Transportation, Distribution and Logistics: Warehousing and Distribution Center Operations

Career Pathway Plan of Study for ▶ Learners ▶ Parents ▶ Counselors ▶ Teachers/Faculty

This Career Pathway Plan of Study (based on the Warehousing and Distribution Center Operations 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.*

<table>
<thead>
<tr>
<th>EDUCATION LEVELS</th>
<th>GRADE</th>
<th>English/ Language Arts</th>
<th>Math</th>
<th>Science</th>
<th>Social Studies/ Sciences</th>
<th>Other Required Courses and/or Degree Major Courses for Warehousing and Distribution Center Operations Pathway</th>
<th>SAMPLE Occupations Relating to This Pathway</th>
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</thead>
<tbody>
<tr>
<td>SECONDARY</td>
<td>9</td>
<td>English/ Language Arts I</td>
<td>Algebra I or Geometry</td>
<td>Biology</td>
<td>State History Civics</td>
<td>• Introduction to the Transportation, Distribution and Logistics Industry</td>
<td>▶ Car, Truck and Ship Loader</td>
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<td>10</td>
<td>English/ Language Arts II</td>
<td>Geometry or Algebra II</td>
<td>Chemistry</td>
<td>U.S. History</td>
<td>• Health, Safety and Security in the Transportation Industry</td>
<td>▶ First-Line Supervisor/ Manager of Helpers</td>
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<td>11</td>
<td>English/ Language Arts III</td>
<td>Algebra II or Pre-Calculus or Trigonometry</td>
<td>Physics</td>
<td>World History Economics</td>
<td>• Transportation, Distribution and Logistics Systems</td>
<td>▶ First-Line Supervisor/ Manager of Transportation and Material-Moving Machine and Vehicle Operators</td>
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<td>12</td>
<td>English/ Language Arts IV</td>
<td>Pre-Calculus or Trigonometry or AP Calculus</td>
<td>AP Science</td>
<td>World Geography or AP History</td>
<td>• Technological Systems</td>
<td>▶ Industrial and Packaging Engineer</td>
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<td>• Ethics and Legal Issues</td>
<td>▶ Laborer and Material Mover-Handler</td>
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<td>• Inventory Control and Management</td>
<td>▶ Packer and Packager-Handler</td>
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<td>▶ Production, Planning, Expediting Clerk</td>
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<td>▶ Storage and Distribution Manager</td>
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<td>▶ Traffic, Shipping and Receiving Clerk</td>
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<td>▶ Warehouse Manager</td>
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<td>POSTSECONDARY</td>
<td>Year 13</td>
<td>English Composition</td>
<td>Business Calculus or Operations Research</td>
<td>Chemistry</td>
<td>Psychology</td>
<td>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.</td>
<td>▶ Specialized Study in Air, Water, Rail, Roadway, Mass Transit, Space or Combination</td>
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<td>Year 14</td>
<td>Speech/ Oral Communication</td>
<td>Computer Fundamentals of Technology Linear Programming</td>
<td>Biological Science Physics</td>
<td>American History</td>
<td>▶ Warehousing and Distribution Quality Control</td>
<td>▶ Shipping and Receiving</td>
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<td>Year 15</td>
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<td>• Compliance and Regulations</td>
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<td>Year 16</td>
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<td>• Personnel Management</td>
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<td>• Continue Courses in the Area of Specialization</td>
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<td>• Complete Warehousing and Distribution Center Operations Major (4-Year Degree Program)</td>
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*Career and Technical Courses and/or Degree Major Courses for Warehousing and Distribution Center Operations Pathway*

**SAMPLE Occupations Relating to This Pathway**

- Car, Truck and Ship Loader
- First-Line Supervisor/ Manager of Helpers
- First-Line Supervisor/ Manager of Transportation and Material-Moving Machine and Vehicle Operators
- Industrial and Packaging Engineer
- Laborer and Material Mover-Handler
- Packer and Packager-Handler
- Production, Planning, Expediting Clerk
- Storage and Distribution Manager
- Traffic, Shipping and Receiving Clerk
- Warehouse Manager

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**Articulation/Dual Credit Transcribed-Postsecondary courses may be taken/moved to the secondary level for articulation/dual credit purposes.**

**Year 13**
- English Composition
- English Literature
- Business Calculus or Operations Research
- Chemistry
- Psychology

**Year 14**
- Speech/ Oral Communication
- Computer Fundamentals of Technology Linear Programming
- Biological Science Physics
- American History

**Year 15**
- Continue courses in the area of specialization.

**Year 16**
- Complete Warehousing and Distribution Center Operations Major (4-Year Degree Program)

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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](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=77](http://www.careerclusters.org/goto.cfm?id=77)) 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.
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=77. 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=77 and should include appropriate student activities. Students will also study an area of specialization from air, water, rail, roadway, space, mass transit or a combination.

#7 Inventory Control and Management: Students will develop skills in cycle counting, inventory accuracy and measurement, warehouse design and layout, scanning of inventory, RFID and other tracking technology.

#8 Shipping and Receiving: Students will develop skills to prepare, process, and store incoming and outgoing goods and materials. This will include packaging, storage and handling solutions for goods and materials as well as warehousing needs to meet customer and business requirements.

#9 Warehousing and Distribution Quality Control: Students will practice skills that improve the performance of warehousing and distribution operations to meet customer and business requirements including operations systems, processes and procedures, and issues of performance and reliability of warehousing equipment and information systems.

#10 Compliance and Regulations: Students will develop skills to maintain and improve compliance with company policies and government laws and regulations. Specific content includes learning to develop a compliance checklist for conducting reviews, conducting the reviews, and documenting and explaining findings. Students will also learn to revise company policies, procedures, and information/documentation systems to improve compliance with changing customer/business requirements.

#11 Personnel Management: This course helps students identify, develop and apply a range of interpersonal, organizational and functional skills that are applicable for a career in transportation, distribution and logistics. Course content includes employee support, employee development, industrial relations and relevant management topics including corporate and human resource strategies.