Professional Truck Driver Training Course Syllabus

The curriculum standards of this course incorporate the curricular recommendations of the U. S. Department of Transportation’s Federal Highway Administration’s former Office of Motor Carriers Model Curriculum. The curriculum standards represent the minimum training elements that a commercial motor vehicle driver-training course should contain, and against which any such course may be judged.

The curriculum that the Nebraska Safety Center uses also meets the three sets of standards that the Professional Truck Drivers Institute (PTDI established: skill standards; curriculum standards and guidelines; and standards and requirements for course certification.

1. **Orientation**
   The purpose of this section is to introduce the student to the trucking industry and present the concepts of industry regulation and the professional driver
   
   a. **Objectives**
      At the end of this section, the student should know/understand:
      i. The Importance of the Trucking Industry
      ii. The Importance of Compliance with Applicable Regulations
      iii. Procedure for Obtaining a CDL
      iv. The Driver Qualifications They are Subject to in the Industry
      v. The Commercial Motor Vehicle

2. **Control Systems**
   The purpose of this section is to introduce students to the controls and instruments found on a commercial motor vehicle. Stress the importance of understanding the function of all of the vehicle’s controls and instruments prior to operating the vehicle.
   
   a. **Objectives**
      At the end of this section, students should have the basic understanding of the name, location, and function of the vehicles controls and systems. The student should be able to:
      i. Describe the engine controls as well as the primary and secondary vehicle controls
      ii. Identify and describe the controls for starting the engine, shifting, accelerating, braking, and parking
      iii. Explain the acceptable operating range for oil, coolant, and electrical systems
      iv. Identify and describe all vehicle instruments and their purpose

3. **Vehicle Systems**
   The purpose of this section is to introduce the student to the design of a tractor-trailer and the vehicle’s key systems and parts.
   
   a. **Objectives**
      Upon completion of this section the student will have basic understanding of the vehicle construction and systems including:
      i. Suspension Systems
      ii. Axles
      iii. Engine
iv. Fuel System  
v. Air Intake and Exhaust System  
vi. Lubrication System  
vii. Cooling System  
viii. Electrical System  
ix. Drive Train  
x. Brake System  
xi. Wheels and Tires  
xii. Steering System  
xiii. Coupling System  

4. Vehicle Inspection  
In this section the student will learn the importance of conducting appropriate and systematic vehicle inspections.  

a. Objectives  
At the end of this section the student should know and understand:  
i. How to use systematic procedure to conduct accurate and efficient vehicle inspection  
ii. How to identify damaged, loose, or missing parts  
iii. How to recognize and report system defects  
iv. Why an undiscovered malfunction or vehicle problem can be unsafe and costly  
v. The importance of having malfunctions corrected quickly  
vi. Federal Motor Carrier Safety Regulations (FMCSR) regarding vehicle inspections  
vii. Procedures for performing Post trip inspections  

5. Basic Control  
In this section the student will learn how to safely preform the basic control maneuvers. These skills are the foundation that the student will build upon throughout the course. These skills and habits will be practiced throughout the course.  

a. Objectives  
By the end of this section, the student will know and understand the following:  
i. How to start, warm up, and shut down the engine  
ii. How to putt vehicle in motion and how to stop the vehicle  
iii. Proper straight line backing technique  
iv. Proper turning technique  

6. Shifting  
This section will teach students shifting patterns, and procedures so they can efficiently perform gear shifting maneuvers.  

a. Objectives  
At the end of this section, the student should be able to:  
i. Shift up and down through the gears of a variety of types of conventional transmissions.  
ii. Double clutch and time shifts, allowing for a smooth and fuel efficient performance  
iii. Select proper gear for speed and highway conditions  
Students should also know and understand:  
i. Shifting procedures for transmissions  
ii. The instruments and controls used to properly shift gears
7. Backing
In this section, students learn to execute one of the most difficult maneuvers in trucking, backing a tractor-trailer unit.

a. Objectives
At the conclusion of this section a student should know and understand:

b. The basic principles of steering a tractor-trailer
c. The basic rules for safe backing
d. The basic backing maneuvers including straight line and alley dock backing
e. The basic parking maneuvers including parallel parking

8. Coupling and Uncoupling
In this section the step-by-step procedures used to couple and uncouple the most standard tractor-trailer combination units.

a. Objectives
At the end of this section students should be able to safely and efficiently couple and uncouple a tractor-trailer and double trailers. The student should know the following:

i. The step-by-step procedures for proper coupling and uncoupling of tractor-trailer combinations, including: selecting a site, aligning the tractor, securing the trailer against movement, connecting and disconnecting air and electrical lines, setting air brake controls, backing the tractor onto the kingpin, and retracting and extending the landing gear

ii. The special procedures and consideration when coupling and uncoupling tractor and double trailer combinations

iii. How to perform mechanical and visual checks to make sure coupling is secure

iv. The hazards of careless or improper coupling and uncoupling and how to avoid them

v. That accidents caused by improper coupling and uncoupling are always preventable

9. Visual Search
The purpose of this section is to introduce the student to the skills needed to perform a safe and effective visual search while on the road.

a. Objectives
By the end of this section, student should know and understand the following:

i. The basics of seeing ahead and to the sides, including the importance of scanning at least 12 seconds ahead of the vehicle

ii. The two types of mirrors found on most tractors and the proper use of those mirrors

iii. The basics of seeing to the rear

10. Communication
The purpose of this section is to introduce the student to the basic principles of communication. This includes the appropriate processes and procedures a professional driver should follow when
communication to others. Also, the student should have the basic understanding of cues other drivers give when communicating their intentions.

a. Objectives
At the end of this section, the student should know and understand:
   i. The basics of communicating intent, including the appropriate use of turn signals and means used to indicate the vehicle is slowing down
   ii. The appropriate methods of communicating presence
   iii. The subtle signs and cues given by other drivers when communicating their intentions

11. Speed Management
This section introduces the student to the importance of speed management when it comes to safely operating a tractor-trailer.

a. Objectives
At the conclusion of this section the student should know the following:
   i. The science of speed and stopping distance
   ii. The role surface conditions play in speed management
   iii. The importance of adjusting speed for curves and grades
   iv. The relationship between speed and visibility
   v. The influence of speed on traffic management
   vi. The how and why of obeying the speed limit

12. Space Management
The purpose of this section is to show the student the importance of space management when it comes to safely operating a tractor-trailer.

a. Objectives
At the conclusion of this section, the student should know the following:
   i. The importance of space management
   ii. The concept of maintaining an appropriate cushion of space
   iii. Space management when executing a turn

13. Night Driving
In this section the students will be introduced to the unique challenges of night driving and the changes in general procedures (communication, speed and space management, etc.) a driver must make when driving under the cover of darkness.

a. Objectives
At the end of this section the student should know and understand the following:
   i. The factors that affect night driving, including driver, roadway, and vehicle factors
   ii. The procedures that a driver must follow to prepare for the challenges of night driving

14. Extreme Driving Conditions
This section will assist the student in learning how to safely operate under extreme conditions.

a. Objectives
In this section the student should understand the following:

1. How to operate in adverse conditions including snow, ice, and cold temperatures
2. How to operate in hot weather
3. The challenges of mountain driving

15. Hazard Perception
   This section introduces the student to the nature of hazards and clues to recognizing these hazards.
   
   a. Objectives
      By the end of this section the student will be able to identify road conditions and other road users that are a potential safety threat. The student should know:
      
      i. The visible characteristics of road conditions that present an hazard to safe operation
      ii. The characteristics of other road users that make them a potential danger

16. Railroad Crossings
   This section discusses the dangers associated with highway rail grade crossings, the engineering controls in place to make crossing safer, the regulations requiring drivers to slow down and/or stop at rail crossing, and the safest methods available for crossing railroad tracks.
   
   a. Objectives
      The student should understand the variety of dangers that exist at highway-rail crossings, and should understand how to get across various highway-rail crossing in the safest manner possible. The student should:
      
      i. Understand the difference between active and passive warning systems
      ii. Be able to identify the various signs and technologies in the use at rail crossing, and their purpose
      iii. Know the regulations requiring vehicles to slow down and/or stop at rail crossings
      iv. Know the best, safest methods to use to cross railroad tracks
      v. Know what to do should problems arise at a railroad crossing

17. Emergency Maneuvers
   This section deals with the importance of methods for carrying out evasive steering, emergency stops, off road recoveries, and proper responses to brake failures and blowouts.
   
   a. Objectives
      At the end of this section, the student should be able to:
      
      i. Bring a truck to a stop in the shortest possible distance while maintaining control
      ii. Safely perform a quick, evasive turn
      iii. Safely make an evasive turn off of the roadway and back onto the roadway while maintaining control
      iv. Maintain control and bring the vehicle to a stop in the event of a brake failure or tire blowout
      
      The student should also understand:
      
      v. A vehicle can be turned more quickly than stopped
      vi. In an impending head-on collision, it is often safe to leave the roadway than to strike another vehicle
      vii. Procedures for quick stops and turns
18. Skid Control and Recovery
This section introduces the student to conditions that cause skids, the major type of skids, and the procedures for recovering from skids.

a. Objectives
At the end of this section, students should be able to:
   i. Maintain directional control while operating on a slippery surface
   ii. Bring a tractor-trailer to a stop in the shortest possible distance while maintaining directional control when operating on a slippery surface
   iii. Recover from skids caused by slippery conditions

The student should also understand:
   iv. The role of skid control in preventing accidents
   v. Skid dynamics, including friction, wheel load and force
   vi. The causes of skidding
   vii. The characteristics of a tractor jackknife, trailer jackknife, front wheel skid and all wheel skid
   viii. Skid recovery procedures

19. Special Rigs
This section's purpose is to introduce the student to the characteristics of special rigs. To show the students a wide variety of tractors and trailers on the trucking industry and the need for specialized training before operating them.

a. Objectives
At the conclusion of this section, students should:
   i. Be able to recognize the most frequently encountered special rigs
   ii. Know the function, operating characteristics, physical dimensions, special features, and hazards of special rigs
   iii. Know that special rigs require special qualifications and training

20. Preventive Maintenance
This section acquaints the student with the importance of preventive maintenance and servicing to prevent breakdowns and accidents.

a. Objectives
Students should understand the following:
   i. Different kinds of preventive maintenance
   ii. The drivers role in preventive maintenance
   iii. Driver Vehicle Inspection Reports (DVIRs)

21. Diagnosing and Reporting Malfunctions
This section introduces the student to the importance of diagnosing and reporting vehicle malfunctions as well as the student’s role in troubleshooting.

a. Objectives
At the conclusion of this section, the students should have an understanding of:
   i. The diagnosis and reporting of vehicle malfunctions
ii. Troubleshooting
iii. Procedures for reporting vehicle malfunctions

22. Handling Cargo
In this section the student is introduced to the importance of properly handling cargo including proper and legal securement. Proper weight distribution and safe loading. This includes the Federal Motor Carrier Safety Regulations on this topic as well as safe operating practices.

a. Objectives
At the end of this section, the student should have the basic understanding of:
   i. The importance of properly handling cargo
   ii. The principle and methods of cargo securement
   iii. The principle of weight distribution
   iv. Safe loading responsibilities
   v. Common tools used to load/unload a vehicle

23. Cargo Documentation
This section introduces the student to the basics of freight documentation.

a. Objectives
Concluding this section, students will have the basic understanding of:
   i. The terms and definitions most commonly used in conjunction with cargo documentation
   ii. The basic forms used to document cargo movement
   iii. Pickup and delivery procedures

24. Hazardous Materials
This section provides the student an overview of hazardous material basics, and what responsibilities are associated with hazardous material transportation.

a. Objectives
At the conclusion of this section, the student should understand the following:
   i. What is a hazardous Material
   ii. When a hazmat endorsement is needed
   iii. The different hazard classes, and divisions of hazardous material
   iv. Precautions and special steps that must be taken when loading and unloading hazardous materials
   v. Requirements pertaining to hazmat transportation

25. Hours of Service
This chapter teaches the student about hours of service regulations, including the operating within the legal limits and accurately completing a driver’s record of duty status.

a. Objectives
At the end of this section, a student should:
   i. Understand the hours of service requirements
   ii. Be able to accurately and legally complete a record of duty status
   iii. Understand the consequences for failure to comply
26. Trip Planning
This section introduces students to techniques used to plan the most effective and efficient trip plan possible. This includes consideration of all aspects of the trip from having proper paperwork on hand, to planning an efficient and legal route of travel.

a. Objectives
At the end of this section, the student should be able to create a safe, legal, and efficient trip plan including the following:
   i. Up to date paperwork
   ii. Selection of appropriate route based on consideration of several factors
   iii. An accurate estimation of time
   iv. An accurate estimation of fuel use and fuel stops
   v. An accurate estimation of expenses

27. Accident Procedure
This section introduces students to accident scene procedures as well as fire prevention

a. Objectives
A student should know:
   i. The basic responsibilities at the scene of an accident
   ii. How to evaluate an accident to determine preventability
   iii. How to prevent fires

28. Security of Cargo
This section is meant to bring awareness of the student to the many security issues facing truck drivers today. Security is paramount to the safety and success of every driver and that they are the first line of defense when it comes to the security of the truck, the load, and themselves.

a. Objectives
At the conclusion of this topic, students should know and understand the following:
   i. Current terrorism concerns and their relationship to cargo security and theft
   ii. Personal security do’s and don’ts’s
   iii. Identifying suspicious activity and driver notification responsibilities at the dock and in transit

29. Personal Health
This section introduces the student to a variety of subjects that together make for an alert, health, and safe driver.

a. Objectives
At the conclusion of this topic, students should know and understand the following:
   i. Personal health and driving
   ii. The dangers of drivers fatigue
   iii. The effects of alcohol on the human body and federal regulations surrounding alcohol consumption
   iv. The effects of controlled substance on the human body and federal regulations surrounding the use of drugs
   v. The importance of safety in the work environment
   vi. The necessity of transportation security measures
30. Public and Employer Relations
This section is intended to make students aware of the driver’s highly visible and important role in representing the trucking industry.

a. Objectives
Students should have a basic understanding of:
   i. The image of the trucking industry
   ii. Appropriate contact with the public
   iii. Good customer relations
   iv. Job requirements
   v. How to apply for a job

31. Basic Business Practices for Truck Drivers
The purpose of this section is to introduce the student to the basic business concepts and ideas that are important for them to be successful in the transportation industry.

a. Objectives
At the end of this section, students should understand the following:
   i. Cost determination and control
   ii. Concepts of fuel management
   iii. Methods of growing revenue

32. CSA
This section introduces the student to Compliance, Safety, and Accountability (CAS) and makes the student aware of how this compliance and enforcement program will affect their professional driving career.

a. Objectives
At conclusion, the student should have an understanding of:
   i. What CSA is and how it affects the student’s professional driving career
   ii. The four major components of the CSA system
   iii. CSA related data