California Vehicle Codes

1. 17001 CVC
2. 17004 CVC
3. 17004.7 CVC
4. 21052 CVC
5. 21055 CVC
6. 21056 CVC

7. 21086 CVC
8. 21807 CVC

B. Case law

1. Stark v. City of Los Angeles, 168 Cal. App. Ed 276 (1985)
2. Brower v. Inyo County, 489 U.S. 598 (1989)
3. Kishida v. State of California, 229 Cal. App. 3d 329 (1991)
4. Berman v. City of Daly City, 21 Cal. App. 4th 276 (1993)
5. Ketchum v. State of California, 62 Cal. App 4th 957 (1998)

C. Agency policy

1. When a pursuit may be initiated
2. Initiating, continuing and terminating a pursuit
3. Radio procedures and communications coordination
4. Supervisor's responsibility
5. Pursuits into allied agencies
6. Motor units, unmarked units and aircraft
7. Blocking roadways
8. Termination of pursuit by arrest and reporting

D. Moral aspects

1. Moral obligations versus legal obligations
2. Preservation of human life
3. Professional discretion to begin a pursuit

V. Vehicle Pursuits

A. Definition of pursuits:

1. Vehicle Code section 17001
2. Vehicle Code section 17004
3. Vehicle Code section 17004.7
4. Vehicle Code section 21055
5. Vehicle Code section 21056
6. Vehicle Code section 21806

VI. Simulated Pursuit

II (h,j)

A. Brief on code 3 pursuit

1. Rules of the road
2. Pursuit demonstration
3. Pursuit begins – practical skills test
 - a. Students failing the practical test will be provided with remediation and will be allowed to take the practical skills test over
 - b. A passing grade is awarded when the student demonstrates proper driving techniques, respect for the rules of the road, and proper discipline with regard to the safety of other vehicles on the road
 - c. Failure to pass the practical skills pursuit remediation test will result in a course failure
 - d. The student can remediate the course at the next available Driver Training Update course
4. Code 3 debrief
5. Final examination
 - a. Written examination in the classroom
 - b. Written examination is pass/fail
 - c. Remediation will be provided if the student fails the test and the student will be allowed to retake the written examination until he/she passes with a minimum score of 70%
6. Student evaluations