

Module 3: Man, Machine & Environment Review

Summary of Module 3:

- This module addressed cause and effects factors of driving including crash dynamics, safety equipment and crash prevention strategies.
- Braking, steering and accelerating are the three most important driver actions that affect the direction and velocity of a motor vehicle.
- The force of impact is the relationship between the weight of the vehicle and the speed that the vehicle travels, the force of impact increases with vehicle speed and vehicle weight.
- There are actually two impacts that happen in a crash, the impact of the car with the object and the impact of the driver with the inside of the car.
- Objects that are loose inside a vehicle make up a third type of crash because they have the potential to hit the driver or passengers in the vehicle with the impact of the crash.
- Kinetic energy is the force that will be dissipated in a crash.
- Vehicles absorb energy in a crash by the crushing of the body and chassis of the vehicle.
- The direction and resultant point of impact in a crash are key factors in determining motor vehicle crash survivability.
- Wearing a safety belt is the single most effective thing we can do to save lives and reduce injuries on our roadways.
- In New York law enforcement officers have the authority to stop and issue a traffic ticket to persons that fail to wear a safety belt or properly restrain children in safety seats or safety belts.
- The proper way to wear a safety belt is with both straps snugly fitted across your hip bones and shoulder bones.
- The safest place for children to ride in a vehicle is the backseat.
- Infants should be in the backseat of a vehicle in a rear-facing child safety seat.
- In New York, children up to age 4 must be in a child safety seat that is anchored by the LATCH system.
- Children under age 4 years old that weigh more than 40 pounds may use a booster seat with a lap/shoulder belt in New York.



- Children age 7 and older in New York may use vehicle safety belts if they are large enough that the adult safety belt fits them securely.
- The airbag's inflation system reacts by combining sodium azide with potassium nitrate which produces nitrogen gas.
- It is recommended that drivers grip the steering wheel at the 9 o'clock and 3 o'clock position or the 8 o'clock and 4 o'clock position instead of the 10 o'clock and 2 o'clock position in order to allow room for the airbag to deploy properly if needed.
- Vehicles that were made in 1998 and after are required to have dual airbags.
- In 1999, all new light trucks were required to have dual airbags.
- A person's position in the vehicle in relationship to the airbag is what may cause injury in a motor vehicle crash, not a person's size or age.
- Pregnant women may have difficulty being positioned at least ten inches from the steering wheel and may ask the NHTSA if their airbag may be disabled.
- Airbags combined with lap/shoulder belts are the most effective safety precaution available for passenger vehicles.
- Head restraints are most effective in reducing neck injury when positioned close to the back of the occupant's head with the headrest level with the middle of the ears.
- Anti-lock braking systems (ABS) enable drivers to maintain steering control during hard braking situations by limiting or preventing wheel lock-up.
- Anti-lock brakes create a pulsing vibration within the brake when activated.
- Vehicle maintenance helps your vehicle to work better and last longer.
- It is important to properly maintain all parts of a vehicle.
- Drivers should train themselves to scan ahead two seconds looking for immediate hazards and 10-12 seconds down the road for potential hazards.
- Four essential scanning strategies include look ahead, look to the sides, look behind and be aware of blind spots.
- The techniques used in the IPDE method of driving are identify, predict, decide and execute.
- The two-second rule is used by allowing at least two-seconds of following distance between your vehicle and the vehicle in front.
- The two-second rule was designed for clear weather and good visibility.
- Drivers that are being tailgated should slow down and encourage the other driver to pass.
- The four parts of stopping distance are perception distance, reaction distance, braking distance and total stopping distance.
- Applying the correct amount of pressure to the brake is vital in maintaining safety when driving.

- Centrifugal force, center of gravity, inertia and momentum are all involved in cornering and making a turn.
- Oversteering is over-compensating by turning the steering wheel further than is necessary.
- If a vehicle skids, let off the accelerator and grasp a firm hold on the steering wheel.
- Visibility during the night is limited to an area immediately in front of the motor vehicle.
- Using headlights, reducing speed and increasing following distance will help mitigate driving dangers in rainy, foggy and night time conditions.
- Hydroplaning is the complete loss of tire traction.
- Proper vehicle maintenance will help ensure safe winter driving.
- Vehicles should maintain their position in the center of the lane in which they are traveling or drive as close to the right-hand edge of the roadway as possible when driving in the mountains.
- Vehicles can overheat in the winter and in warm weather because the engine works harder.
- If your car breaks down, park it where it can be seen for 200 feet in each direction, move the vehicle so that all four wheels are off the pavement, turn on your emergency flashers, get all passengers out on the side away from traffic, tie a white cloth on the left door handle or antenna, raise the hood.
- If your brakes get wet test them lightly after driving through deep water, dry brakes by driving slowly in low gear and applying brakes.
- If you have a tire blowout, begin reducing speed by removing your foot from the accelerator pedal and disengaging the vehicle's cruise control.
- If you experience brake failure, remove your foot from the accelerator pedal and begin reducing vehicle speed.
- If your power steering fails, slow down and do not attempt to execute a sharp turn.
- If your vehicle stalls, move it off the roadway as quickly as possible.
- Pedestrians should be yielded the right of way in all circumstances.
- Bicyclists should adhere to all the same traffic laws as motor vehicle drivers.
- Motorcyclists are entitled to the full use of the lane.
- Maintain a following distance of at least four seconds behind large vehicles.
- It is a crime to leave the scene of a fatal or personal injury accident.
- When approaching an intersection look both ways prior to proceeding, don't depend on traffic signals, don't presume compliance with traffic signals and obtain a good view of intersecting traffic.
- A marked intersection is one that has traffic control devices in place to control the flow of traffic.
- Intersections not controlled by a traffic control device is known as an unmarked intersection.

- At intersections, look for approaching cars, make sure other drivers are obeying traffic controls before proceeding, follow traffic signal changes.
- A driver must signal an intention to turn continuously for at least 100 feet prior to turning.
- A phenomenon known as “sensory overload” is common in city and suburban driving due to the almost unlimited amount of visual information within the driving environment.
- Traffic congestion, aggressive drivers, speeding and following too closely are some issues that might be encountered when driving on expressways.
- Slow moving vehicles can cause rural drivers serious problems if not identified early.
- The passing driver must make sure there is sufficient room to pass and complete his next maneuver safely.
- Never pass more than one car at a time.
- Excessive speed is not recommended when passing.
- If being passed, do not speed up.
- The law gives the right of way to no one, it only states who must yield the right of way.
- Never insist on the right of way or attempt to force your way into traffic.
- If a traffic signal is malfunctioning, stop as you would at a four-way stop.
- New York law states that no person shall drive a vehicle faster than what is safe for conditions.
- When driving around construction sites, drivers should be alert for individuals and equipment involved in road service, maintenance or construction.
- If you drive on the soft shoulder of a road, remove your foot from the accelerator to slow the vehicle down gradually.
- Reduce speed when entering a school zone.
- When approaching a railroad crossing, slow down and be prepared to stop.
- The number of railroad tracks are printed on the crossbuck sign at a railroad crossing.
- A driver must stop at least 15 feet from the railroad tracks because a train needs a stopping distance of between half a mile and one and one half miles or more to stop.