Global Logistics and Enterprise Systems I

8419 36 weeks

Table of Contents

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Course Description

Suggested Grade Level: 10 or 11 or 12

Logistics is moving the right goods to the right place at the right time for the right price at the right quality. The two-course sequence is designed to build a workforce to capitalize on the projections from the Commonwealth Center of Advanced Logistics Systems (CCALS) to meet the rapidly increasing demand for high-skilled, high-wage supply chain and logistics systems professionals.

This first course in the sequence will introduce students to global logistics in a virtual enterprise systems environment. Topics include navigating logistics management and enterprise resource planning (ERP) systems while managing procurement, fulfillment, and warehouse processes.

Task Essentials Table

- Tasks/competencies designated by plus icons (⊕) in the left-hand column(s) are essential
- Tasks/competencies designated by empty-circle icons (◯) are optional
- Tasks/competencies designated by minus icons (⊖) are omitted
- Tasks marked with an asterisk (*) are sensitive.

Task Number	8419	Tasks/Competencies	
		Exploring Logistics Management	
39	⊕	Define *logistics*.	
40	⊕	Identify Career Clusters and Career Pathways related to logistics	
41	⊕	Identify the economic impacts of logistics.	
42	⊕	Describe the systems and total-cost approaches to logistics.	
43	⊕	Define *supply chain* and *marketing channels*.	
44	⊕	Describe the activities in the supply chain and logistics channel.	
45	⊕	Describe the organizational structure for logistics.	
46	⊕	Differentiate between the traditional and contemporary organizational designs for logistics.	
47	⊕	Describe productivity issues in logistics.	
48	⊕	Identify issues associated with reverse logistics.	
49	⊕	Describe common operational measures of logistics performance.	
50	⊕	Describe the variables affecting supply chain management implementation.	
51	⊕	Identify potential barriers to supply chain management implementation.	
52	⊕	Describe supply chain integration.	
53	⊕	Identify the critical elements of managing supply chains and logistics operations.	
		Navigating Enterprise Resource Planning (ERP) Systems	

54	⊕	Describe information technology challenges in logistics.	
55	⊕	Describe the types of logistical information systems.	
56	⊕	Describe the relationship between data requirements and logistics.	
	⊕	Describe the effects of Internet technologies on logistics.	
57	⊕	Define *management information system* (MIS).	
58	⊕	Describe computer hardware, software, networks, and the basic structure of the Internet.	
59	⊕	Describe the components and purpose of a database application system.	
60	⊕	Describe how MIS affects organizational strategy.	
61	⊕	Differentiate among the five forces that determine industry structure.	
62	⊕	Define *business processes*.	
63	⊕	Describe the relationship between business processes and information systems.	
64	⊕	Describe the virtualized computing environment.	
65	⊕	Describe the need for information quality.	
66	⊕	Describe the value-chain structure.	
67	⊕	Analyze the integration of business processes.	
68	⊕	Improve a business process, using an information system.	
69	⊕	Describe the characteristics of fundamental collaboration processes.	
70	⊕	Research the evolution of ERP systems.	
71	⊕	Describe the elements of an ERP system and the major ERP software vendors.	
72	⊕	Describe how enterprise systems support business processes.	
73	⊕	Evaluate the challenges of ERP system implementation.	
74	⊕	Identify the data categories in an ERP system.	
75	⊕	Identify ERP reporting options.	

76	⊕	Navigate the ERP system, accessing help resources as needed.	
77	⊕	Describe business intelligence systems.	
78	⊕	Research the effect of social media and Web 2.0 on organizations and their processes.	
79	⊕	Perform a data-mining and analytics operation in an ERP system.	
80	⊕	Describe the components of MIS and the business processes it manages.	
81	⊕	Identify the characteristics and activities of the system development life cycle.	
82	⊕	Describe cyber security.	
83	⊕	Analyze the effectiveness of an organization's security program.	
84	⊕	Determine the technical safeguards for a security program.	
Managing Procurement Processes			
85	⊕	Describe the relationship between procurement and supply chain management.	
86	⊕	Describe procurement objectives.	
87	⊕	Describe supplier development, selection, evaluation, and relationship.	
88	⊕	Identify quality issues in procurement.	
89	⊕	Describe global procurement.	
90	⊕	Describe the procurement process in an ERP system, including organization and master data.	
91	⊕	Demonstrate the procurement process in an ERP system.	
92	⊕	Prepare procurement reports in an ERP system.	
Managing Fulfillment and Customer Service Processes			
93	⊕	Describe the correlation among demand management, order management, and customer service.	
94	⊕	Apply a demand forecasting model to a business scenario.	

95	⊕	Identify the order cycle and its components.	
96	⊕	Describe customer service as it pertains to logistics.	
97	⊕	Describe the fulfillment process in an ERP system, including organization and master data.	
98	⊕	Describe how ERP systems improve the customer relations of an organization.	
99	⊕	Describe how e-commerce benefits from using ERP systems.	
100	⊕	Demonstrate the fulfillment process in an ERP system.	
101	⊕	Demonstrate integration of fulfillment with other processes.	
102	⊕	Prepare fulfillment process reports.	
Managing Warehouse Processes			
103	⊕	Classify inventory by applying a variety of methods.	
104	⊕	Describe inventory costs and trade-offs.	
105	⊕	Differentiate among a variety of inventory flow patterns.	
106	⊕	Describe the types of inventory management (e.g., accuracy, accountancy, metrics, IT, compliance, preventive maintenance, obsolescence).	
107	⊕	Identify emerging approaches to managing inventory.	
108	⊕	Describe the role of warehousing in a logistics system.	
109	⊕	Differentiate among public, private, contract, and multiclient warehousing.	
110	⊕	Describe considerations when designing warehousing facilities.	
111	⊕	Analyze operational issues in warehousing.	
112	⊕	Identify the four goods movements of inventory management.	
113	⊕	Describe warehouse management and its basic organizational levels.	
114	⊕	Analyze the master data associated with warehouse management operations.	

115	⊕	Integrate inventory and warehouse management processes with other processes.	
116	⊕	Manage warehouse processes in an ERP system.	
117	⊕	Prepare warehouse management process reports in an ERP system.	

Legend: ⊕Essential ◯Non-essential ⊖Omitted

Curriculum Framework

Exploring Logistics Management

Task Number 39

Define *logistics*.

Definition

Definition should include

- managing all aspects of the supply chain
- identifying resources
- determining the way resources are acquired, transported, and stored along the supply chain.

Common Career Technical Core

TD1
Describe the nature and scope of the Transportation, Distribution & Logistics Career Cluster and the role of transportation, distribution and logistics in society and the economy.

Task Number 002

Identify Career Clusters and Career Pathways related to logistics

Definition

Identification should include any segment of the following:

- Business Management and Administration—Business Information Management
- Manufacturing—Logistics and Inventory Control; and Manufacturing Production Process Development
- STEM—Engineering and Technology
- Transportation, Distribution and Logistics—Facility and Mobile Equipment Maintenance; Health, Safety and Environmental Management; Logistics Planning and Management Services; Sales and Service; Transportation Operations; Transportation Systems/Infrastructure Planning, Management and Regulation; and Warehousing and Distribution Center Operations

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Task Number 003

Identify the economic impacts of logistics.

Definition

Identification should include the way logistics benefits

- supply and demand
- free markets
- job-growth efficiencies.

Common Career Technical Core

TD1
Describe the nature and scope of the Transportation, Distribution & Logistics Career Cluster and the role of transportation, distribution and logistics in society and the economy.

Task Number 004

Describe the systems and total-cost approaches to logistics.

Definition

Description should include

- systems approach—one central supply-chain management concept for all departments within any organization (all departments are interrelated)
- total-cost approach—also referred to as *the total logistics concept*, a measurement of costs that follows products through all aspects of the supply chain.

Task Number 005

Define *supply chain* and *marketing channels*.

Definition

Definition should include

- supply chain—a system of organizations, people, activities, information, and resources needed to move a product or service from supplier to customer
- marketing channels—manufacturers, wholesalers, and retailers and the procedures required to move goods through the supply chain.

Task Number 006

Describe the activities in the supply chain and logistics channel.

Definition

Description should include

- order-to-cash process
- procure-to-pay process
- production process
- transportation and distribution
- reverse logistics.

Common Career Technical Core

TD3
Describe the key operational activities required of successful transportation, distribution and logistics facilities.

Task Number 007

Describe the organizational structure for logistics.

Definition

Description should include the following components as main departments:

- Distribution
- Inventory
- Warehousing
- Transportation
- Supply chain
- Procurement
- Fulfillment
- Customer service
- Production
- Packaging
- Material handling
- Business processes and integration
- Logistics information systems
- Enterprise resource planning
- Business intelligence
- Management information systems

Task Number 008

Differentiate between the traditional and contemporary organizational designs for logistics.

Definition

Differentiation should include

- traditional—logistics are managed by each department in a business
- contemporary—logistics are managed centrally for all departments.

Common Career Technical Core

TD2
Describe the application and use of new and emerging advanced techniques to provide solutions for transportation, distribution and logistics problems.

Task Number 009

Describe productivity issues in logistics.

Definition

Description should include

- routing optimization
- third-party logistics (3PL)
- lean logistics
- waste.

Common Career Technical Core

TD-LOG2
Analyze and improve performance of logistics systems to provide logistics planning and management services.

Task Number 010

Identify issues associated with reverse logistics.

Definition

Identification should include those issues associated with managing the logistics process

- from point of consumption back to the value of origin in the supply chain
- for the purpose of recapturing value or proper disposal.

Common Career Technical Core

TD-LOG2
Analyze and improve performance of logistics systems to provide logistics planning and management services.

Task Number 011

Describe common operational measures of logistics performance.

Definition

Description should include effectiveness measures (e.g., order cycle, on-time delivery, customer complaints) and efficiency measures (e.g., units processed per unit of time, unused warehouse space, freight costs).

Common Career Technical Core

TD-LOG2
Analyze and improve performance of logistics systems to provide logistics planning and management services.

Task Number 012

Describe the variables affecting supply chain management implementation.

Definition

Description should include

- demand
- network
- production and scheduling
- transportation.

Task Number 013

Identify potential barriers to supply chain management implementation.

Definition

Identification should include

- technology
- information
- measurement system(s)
- personnel (e.g., morale, reluctance to change, willingness to work together).

Common Career Technical Core

TD-LOG1
Develop solutions to provide and manage logistics services for the company and customers.

Task Number 014

Describe supply chain integration.

Definition

Description should include identifying and connecting all variables, partners, and other businesses that can affect production costs by their involvement at any point along the supply chain.

Task Number 015

Identify the critical elements of managing supply chains and logistics operations.

Definition

Identification should include

- variables that can be controlled/influenced and those that cannot
- relationships between variables along the supply chain.

Common Career Technical Core

TD-LOG2
Analyze and improve performance of logistics systems to provide logistics planning and management services.

Navigating Enterprise Resource Planning (ERP) Systems

Task Number 016

Describe information technology challenges in logistics.

Definition

Description should include the reliability of effective and efficient information processing, such as

- system failures
- data migration issues
- cyber security vulnerabilities
- platform integration.

Task Number 017

Describe the types of logistical information systems.

Definition

Description should include

- office automation systems
- communication systems
- transaction processing systems
- management and executive information systems
- decision support systems
- enterprise systems.

Task Number 018

Describe the relationship between data requirements and logistics.

Definition

Description should include

- defining analysis approaches and techniques
- defining and reviewing assumptions
- identifying data sources

- collecting data
- collecting validation of data.

Common Career Technical Core

BM-BIM3
Access, evaluate and disseminate information for business decision making.

Task Number 019

Describe the effects of Internet technologies on logistics.

Definition

Description should include

- disintermediation
- cost
- cycle time
- competitive advantages.

Common Career Technical Core

TD2
Describe the application and use of new and emerging advanced techniques to provide solutions for transportation, distribution and logistics problems.

Task Number 020

Define *management information system* (MIS).

Definition

Definition should include the following system components:

- Hardware
- Software
    - Life cycle
    - Documentation
    - Maintenance
- Data
    - Collection and retention of data

- o   Dissemination of data for decision making
- Procedures
  - o   Project Planning
  - o   Risk analysis
- People

Common Career Technical Core

BM5
Implement systems, strategies and techniques used to manage information in a business.

Task Number 021

Describe computer hardware, software, networks, and the basic structure of the Internet.

Definition

Description should include the following components:

- Hardware
  - o   Internal devices
    - ▪ Power supply
    - ▪ Cards
    - ▪ Memory
  - o   Peripheral devices
    - ▪ Printer
    - ▪ Scanner
    - ▪ External Hard Drive
  - o   Mobile Devices
- Software
  - o   Windows
  - o   Unix
  - o   Linux
  - o   Android
- Networks
  - o   Wired
    - ▪ Switches vs Routers
  - o   Wireless (Wi-Fi)
    - ▪ IEEE 802.11 protocol
      - ▪ 802.11a, 802.11b/g/n, and 802.11ac
  - o   LAN (local area network)
  - o   WAN (wide area network)
- Basic Structure of the Internet

- - Network of networks
    - Internet Protocol
      - TCP/IP
        - Addresses (e.g., http)
    - Packets
    - Client/Server
    - Cloud
- Satellite

Task Number 022

Describe the components and purpose of a database application system.

Definition

Description should include the following components:

- Data
- Hardware
- Software
  - SQL
  - Models:
    - Hierarchical
    - Network
    - Relational
    - Object/Relational
    - Object-Oriented
    - Semi-structured
- Users
  - Naive or parametric end users
    - Bank teller
  - Sophisticated end users
    - Analyst
  - Stand-Alone users
    - Uses packaged systems
- Purpose
- Organize data
- Store data
- Retrieve data
  - Current
    - See current performance
  - Statistical

Common Career Technical Core

BM-BIM3
Access, evaluate and disseminate information for business decision making.

Task Number 023

Describe how MIS affects organizational strategy.

Definition

Description should include

- management by objectives
- decision support
- MIS in small vs. large organizations
- benefits of organized information.

Common Career Technical Core

BM5
Implement systems, strategies and techniques used to manage information in a business.

Task Number 024

Differentiate among the five forces that determine industry structure.

Definition

Differentiation should compare the variables that affect profits:

- Threat of new entrants to a market
- Bargaining power of suppliers
- Bargaining power of customers
- Threat of substitute products
- Degree of competitive rivalry

Task Number 025

Define *business processes*.

Definition

Definition should include

- silo effects
- integration
- structured processes
- dynamic processes.

Task Number 026

Describe the relationship between business processes and information systems.

Definition

Description should include

- types of information systems
    - transaction processing
    - management information
    - decision support
    - communications and collaborations
- a variety of business processes
- how the information system affects the business process.

Common Career Technical Core

BM5
Implement systems, strategies and techniques used to manage information in a business.
BM6
Implement, monitor and evaluate business processes to ensure efficiency and quality results.

Task Number 027

Describe the virtualized computing environment.

Definition

Description should include

- operating and utility systems
- storage
- memory
- software
- allocation and reassignment of input/output and other processes
- data backup
- automated problem solving and troubleshooting
- tools for monitoring and managing systems.

Task Number 028

Describe the need for information quality.

Definition

Description should include

- defining *information quality*
- providing a rationale for information quality
- comparing data with information
- identifying the negative effects of poor information
- measuring and managing project management goals (e.g., completeness of records, consistency, timeline, accuracy)
- adjusting data.

Common Career Technical Core

BM-BIM3
Access, evaluate and disseminate information for business decision making.

Task Number 029

Describe the value-chain structure.

Definition

Description should include

- firm infrastructure

- human resource management
- technology development
- procurement
- inbound logistics
- operations
- outbound logistics
- marketing and sales
- services.

Task Number 030

Analyze the integration of business processes.

Definition

Analysis should include

- integration points
- benefits
- impacts
- end-to-end flows.

Common Career Technical Core

BM6
Implement, monitor and evaluate business processes to ensure efficiency and quality results.

Task Number 031

Improve a business process, using an information system.

Definition

Improvement should be based on increased efficiencies or effectiveness of a given project's business process. The project should include

- overview of business process
- identification of information system
- as-is versus to-be maps
- outcome and results.

Common Career Technical Core

BM5
Implement systems, strategies and techniques used to manage information in a business.
BM6
Implement, monitor and evaluate business processes to ensure efficiency and quality results.

Task Number 032

Describe the characteristics of fundamental collaboration processes.

Definition

Description should include

- style
- goals
- shared responsibility
- accountability

Task Number 033

Research the evolution of ERP systems.

Definition

Research should include

- the history of ERP
- major vendors
- system transformation over time
- current trends
- future expectations.

Common Career Technical Core

TD2
Describe the application and use of new and emerging advanced techniques to provide solutions for transportation, distribution and logistics problems.

Task Number 034

Describe the elements of an ERP system and the major ERP software vendors.

Definition

Description should include

- process modules
- vendors and their systems
- small and medium enterprises (SME) ERP vendors
- cloud ERP vendors.

Task Number 035

Describe how enterprise systems support business processes.

Definition

Description should include

- information flow
- transaction data
- real-time information
- common database.

Task Number 036

Evaluate the challenges of ERP system implementation.

Definition

Evaluation should include

- project-management issues

- cost
- legacy systems
- change management
- technical resources and requirements.

Common Career Technical Core

BM5
Implement systems, strategies and techniques used to manage information in a business.

Task Number 037

Identify the data categories in an ERP system.

Definition

Identification should include

- organizational data
- rule and policy data
- master data
- transactional data.

Task Number 038

Identify ERP reporting options.

Definition

Identification should include

- standard reports
- report variants
- information system reports
- custom reports.

Common Career Technical Core

ST2
Use technology to acquire, manipulate, analyze and report data.

Task Number 039

Navigate the ERP system, accessing help resources as needed.

Definition

Navigation elements should include

- ERP interface
- basic system navigation
- help resources
- input fields
- transaction screens.

Task Number 040

Describe business intelligence systems.

Definition

Description should include

- the need for business intelligence
- business intelligence systems available
- reporting applications
- business intelligence tools
- business intelligence components.

Task Number 041

Research the effect of social media and Web 2.0 on organizations and their processes.

Definition

Research should identify applications that illustrate how social media and Web 2.0 tools are used to

- reach and engage customers
- empower and connect employees
- coordinate with suppliers and partners
- gather data and research
- collaborate and innovate
- provide internal agility in processes, systems, and decision making.

Common Career Technical Core

TD2
Describe the application and use of new and emerging advanced techniques to provide solutions for transportation, distribution and logistics problems.

Task Number 042

Perform a data-mining and analytics operation in an ERP system.

Definition

Performance should include

- running data-mining applications
- applying data-mining techniques
- completing a market analysis
- creating decision trees
- identifying other analytical capabilities.

Common Career Technical Core

ST2
Use technology to acquire, manipulate, analyze and report data.

Task Number 043

Describe the components of MIS and the business processes it manages.

Definition

Description should include

- requirements
- financials
- pricing strategies
- expenses
- employees.

Task Number 044

Identify the characteristics and activities of the system development life cycle.

Definition

Identification should include

- different models in use (e.g., waterfall model)
- the procurement process
- distinct activities
  - requirements
  - definition
  - design
  - development
  - testing (developmental and operational)
  - implementation
  - maintenance
- documentation and configuration management.

Task Number 045

Describe cyber security.

Definition

Description should include

- applicable standards
- security policy
- certification and accreditation
- best practices
- data sharing between systems.

Task Number 046

Analyze the effectiveness of an organization's security program.

Definition

Analysis should include

- security policies
- assurance levels
- system-level and component-level safeguards
- penetration testing.

Task Number 047

Determine the technical safeguards for a security program.

Definition

Determination of safeguards should include

- vulnerability analysis
- security analysis report
- applicable standards
- certification and accreditation requirements (i.e., clearance levels).

Managing Procurement Processes

Task Number 048

Describe the relationship between procurement and supply chain management.

Definition

Description should include

- information flow
- material flow
- integration.

Task Number 049

Describe procurement objectives.

Definition

Description should include

- cost
- quality
- delivery
- service.

Task Number 050

Describe supplier development, selection, evaluation, and relationship.

Definition

Description should include

- process
- information requirements
- stakeholders
- systems.

Common Career Technical Core

TD4

Identify governmental policies and procedures for transportation, distribution and logistics facilities.

Task Number 051

Identify quality issues in procurement.

Definition

Identification should include

- inspection
- statistical process control (SPC)
- returns
- service.

Task Number 052

Describe global procurement.

Definition

Description should include

- organization elements
- sourcing strategies
- advantages
- disadvantages.

Common Career Technical Core

TD4
Identify governmental policies and procedures for transportation, distribution and logistics facilities.

Task Number 053

Describe the procurement process in an ERP system, including organization and master data.

Definition

Description should include

- purchasing organization
- vendor master
- material master
- transactions.

Common Career Technical Core

TD4
Identify governmental policies and procedures for transportation, distribution and logistics facilities.

Task Number 054

Demonstrate the procurement process in an ERP system.

Definition

Demonstration should include

- purchase order (PO) creation
- goods receipt
- invoice receipt
- vendor payment.

Task Number 055

Prepare procurement reports in an ERP system.

Definition

Preparation should include

- pricing model
- management
- quality control
- product life cycle
- supply chain

- selection process.

Common Career Technical Core

ST2
Use technology to acquire, manipulate, analyze and report data.

Managing Fulfillment and Customer Service Processes

Task Number 056

Describe the correlation among demand management, order management, and customer service.

Definition

Description should include

- data requirements
- data transfer points
- stakeholders.

Common Career Technical Core

TD-SAL1
Analyze the ongoing performance of transportation, logistics and distribution-related sales and service operations.

Task Number 057

Apply a demand forecasting model to a business scenario.

Definition

Description should include

- different types of forecasts
    - economic forecasts
    - environmental forecasts
    - market and product forecasts
    - sales forecasts
- short, medium and long-term planning
- corporate planning
- product and market planning
- sales planning
- financial planning
- forecasting methods
- historical analogy
- moving averages
- exponential smoothing
- correlation
- surveys.

Task Number 058

Identify the order cycle and its components.

Definition

Identification should include

- sales order
- pick, pack, ship
- accounting documents.

Task Number 059

Describe customer service as it pertains to logistics.

Definition

Description should include

- process

- costs
- business impacts.

Common Career Technical Core

TD-SAL2
Demonstrate the use of sales and ongoing service of products and services that are transportation related to promote development of existing and future clients and customers.

Task Number 060

Describe the fulfillment process in an ERP system, including organization and master data.

Definition

Description should include

- sales organization structure
- customer master
- material master
- transactions.

Task Number 061

Describe how ERP systems improve the customer relations of an organization.

Definition

Description should include

- real-time information
- single point of information
- process integration.

Common Career Technical Core

TD-SAL2

Demonstrate the use of sales and ongoing service of products and services that are transportation related to promote development of existing and future clients and customers.

Task Number 062

Describe how e-commerce benefits from using ERP systems.

Definition

Description should include

- real-time information
- inventory visibility
- virtual supply chain.

Task Number 063

Demonstrate the fulfillment process in an ERP system.

Definition

Demonstration should include

- sales order
- goods issue
- billing
- customer payment.

Task Number 064

Demonstrate integration of fulfillment with other processes.

Definition

Demonstration should integrate

- sales-generated production
- production order

- accounting impacts
- sales order delivery.

Task Number 065

Prepare fulfillment process reports.

Definition

Preparation should include

- purchase-order report
- pending purchase-order report
- expected delivery-date report
- integrated marketing communication (IMC) tracking-system report
- profit/loss report
- cost-analysis fulfillment report.

Common Career Technical Core

ST2
Use technology to acquire, manipulate, analyze and report data.

Managing Warehouse Processes

Task Number 066

Classify inventory by applying a variety of methods.

Definition

Classification should include the inventory

- type
- value
- usage

- rate
- spoilage.

Common Career Technical Core

MN-LOG4
Manage inventory using logistics and control processes and procedures.
TD-WAR1
Demonstrate efficient and effective warehouse and distribution center operations.
TD2
Describe the application and use of new and emerging advanced techniques to provide solutions for transportation, distribution and logistics problems.

Task Number 067

Describe inventory costs and trade-offs.

Definition

Description should include

- ordering
- holding
- obsolescence
- shortage.

Task Number 068

Differentiate among a variety of inventory flow patterns.

Definition

Differentiation should include

- inventory type
- internal vs. external
- first in, first out (FIFO) vs. last in, first out (LIFO)
- costs.

Task Number 069

Describe the types of inventory management (e.g., accuracy, accountancy, metrics, IT, compliance, preventive maintenance, obsolescence).

Definition

Description should include

- inventory type
- inventory value
- inventory models
- information systems.

Common Career Technical Core

MN-LOG4
Manage inventory using logistics and control processes and procedures.

Task Number 070

Identify emerging approaches to managing inventory.

Definition

Identification should include

- third-party logistics (3PL) and fourth-party logistics (4PL)
- vendor managed
- consignment
- leanness
- drop ship.

Common Career Technical Core

MN-LOG4
Manage inventory using logistics and control processes and procedures.
TD2
Describe the application and use of new and emerging advanced techniques to provide solutions for transportation, distribution and logistics problems.

Task Number 071

Describe the role of warehousing in a logistics system.

Definition

Description should include

- storage
- material handling
- order fulfillment
- automation.

Common Career Technical Core

TD3
Describe the key operational activities required of successful transportation, distribution and logistics facilities.

Task Number 072

Differentiate among public, private, contract, and multiclient warehousing.

Definition

Differentiation should include

- facilities
- ownership
- bonding
- costs.

Common Career Technical Core

TD-WAR3
Analyze compliance with company policies and government laws and regulations in warehouse and distribution operations.

Task Number 073

Describe considerations when designing warehousing facilities.

Definition

Description should include

- types of product
- flow patterns
- automation
- size
- costs.

Task Number 074

Analyze operational issues in warehousing.

Definition

Analysis should include

- hours of operation
- analysis of just-in-time or conventional logistics methods
- channels of distribution and a cost and safety analysis
- analysis of peak and non-peak purchase order fulfillment demands
- labor-cost analysis
- climate control loss-reduction analysis
- asset utilization and accountability
- inventory control (e.g., automatic unit replacement)
- scheduled maintenance and repair of equipment.

Common Career Technical Core

TD-WAR2
Describe ways to improve the performance of warehouse and distribution operations.

Task Number 075

Identify the four goods movements of inventory management.

Definition

Identification should include

- goods receipt
- goods issue
- transfer posting
- returns.

Common Career Technical Core

MN-LOG4
Manage inventory using logistics and control processes and procedures.

Task Number 076

Describe warehouse management and its basic organizational levels.

Definition

Description should include

- receiving
- material handling
- storage
- packaging
- distribution
- shipping.

Task Number 077

Analyze the master data associated with warehouse management operations.

Definition

Analysis should include

- material master
- storage location
- warehouse
- storage racks and bins.

Task Number 078

Integrate inventory and warehouse management processes with other processes.

Definition

Integration should include

- production
- sales
- financial
- quality management
- procurement.

Common Career Technical Core

MN-LOG4
Manage inventory using logistics and control processes and procedures.
TD-WAR1
Demonstrate efficient and effective warehouse and distribution center operations.

Task Number 079

Manage warehouse processes in an ERP system.

Definition

Management should include analyzing the efficiency of the supply chain electronic data interchange (EDI) and access to vendors, delivery systems, and clients.

Common Career Technical Core

TD-WAR1
Demonstrate efficient and effective warehouse and distribution center operations.

Task Number 080

Prepare warehouse management process reports in an ERP system.

Definition

Preparation should include

- inventory controls
- inventory life cycle rotation
- automated re-stock ordering
- asset utilization and accountability
- production forecasting
- production planning and scheduling
- quality inspections
- process management just-in-time (JIT) system or conventional logistics-management system (LMS)
- delivery POS system
- inventory tracking system
- receipt on delivery freight-tracking system (FTS).

Common Career Technical Core

ST2
Use technology to acquire, manipulate, analyze and report data.
TD-WAR1
Demonstrate efficient and effective warehouse and distribution center operations.

SOL Correlation by Task

39	Define *logistics*.	English: 10.3, 10.5, 11.3, 11.5, 12.3, 12.5
40	Identify Career Clusters and Career Pathways related to logistics	
41	Identify the economic impacts of logistics.	History and Social Science: GOVT.1, GOVT.15

42	Describe the systems and total-cost approaches to logistics.	History and Social Science: GOVT.1, GOVT.15
43	Define *supply chain* and *marketing channels*.	English: 10.3, 10.5, 11.3, 11.5, 12.3, 12.5
44	Describe the activities in the supply chain and logistics channel.	
45	Describe the organizational structure for logistics.	History and Social Science: GOVT.1, GOVT.15
46	Differentiate between the traditional and contemporary organizational designs for logistics.	History and Social Science: GOVT.1, GOVT.15
47	Describe productivity issues in logistics.	History and Social Science: GOVT.1, GOVT.15
48	Identify issues associated with reverse logistics.	History and Social Science: GOVT.15
49	Describe common operational measures of logistics performance.	
50	Describe the variables affecting supply chain management implementation.	History and Social Science: GOVT.15
51	Identify potential barriers to supply chain management implementation.	History and Social Science: GOVT.15
52	Describe supply chain integration.	History and Social Science: GOVT.15
53	Identify the critical elements of managing supply chains and logistics operations.	History and Social Science: GOVT.15
54	Describe information technology challenges in logistics.	
55	Describe the types of logistical information systems.	
56	Describe the relationship between data requirements and logistics.	
57	Describe the effects of Internet technologies on logistics.	
58	Define *management information system* (MIS).	English: 10.3, 10.5, 11.3, 11.5, 12.3, 12.5
59	Describe computer hardware, software, networks, and the basic structure of the Internet.	
60	Describe the components and purpose of a database application system.	
61	Describe how MIS affects organizational strategy.	
62	Differentiate among the five forces that determine industry structure.	
63	Define *business processes*.	
64	Describe the relationship between business processes and information systems.	
65	Describe the virtualized computing environment.	

66	Describe the need for information quality.	
67	Describe the value-chain structure.	
68	Analyze the integration of business processes.	
69	Improve a business process, using an information system.	
70	Describe the characteristics of fundamental collaboration processes.	
71	Research the evolution of ERP systems.	English: 10.8, 11.8, 12.8
72	Describe the elements of an ERP system and the major ERP software vendors.	
73	Describe how enterprise systems support business processes.	
74	Evaluate the challenges of ERP system implementation.	
75	Identify the data categories in an ERP system.	
76	Identify ERP reporting options.	
77	Navigate the ERP system, accessing help resources as needed.	
78	Describe business intelligence systems.	
79	Research the effect of social media and Web 2.0 on organizations and their processes.	English: 10.8, 11.8, 12.8
80	Perform a data-mining and analytics operation in an ERP system.	
81	Describe the components of MIS and the business processes it manages.	
82	Identify the characteristics and activities of the system development life cycle.	
83	Describe cyber security.	
84	Analyze the effectiveness of an organization's security program.	
85	Determine the technical safeguards for a security program.	
86	Describe the relationship between procurement and supply chain management.	History and Social Science: GOVT.15
87	Describe procurement objectives.	History and Social Science: GOVT.15
88	Describe supplier development, selection, evaluation, and relationship.	History and Social Science: GOVT.15
89	Identify quality issues in procurement.	History and Social Science: GOVT.15
90	Describe global procurement.	History and Social Science: GOVT.12, GOVT.15
91	Describe the procurement process in an ERP system, including organization and master data.	History and Social Science: GOVT.15
92	Demonstrate the procurement process in an ERP system.	
93	Prepare procurement reports in an ERP system.	
94	Describe the correlation among demand management, order management, and customer service.	

95	Apply a demand forecasting model to a business scenario.	
96	Identify the order cycle and its components.	
97	Describe customer service as it pertains to logistics.	
98	Describe the fulfillment process in an ERP system, including organization and master data.	
99	Describe how ERP systems improve the customer relations of an organization.	
100	Describe how e-commerce benefits from using ERP systems.	
101	Demonstrate the fulfillment process in an ERP system.	
102	Demonstrate integration of fulfillment with other processes.	
103	Prepare fulfillment process reports.	
104	Classify inventory by applying a variety of methods.	
105	Describe inventory costs and trade-offs.	History and Social Science: GOVT.15
106	Differentiate among a variety of inventory flow patterns.	
107	Describe the types of inventory management (e.g., accuracy, accountancy, metrics, IT, compliance, preventive maintenance, obsolescence).	
108	Identify emerging approaches to managing inventory.	
109	Describe the role of warehousing in a logistics system.	
110	Differentiate among public, private, contract, and multiclient warehousing.	
111	Describe considerations when designing warehousing facilities.	
112	Analyze operational issues in warehousing.	
113	Identify the four goods movements of inventory management.	
114	Describe warehouse management and its basic organizational levels.	
115	Analyze the master data associated with warehouse management operations.	
116	Integrate inventory and warehouse management processes with other processes.	
117	Manage warehouse processes in an ERP system.	
118	Prepare warehouse management process reports in an ERP system.	

Entrepreneurship Infusion Units

Entrepreneurship Infusion Units may be used to help students achieve additional, focused competencies and enhance the validated tasks/competencies related to identifying and starting a new business venture. Because the unit is a complement to certain designated courses and is not mandatory, all tasks/competencies are marked "optional."

Appendix: Credentials, Course Sequences, and Career Cluster Information

Industry Credentials: Only apply to 36-week courses

- College and Work Readiness Assessment (CWRA+)
- National Career Readiness Certificate Assessment
- Workplace Readiness Skills for the Commonwealth Examination

Concentration sequences: *A combination of this course and those below, equivalent to two 36-week courses, is a concentration sequence. Students wishing to complete a specialization may take additional courses based on their career pathways. A program completer is a student who has met the requirements for a CTE concentration sequence and all other requirements for high school graduation or an approved alternative education program.*

- Global Logistics and Enterprise Systems II (8422/36 weeks)

Career Cluster: Transportation, Distribution and Logistics	
Pathway	**Occupations**
Logistics Planning and Management Services	**Logistics Analyst** **Logistics Engineer** **Logistics Manager**
Transportation Operations	**Transportation Manager**
Transportation Systems/Infrastructure Planning, Management and Regulation	**Civil Engineer** **Traffic Engineer** **Transportation Manager** **Urban, Regional Planner**
Warehousing and Distribution Center Operations	**Traffic Engineer** **Transportation Manager**