

Transportation, Distribution and Logistics: Transportation Systems/Infrastructure Planning, Management and Regulation Career Pathway Plan of Study for ► Learners ► Parents ► Counselors ► Teachers/Faculty

This Career Pathway Plan of Study (based on the Transportation Systems/Infrastructure Planning, Management and Regulation Pathway of the Transportation, Distribution and Logistics Career Cluster) can serve as a guide, along with other career planning materials, as learners continue on a career path. Courses listed within this plan are only recommended coursework and should be individualized to meet each learner's educational and career goals. *This Plan of Study, used for learners at an educational institution, should be customized with course titles and appropriate high school graduation requirements as well as college entrance requirements.

EDUCATION LEVELS	GRADE	English/ Language Arts	Math	Science	Social Studies/ Sciences	Other Required Courses Other Electives Recommended Electives Learner Activities	*Career and Technical Courses and/or Degree Major Courses for Transportation Systems/Infrastructure Planning, Management and Regulation Pathway	SAMPLE Occupations Relating to This Pathway
<i>Interest Inventory Administered and Plan of Study Initiated for all Learners</i>								
SECONDARY	9	English/ Language Arts I	Algebra I or Geometry	Biology	State History Civics	All plans of study should meet local and state high school graduation requirements and college entrance requirements. Certain local student organization activities are also important including public speaking, record keeping and work-based experiences.	<ul style="list-style-type: none"> • Introduction to the Transportation, Distribution and Logistics Industry • Information Technology Applications 	<ul style="list-style-type: none"> ► Air Traffic Controller ► Aviation Inspector ► Civil Engineer ► Customer Accounts Manager ► Customs Inspector ► Department of Transportation (DOT) Officer ► Engineering Technician ► Environmental Compliance Inspector ► Environmental Engineer ► Freight Inspector ► Logistics System Manager ► Marine Cargo Inspector ► Motor Vehicle Inspector ► Port Manager ► Public Transportation Inspector ► Railroad Inspector ► Regulator ► Surveying and Mapping Technician ► Traffic Technician ► Transportation Engineer ► Urban and Regional Planner
	10	English/ Language Arts II	Geometry or Algebra II	Chemistry	U.S. History		<ul style="list-style-type: none"> • Health, Safety and Security in the Transportation Industry 	
	11	English/ Language Arts III	Algebra II or Pre-Calculus or Trigonometry	Physics	World History Economics		<ul style="list-style-type: none"> • Transportation, Distribution and Logistics Systems • Technological Systems 	
	<i>College Placement Assessments-Academic/Career Advisement Provided</i>						<ul style="list-style-type: none"> • Ethics and Legal Issues • Transportation Services 	
12	English/ Language Arts IV	Pre-Calculus or Trigonometry or AP Calculus Statistics	AP Science	World Geography or AP History				
<i>Articulation/Dual Credit Transcribed-Postsecondary courses may be taken/moved to the secondary level for articulation/dual credit purposes.</i>								
POSTSECONDARY	Year 13	English Composition English Literature	Business Calculus or Operations Research Statistics	Chemistry	American Government Psychology	All plans of study need to meet learners' career goals with regard to required degrees, licenses, certifications or journey worker status. Certain local student organization activities may also be important to include.	<ul style="list-style-type: none"> • Transportation Infrastructure 	
	Year 14	Speech/ Oral Communication	Computer Fundamentals of Technology Linear Programming	Biological Science Physics	American History Geography		<ul style="list-style-type: none"> • Transportation Systems Management 	
	Year 15	Continue courses in the area of specialization.					<ul style="list-style-type: none"> • Continue Courses in the Area of Specialization 	
	Year 16						<ul style="list-style-type: none"> • Complete Transportation Systems/ Infrastructure Planning, Management and Regulation Major (4-Year Degree Program) 	

Creating Your Institution's Own Instructional Plan of Study

With a team of partners (secondary/postsecondary teachers and faculty, counselors, business/industry representatives, instructional leaders, and administrators), use the following steps to develop your own scope and sequence of career and technical courses as well as degree major courses for your institution's plan of study.

- 1** Crosswalk the Cluster Foundation Knowledge and Skills (available at <http://www.careerclusters.org/goto.cfm?id=97>) to the content of your existing secondary and postsecondary programs/courses.
- 2** Crosswalk the Pathway Knowledge and Skills (available at <http://www.careerclusters.org/goto.cfm?id=79>) to the content of your existing secondary/postsecondary programs and courses.
- 3** Based on the crosswalks in steps 1 and 2, determine which existing programs/courses would adequately align to (cover) the knowledge and skills. These programs/courses would be revised to tighten up any alignment weaknesses and would become a part of a sequence of courses to address this pathway.
- 4** Based on the crosswalks in steps 1 and 2, determine what new courses need to be added to address any alignment weaknesses.
- 5** Sequence the **content** and **learner outcomes** of the existing programs/courses identified in step 3 and new courses identified in step 4 into a course sequence leading to preparation for all occupations within this pathway. (See list of occupations on page 1 of this document.)
- 6** The goal of this process would be a series of courses and their descriptions. The names of these courses would be inserted into the *Career and Technical Courses* column on the Plan of Study on page 1 of this document.
- 7** Below is a **sample result** of steps 1-6, and these course titles are inserted into the Plan of Study on page 1 of this document.
- 8** Crosswalk your state academic standards and applicable national standards (e.g., for mathematics, science, history, language arts, etc.) to the sequence of courses formulated in step 6.

Transportation, Distribution and Logistics: Transportation Systems/Infrastructure Planning, Management and Regulation SAMPLE Sequence of Courses for ► Instructional Leaders ► Administrators ► Counselors ► Teachers/Faculty

SAMPLE

Below are suggested courses that could result from steps 1-6 above. However, as an educational institution, course titles, descriptions and the sequence will be your own. This is a good model of courses for you to use as an example and to help you jump-start your process. Course content may be taught as concepts within other courses, or as modules or units of instruction.

The following courses are based on the Cluster Foundation Knowledge and Skills found at <http://www.careerclusters.org/goto.cfm?id=97>. These skills are reinforced through participation in student organization activities.

#1

Introduction to the Transportation, Distribution and Logistics Industry: Students will be introduced to the broad array of occupations in the Transportation, Distribution and Logistics Career Cluster by exploring these careers and examining how they match their personal interests and aptitudes. Students will develop personal career plans, practice leadership and teamwork skills, and complete steps to prepare for employment application, interview and employment. Participation in student activities will reinforce these cluster knowledge and skills. This may be taught as a career exploration course in conjunction with other foundation Career Cluster courses.

#2

Information Technology Applications: Students will use technology tools to manage personal schedules and contact information, create memos and notes, prepare simple reports and other business communications, manage computer operations and file storage, and use electronic mail and Internet applications to communicate, search for and access information.

The following courses are based on the Cluster Foundation Knowledge and Skills as well as the Pathway Knowledge and Skills found at <http://www.careerclusters.org/goto.cfm?id=79>. These skills are reinforced through participation in student organization activities.

#3

Health, Safety and Security in the Transportation Industry: Students will study the major regulatory areas of transportation, distribution and logistics (TDL) as well as related government laws and regulations including hazardous materials management. Students will explain how TDL organizations can promote improved health, safety, and environmental performance and demonstrate personal commitment to personnel policies and procedures.

#4

Transportation, Distribution and Logistics Systems: This course focuses on the role and major functions of a TDL organization. Students will learn the major measures used by a TDL organization to manage and improve performance, including cost performance and efficiency; explain the impact of economic, social and technological changes on a TDL organization; and explain the role of risk management in reducing risk and improving performance. Students will develop skills for managing customer relationships, developing and managing plans and budgets, and developing plans to improve organizational performance.

#5

Technological Systems: Students will study the role and function of necessary transportation-related technological systems, will learn the importance of measuring and managing the reliability and performance of technological systems, will evaluate and select technological systems, and will recommend the best systems in terms of use and performance. Students will have hands-on experience using equipment and machines used to control electromechanical devices as well as geographic information systems software. Workplace learning experiences will be included.

#6

Ethics and Legal Issues: Students will demonstrate awareness of legal responsibilities for different roles and functions within organizations, recognize differences in ethical and legal responsibilities, apply ethical reasoning to different workplace situations, and identify different strategies for responding to unethical or illegal actions of individuals and organizations.

The following courses expose students to Pathway Knowledge and Skills found at <http://www.careerclusters.org/goto.cfm?id=79> and should include appropriate student activities.

#7

Transportation Services: Students will learn to develop plans for new, improved, or discontinued transportation service including public transportation services. Students will develop skills in monitoring and reporting on the performance of public transportation operations, and they will develop strategies to improve service including routing, scheduling, equipment upgrades, operator training and other items to increase quality and reduce cost.

#8

Transportation Infrastructure: Students will learn to plan and maintain public transportation infrastructure by developing plans for new, improved or discontinued public infrastructure such as highways, airports, train terminals, ports and intermodal facilities. Students will analyze changing customer/market needs and requirements, explain political influences and impact on requirements, evaluate costs and benefits of public transportation infrastructure and develop plans including reports, maps, drawings and related design documents.

#9

Transportation Systems Management: Students will develop plans to improve system utilization and traffic flow by collecting and analyzing data, determining major problem areas, and developing plans to improve system performance. Students will also develop plans to improve safety and environmental performance of carriers and safety conditions in transportation systems.



Notes

A large rectangular area with horizontal stripes, alternating between light purple and light green, intended for taking notes.