



# Supply Chain Management III: Management and Logistics

<b>Primary Career Cluster:</b>	Marketing, Distribution & Logistics
<b>Course Contact:</b>	<a href="mailto:CTE.Standards@tn.gov">CTE.Standards@tn.gov</a>
<b>Course Code(s):</b>	C31H##
<b>Prerequisite(s):</b>	<i>Supply Chain Management II: Warehousing &amp; Distribution</i> (C31H##)
<b>Credit:</b>	1
<b>Grade Level:</b>	11-12
<b>Focused Elective Graduation Requirements:</b>	This course satisfies one of three credits required for an elective focus when taken in conjunction with other <i>Marketing</i> courses.
<b>POS Concentrator:</b>	This course satisfies one out of two required courses to meet the Perkins V concentrator definition, when taken in sequence in an approved program of study.
<b>Programs of Study and Sequence:</b>	This is a capstone course in the <i>Supply Chain Management</i> program of study.
<b>Necessary Equipment:</b>	None
<b>Aligned Student Organization(s):</b>	DECA: <a href="http://www.decatn.org">http://www.decatn.org</a> FBLA: <a href="http://www.fblatn.org">http://www.fblatn.org</a>
<b>Coordinating Work-Based Learning:</b>	Teachers who hold an active WBL certificate may offer placement for credit when the requirements of the state board's WBL Framework and the Department's WBL Policy Guide are met. For information, visit <a href="https://www.tn.gov/content/tn/education/career-and-technical-education/work-based-learning.html">https://www.tn.gov/content/tn/education/career-and-technical-education/work-based-learning.html</a> .
<b>Promoted Tennessee Student Industry Credentials:</b>	Credentials are aligned with postsecondary and employment opportunities and with the competencies and skills that students acquire through their selected program of study. For a listing of promoted student industry credentials, visit <a href="https://www.tn.gov/education/career-and-technical-education/student-industry-certification.html">https://www.tn.gov/education/career-and-technical-education/student-industry-certification.html</a>
<b>Teacher Endorsement(s):</b>	030, 035, 039, 052, 054, 152, 153, 158, 202, 204, 311, 430, 435, 436, 471, 472, 474, 475, 476, 503, 776, 952, 953, 958
<b>Required Teacher Certifications/Training:</b>	None
<b>Teacher Resources:</b>	<a href="https://www.tn.gov/education/career-and-technical-education/career-clusters/cte-cluster-marketing.html">https://www.tn.gov/education/career-and-technical-education/career-clusters/cte-cluster-marketing.html</a> . Best for All Central: <a href="https://bestforall.tnedu.gov/">https://bestforall.tnedu.gov/</a>

## Course-at-a-Glance

CTE courses provide students with an opportunity to develop specific academic, technical, and 21st century skills necessary to be successful in career and in life. In pursuit of ensuring every student in Tennessee achieves this level of success, we begin with rigorous course standards which feed into intentionally designed programs of study.

Students engage in industry relevant content through general education integration and experiences such as career & technical student organizations (CTSO) and work-based learning (WBL). Through these experiences, students are immersed with industry standard content and technology, solve industry-based problems, meaningfully interact with industry professionals and use/produce industry specific, informational texts.

### Using a Career and Technical Student Organization (CTSO) in Your Classroom

CTSOs are a great resource to put classroom learning into real-life experiences for your students through classroom, regional, state, and national competitions, and leadership opportunities. Below are CTSO connections for this course, note this is not an exhaustive list.

- Participate in CTSO Fall Leadership Conference, DECA and FBLA Fall Leadership Camps, FBLA Regional and State Leadership Conferences, and DECA Emerging Leader Summit to engage with peers by demonstrating logical thought processes and developing industry specific skills that involve teamwork and project management
- Participate in conferences that promote career development such as DECA Career Pathways and Career Development Conferences
- Participate in FBLA career competitive events that highlight career development, including developing an electronic career portfolio, interviewing skills, career exploration, and crafting an elevator speech
- Participate in DECA competitive events such as Integrated Marketing Campaign – Event, Product, and/or Service, Marketing Communications Series, Marketing Management Team Decision Making, and Principles of Marketing
- Participate in FBLA competitive events such as Management Information Systems, Management Decision Making, Critical Thinking, Organizational Leadership, Spreadsheet Applications, and Supply Chain Management

For more ideas and information, visit Tennessee DECA at <https://www.decatn.org/> and Tennessee FLBA at <https://www.fblatn.org/>.

### Using Work-based Learning (WBL) in Your Classroom

Sustained and coordinated activities that relate to the course content are the key to successful work-based learning. Possible activities for this course include the following. This is not an exhaustive list.

- **Standards 1.1-1.2** | Job shadowing and industry tours with supply chain industry professionals for students to learn about personal and environmental safety practices used in the industry.
- **Standard 2.1** | Compensated internship or on-the-job training in the supply chain industry for students to develop their professionalism and communication skills.
- **Standard 2.4** | On-the-job training in the area of supply chain for students to learn the essential skills and attributes to succeed in the industry.

- **Standard 3.1** | Job shadowing, informational interviews, and virtual exchanges with professionals in the supply chain industry for students to learn about the shipping, receiving, processing, and storing of products.
- **Standard 3.4** | On-the-job training with a local business for students to gain experience with the order cycle and relevant information systems.
- **Standard 3.5** | Technical mentoring through online interactions with professionals in the supply chain industry for students to analyze real-world supply chain disruptions.
- **Standard 4.2** | Virtual exchanges and job shadowing with a local retail operation for students to learn about transportation delivery routes.
- **Standard 5.1** | Integrated project with multiple interactions with professionals in the supply chain industry for students to plan and develop a supply chain distribution center.
- **Standard 6.1** | On-the-job training for students to develop their career portfolios, including acquiring the necessary technical skills and training, creating their resumes, and other key documentation.

## Course Description

*Supply Chain Management III: Management and Logistics* prepares students for a capstone learning experience in logistics, planning, and management systems. A range of business tasks will be undertaken to support the operation of supply chain processes including coordinating and controlling the order cycle and associated information systems. Through exposure to crucial business activities such as project management, analyzing logistical problems, and producing new solutions, students will acquire advanced skills related to business professionalism, ethics, policies, and communication. Upon completion of this course, a proficient student will be prepared for further education and careers in the supply chain industry.

## Course Standards

### 1. Occupational Safety

- 1.1 Safety Procedures and OSHA 10 Certification: Identify the procedure for obtaining the **OSHA 10 General Industry Certification**. Create a **safety procedures manual** for new employees working in a warehouse facility. Outline the **personal and environmental safety practices** associated with the appropriate handling and storage methods of materials in accordance with local, state, and federal safety and environmental regulations.
  - a. Include employee responsibilities and protocols for adhering to regulations, Occupational Safety & Health Administration (OSHA) policies regarding reporting of accidents and observed hazards, and emergency response procedures.
  - b. Include information on how to interpret Material Safety Data Sheets (MSDS) to determine any hazards related to materials handling.
  - c. Include the appropriate signs and symbols to identify hazardous materials within warehouses and during transportation of the materials.
- 1.2 Safety Equipment Demonstration: Prepare and deliver a **safety demonstration** on the **use** of a specific piece of safety equipment or personal protective equipment (PPE).

### 2. Communications and Professionalism

- 2.1 Verbal and Nonverbal Communication Skills: Practice **effective verbal, nonverbal, written, and electronic communication skills** for working with customers, employees, dispatchers, wholesalers, and retailers. Demonstrate the ability to listen attentively, speak courteously and respectfully, discuss client ideas/vision, resolve conflicts, and respond to customer objections or complaints to the customer's satisfaction.
- 2.2 Microsoft Excel and Information Management: Demonstrate **proficiency with Microsoft Excel** to manage and analyze data, keep records, and solve problems. Use the **Microsoft Excel Solver add-in** to practice solving optimization problems by performing a what-if analysis.

2.3 Codes of Ethics and Ethical Sourcing: Analyze **Codes of Ethics** from various transportation, distribution, and logistics-related professional organizations and/or companies, focusing on what these codes reveal about an organization's work culture and values. Address the **role of ethical sourcing** and its effect on consumer decisions.

2.4 Career Skills and Traits: Research job descriptions, career information, and online job boards to identify **desirable employability skills and character traits** for professionals working in the area of supply chain management. Define the characteristic, state why it is important for people working in the field, and list at least two ways to develop that skill. Possible skills include, but are not limited to:

- a. Collaboration
- b. Honesty
- c. Reliability
- d. Communication
- e. responsibility
- f. Problem-solving
- g. Ability to work under pressure
- h. Flexibility/adaptability
- i. Workplace etiquette
- j. Leadership
- k. Cross-cultural/diversity and inclusion

2.5 Negotiations: Investigate the **importance of negotiation** in business, specifically in supply chain management. Identify negotiation preparation strategies, effective negotiation strategies and tactics, how to develop a fair and comprehensive negotiation plan, and how to select a business partner that has a like-minded mission.

### 3. Warehousing Management

*Note: For the following standards, teachers are encouraged to leverage relationships with local businesses to bring in representatives for class discussions and/or supply examples of management processes and other relevant documents.*

3.1 Layout Plans: Use information from field visits, texts, and personal communications with business representatives to create **layout plans** for processing incoming and outgoing, cross-docking, and storage of products. Provide a sketch of the **shipping and receiving area** and write out a **standard operating procedure** for each.

3.2 Flow Charts and Value Stream Mapping: Create a **flow chart** for **processing incoming goods and materials** using standardized industry protocols and procedures, including processes for dealing with damaged, incorrect, and incomplete orders. Develop a current state, future state, and ideal state **value stream map**.

3.3 Product Shipment Planning: Simulate the **work of a warehouse manager or logistician** by planning for the shipment of a product. Given a set of constraints, apply **Lean**

**Manufacturing and Lean Layout principles** to determine the number of pallets needed and assign dock doors to accommodate the appropriate number of loads.

3.4 Order Cycle: Develop a profile of how a local business **coordinates and controls the order cycle and associated information systems** of scheduling, cost analysis, documentation confirmation, packing lists, MSDS, product seals, packaging types, packaging labels, and routing issues. Include a description of the **performance metrics** used to monitor the quality, quantity, cost, and efficiency of the movement and storage of goods.

3.5 Supply Chain Disruptions: Analyze a **case study of a supply chain disruption** for a particular product or company. Describe what went wrong, how management addressed the problem, whether or not the issue was resolved, and the impact it had on either the supply chain or the industry as a whole.

#### 4. Supply Chain Efficiency

4.1 Supply Chain Optimization: Apply the **skills of supply chain optimization** by selecting an existing business and creating a **value stream map** of the product and information flow. Identify the non-efficient or wasteful areas and create an optimized plan for improvement. Redesign a supply chain to make it more efficient.

4.2 Transportation Delivery Routes: Design **cost-effective transportation delivery routes** to a minimum of five in-state locations for an existing Tennessee retail operation. Include instructions on how to **plan and manage the loading of freight** (truck or airplane) and design routes to minimize costs.

4.3 Last Mile Strategies: Investigate the use of **last mile strategies** in supply chain management, comparing inventory deployment, response/delivery time constraints, product return processing, and modes of deliveries for last mile and traditional supply chains. Alter a traditional supply chain into a last mile supply chain for an existing product and create a presentation on the ramifications of the change.

#### 5. Capstone Project

5.1 Planning a Distribution Center: Create a **plan for a distribution center** to include the following:

- a. Select a location for the center and indicate on a map the service area for the distribution center.
- b. Using online mapping applications, identify businesses within the area that could be potential customers.
- c. Determine the type of distribution center to build based on potential customers—for example, a retail distribution center, a service parts distribution center, a catalog or e-commerce distribution center, or a 3PL (3rd party) distribution center.
- d. Include a brief description of how each of the following operations will be handled at the distribution center: dock operations, receiving operations, storage operations,

picking operations, packaging operations, shipping operations, and processing returns.

- e. Evaluate possible material handling and storage equipment for use in the distribution center and assess when and where to use multiple warehouses and distribution centers.
- f. Investigate the modes of transportation to be used to ship materials and develop guidelines for when to use each. Consider truck, rail, air transport, maritime transport, intermodal, and outsourcing as methods of moving product.
- g. Develop clearly defined and measurable metrics to assess progress, and supply sample cost and revenue projections based on specified inventory, overhead, variable costs, and other inputs.

## 6. Career Portfolio

6.1 Electronic Career Portfolio: Compile examples that represent **professional and personal skill attainment** into an electronic career portfolio. Develop a plan to distribute the portfolio as part of a career job search and/or admission to a postsecondary program.

Portfolio items may include:

- a. Attainment of technical skill competencies, licensures or certifications, recognitions, awards, and scholarships
- b. Documentation of extended learning experiences, such as community service, professional organizations, or internships
- c. Abstract of technical competencies mastered during the practicum
- d. Resume
- e. Examples of best work
- f. Other examples compiled in previous courses

## Standards Alignment Notes

\*References to other standards include:

- P21: Partnership for 21st Century Skills [Framework for 21st Century Learning](#)
  - o Note: While not all standards are specifically aligned, teachers will find the framework helpful for setting expectations for student behavior in their classroom and practicing specific career readiness skills.