Texas CTE

Transportation, Distribution, and Logistics (2010): Grade 9

Adopted 2010

Principles of Transportation, Distribution, and Logistics

(1) The student explores the employability characteristics for success. The student is expected to:

(A) identify career development and entrepreneurship opportunities in transportation, distribution, and logistics such as how to search for and obtain employment, the qualifications that are required for varying career fields, and how to advance in a position;

(B) identify careers in transportation, distribution, and logistics systems;

(C) apply competencies related to resources, information, interpersonal skills, problem solving, critical thinking, and systems of operation in transportation, distribution, and logistics;

(D) discuss certification opportunities;

(E) demonstrate knowledge of personal and occupational health and safety;

(F) discuss response plans to emergency situations;

(G) identify employers' expectations, appropriate work habits, ethical conduct, legal responsibilities, and good citizenship skills; and

(H) explore career goals, objectives, and strategies as part of a plan for future career opportunities.

(2) The student develops leadership experience as it relates to transportation, distribution, and logistics systems. The student is expected to:

(A) plan, propose, conduct, and evaluate industry-based occupational experiences;

(B) apply proper record-keeping skills as they relate to industry-based occupational experiences;

(C) use a customized record-keeping system for the individual industry-based occupational experiences;

(D) discuss youth leadership opportunities to create a well-rounded industry-based occupational experience; and

(E) develop a work plan and budget.

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The student explores concepts related to cultural diversity. The student is expected to:

(A) identify significant similarities and differences in international culture;

(B) explain the variety of world markets; and

(C) describe marketing factors and practices that impact other cultures.

(4) The student understands the historical, current, and future significance of the transportation, distribution, and logistic industries. The student is expected to:

(A) define terms associated with the transportation, distribution, and logistics industries;

(B) identify the scope and effect upon society of the transportation, distribution, and logistics industries;

(C) identify significant historical and current developments in the transportation, distribution, and logistics industries;

(D) identify potential future scenarios for the transportation, distribution, and logistics industry systems;

(E) describe how emerging technologies and globalization impact the transportation, distribution, and logistics industries; and

(F) compare and contrast issues affecting the transportation, distribution, and logistics industries such as international trade, employment, safety, and environmental issues.

(5) The student analyzes the structure of transportation, distribution, and logistics organizations. The student is expected to:

(A) describe common business management principles;

(B) identify opportunities for leadership development and personal growth;

(C) demonstrate democratic principles in conducting effective meetings;

(D) describe team dynamics; and

(E) describe the development of organizational vision, mission, and goals through the strategic planning process.

(6) The student explains the transportation, distribution, and logistics industries at the local, state, national, and international levels. The student is expected to:

(A) identify reasons for world trade and globalization;

(B) identify the political impact of transportation, distribution, and logistics;

(C) review regulations and major laws to evaluate their impact on transportation, distribution, and logistics;

(D) read appropriate written material to stay abreast of current issues impacting transportation, distribution, and logistics;

(E) collect public opinion and data in order to make informed decisions;

(F) use critical-thinking skills to identify and organize alternatives and evaluate public policy issues related to transportation, distribution, and logistics; and

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(G) evaluate performance and contract compliance of contractors and service providers.

(7) The student demonstrates appropriate personal and communication skills. The student is expected to:

(A) examine workplace ethical and legal responsibilities;

(B) define the uses of proper etiquette;

(C) identify appropriate personal appearance and health habits;

(D) practice written and oral communication skills in formal and informal situations;

(E) practice effective listening skills in formal and informal situations;

(F) read and comprehend materials common to the transportation industry;

(G) employ writing and preparation skills using technical information; and

(H) demonstrate speaking skills.

(8) The student applies appropriate research methods for transportation, distribution, and logistics systems. The student is expected to:

(A) define major fields of research and development;

(B) identify and apply scientific methods of research in transportation, distribution, and logistics industries;

(C) use a variety of resources for research and development; and

(D) describe the scientific methods of research.

(9) The student applies problem-solving, mathematical, and organizational skills in order to maintain financial and logistical records. The student is expected to:

(A) discuss project proposals;

(B) maintain records appropriate to transportation, distribution, and logistics system industries;

(C) collect and organize data in graphs, tables, charts, and plots; and

(D) analyze and interpret data from graphs, tables, charts, and plots.

(10) The student uses information technology tools specific to transportation, distribution, and logistics industries to access, manage, integrate, and create information. The student is expected to:

(A) use management software, email applications, and Internet applications;

(B) demonstrate word-processing, database, spreadsheet, and presentation software;

(C) examine collaborative, groupware, and virtual meeting software;

(D) discuss Geographic Information Systems and Global Positioning Systems; and

(E) discuss other computer-based equipment in transportation, distribution, and logistics systems.

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(11) The student discusses methods to reduce sources of workplace hazards in order to promote a safe working environment. The student is expected to:

(A) discuss safe work practices and emergency procedures;

(B) identify rules and laws designed to promote safety and health in the transportation, distribution, and logistics environments;

(C) demonstrate first aid and cardiopulmonary resuscitation procedures; and

(D) demonstrate proper use of safety equipment.

(12) The student examines material handling in warehouses and distribution centers. The student is expected to:

(A) discuss handling practices for goods and materials;

(B) explain size, weight, and shape requirements for packaging;

(C) discuss material handling, storage, and shipping methods;

(D) analyze visual design and appearance requirements for packages;

(E) discuss layout plans for processing packages;

(F) identify material handling and storage equipment; and

(G) identify types of warehouses and distribution centers.

Energy, Power, and Transportation Systems

(1) The student knows the employability characteristics that lead to success. The student is expected to:

(A) demonstrate the principles of group participation and leadership related to citizenship and career preparation;

(B) identify employers' expectations and appropriate work habits;

(C) identify career development and entrepreneurship opportunities in the energy, power, and transportation systems, including how to search for and obtain employment and what qualifications are required for varying career fields;

(D) identify employment opportunities, including entrepreneurship, and certification requirements for the field of energy, power, and transportation systems;

(E) discuss certification opportunities to meet state academic standards and qualifications for employment in selected fields of study;

(F) apply ethical reasoning to a variety of workplace scenarios in order to make ethical decisions;

(G) apply competencies related to resources, information, systems, and technology;

(H) identify opportunities for leadership development and personal growth;

(I) describe team dynamics; and

(J) demonstrate effective oral and written communication skills with individuals from varied cultures.

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(2) The student knows the functions and applications of the tools, equipment, technologies, and materials used in energy, power, and transportation systems. The student is expected to:

(A) discuss the safe use of hand and power tools and equipment commonly used in the maintenance and repair of engines; and

(B) discuss the use of audits and inspections to maintain compliance with safety, health, and environmental regulations.

(3) The student applies technical knowledge and skills to simulated situations. The student is expected to:

(A) identify the major components in a vehicular system;

(B) identify necessary maintenance and service of vehicle systems; and

(C) discuss preventative maintenance plans and systems to keep vehicular systems in operation.

(4) The student describes the historical, current, and future significance of the energy, power, and transportation systems. The student is expected to:

(A) identify the scope and effect upon society of the energy, power, and transportation systems; and

(B) identify potential future scenarios for the energy, power, and transportation systems.

(5) The student uses academic skills to document the requirements of energy, power, and transportation systems. The student is expected to:

(A) demonstrate communication skills in relation to customers, technicians, and others;

(B) prepare documentation such as quotes, invoices, bills of laden, work orders, and other reports;

(C) read and interpret appropriate documents such as schematics, charts, diagrams, graphs, parts catalogs, and service-repair manuals and bulletins;

(D) perform precision measurements to diagnose component shape and alignment, based on industry specifications, and determine necessary repair;

(E) use critical-thinking skills and structured problem-solving skills to diagnose vehicular system malfunctions, solve problems, and make decisions; and

(F) demonstrate knowledge of regulations that govern the construction, maintenance, and service of energy, power, and transportation systems.

Transportation Systems Management

(1) The student demonstrates an understanding of the transportation system. The student is expected to:

(A) explain the history and development of the United States transportation systems such as railroads, highways, airports, water systems, and the use of intermodal vans;

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(B) examine logistic systems used for the transportation of products and services;

(C) define practices and terms commonly used in international sales contracts as published by the International Chamber of Commerce;

(D) summarize laws and regulations concerning interstate and international trade;

(E) explain the role of homeland security in interstate and international trade;

(F) evaluate risk factors and social and economic trends such as risk mitigation, policy change issues, security issues, and cultural factors;

(G) evaluate documentation and other requirements for interstate and international transportation and logistics;

(H) describe transportation issues such as internal processing, product and supply storage, forecasting, scheduling, cost analysis, documentation confirmation, packing lists, Materials Safety Data Sheets, product seals, packaging types, packaging labels, and routing issues;

(I) identify employer's expectations, appropriate work habits, ethical conduct, legal responsibilities, and good citizenship skills; and

(J) demonstrate computer skills related to transportation and materials handling.

(2) The student demonstrates an understanding of Department of Transportation, Environmental Protection Agency, and Occupational Safety and Health Administration hazardous materials regulation knowledge and skills. The student is expected to:

(A) discuss the Department of Transportation, including procedures or policies, material designations, packaging requirements, and operational rules;

(B) explain Department of Transportation, Environmental Protection Agency, and Occupational Safety and Health Administration compliance requirements concerning hazardous materials, hazardous waste operations, medical surveillance, personnel training, adequate ventilation, confined space hazards, and emergency preparedness and response;

(C) examine personal protective equipment;

(D) compare specifications for accident prevention signs and tags, retention of Department of Transportation markings, and placards and labels for toxic and hazardous materials;

(E) research handling and storage requirements for liquid fuels, liquid petroleum gas, carbon monoxide, and toxic and hazardous substances;

(F) examine emergency action plans, employee training requirements, evacuation procedure requirements, and facility and equipment safety standards;

(G) explain fire prevention, including portable fire extinguishers, fire management systems, employee alarm systems and hazard communication; and

(H) examine fire prevention plans and documentation.

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The student demonstrates an understanding of tractor-trailer knowledge and skills. The student is expected to:

(A) read and interpret control systems;

(B) perform vehicle inspections and maintenance such as checking vehicle systems and components, diagnosing potential problems, and developing malfunction reports and maintenance schedules and reports;

(C) perform visual search and inspection of a tractor-trailer;

(D) demonstrate controls of a tractor-trailer such as shifting, backing, docking, coupling and uncoupling, adjusting vehicle speed, and conducting break-down procedures;

(E) explain the management and adjustment of vehicle speed and space relations;

(F) identify potential driving hazards and environmental conditions;

(G) examine emergency maneuvers, procedures, and accident reports; and

(H) discuss appropriate decision-making procedures for planning trips.

(4) The student demonstrates an understanding of forklift knowledge and skills. The student is expected to:

(A) explain Occupational Safety and Health Administration safety standards for forklifts, including equipment operation, battery maintenance, liquid propane tanks, lift truck stability, load weight limits, seat belt requirements, overhead guards, tip over prevention, and ride-out procedures;

(B) perform visual inspection of forklifts and their operating environment;

(C) discuss start-up, shut-down, and proper traveling procedures;

(D) perform maintenance inspections and documentation procedures;

(E) discuss forklift attachments; and

(F) evaluate proper lifting, carrying, load stability, and stacking procedures for loading trailers, boxcars, and containers.

(5) The student demonstrates an understanding of heavy equipment knowledge and skills. The student is expected to:

(A) explain safety issues pertaining to heavy equipment operation;

(B) discuss principles and maintenance of heavy equipment, including cooling systems, fuel systems, lubrication systems, electrical systems, air systems, power systems, braking systems, pneumatic systems, hydraulic systems, operator ergonomics systems, tires, tracks, and track frames;

(C) examine the operation of heavy equipment such as bull dozers, crawler tractors, backhoes, excavators, track hoes, graders, scrapers, skid steer loaders, mini excavators, dump trucks, trenchers, cranes, hoists, soil compactors, land planes, landscaping equipment, and quarry equipment;

(D) discuss safely transporting heavy equipment; and

(E) discuss equipment theft prevention procedures.