



Ohio

**Procurement, Acquisition,
Logistics, and Supply Chain
Management**

**Technical Competency Profile
(TCP)**

2004

Procurement, Acquisition, Logistics, and Supply Chain Management (PALS)

Technical Competency Profile (TCP)

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This project is a collaborative effort of the Ohio Department of Education, Ohio Board of Regents, and The University of Toledo.

Introduction

The Procurement, Acquisition, Logistics, and Supply Chain Management Technical Competency Profile (TCP) was collaboratively developed by the Ohio Board of Regents, The Ohio Department of Education, Career-Technical and Adult Education, and the College Tech Prep Curriculum Service Center at The University of Toledo. Representatives from the military, business, industry, labor, and education played a critical role in defining the vision and scope of the TCP and in defining the essential and recommended skills for current and future employees.

Secondary and post-secondary educators representing Ohio schools and colleges leveled the competencies to create career pathways from secondary to associate degree programs. A concerted effort was made to provide a broad-based secondary and post-secondary curriculum that would serve both the military and private sector, and at the same time not restrict either entity. A list of business, industry, labor, education, and military representatives participating in the development of this profile appear in Appendix A.

The profile includes essential competencies for programs from secondary through post-secondary associate degree program. Each area contains competencies common to each of the occupations within a career cluster and competencies specific to an occupation. This profile design reflects programming flexibility that supports many options for educational studies and career planning.

Technical Competency Profiles are used as the basis for the development of an integrated delivery system that provides opportunities for new and challenging programs and courses. Career-Technical Education, College Tech Prep, and post-secondary degree programs will be enhanced and expanded through the use of the Technical Competency Profile (TCP).

In concert with the Technical Curriculum Profile (TCP) process, local regions are encouraged to level the document with local military, business, and industry needs. For example, regions with military installations may want to add or upgrade competencies to reflect the needs of their operations. The units, competencies, and key indicators contained within these pages are designed to serve as a catalyst to further program development and expansion. The ultimate result is a competency profile that will serve College Tech Prep students in the State of Ohio as a curricular framework for education and training programs at the secondary and post-secondary levels. As a result, the military and private sectors will profit from an educated workforce that will mesh easily into their respective operations.

The profiles are available on the Internet at www.ohtpcs.org. From this location users can download copies of the entire profile or conduct searches on a number of key variables.

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College Tech Prep Program Standards

College Tech Prep programs are rigorous programs of study starting at the secondary school level and continuing through the associate degree and beyond. In accordance with the Carl D. Perkins Vocational Technical Education Enhancement Act of 1998, College Tech Prep programs are seamless, non-duplicative programs of study combining high-level academic and technical preparation in a variety of career fields.

The Carl D. Perkins Vocational and Technical Education Act of 1998 defines College Tech Prep as:

A program that provides technical preparation in a career field such as engineering, applied science, a mechanical, industrial or practical arts or trade, agriculture, health occupations, business or applied economics and must do the following:

- Combines at least two years of secondary and two years of post-secondary education in a sequential course of study without duplication of coursework
- Integrates academic, vocational and technical education, and if appropriate and available, work-based learning
- Provides technical preparation for careers
- Leads to an associate or a baccalaureate degree or post-secondary certificate in a specific career field
- Leads to placement in appropriate employment or further education.

The Ohio College Tech Prep Advisory Council recommended to the Ohio Board of Regents and the Ohio Department of Education the following standards for all College Tech Prep programs:

Academics are taught at a college-preparatory level and are aligned with state models and academic content standards.

In addition to Ohio graduation requirements specified in SB 55, required academic components for College Tech Prep programs include:

- a. Mathematics taught at a minimum level of Algebra II by the completion of high school.
- b. An integrated or stand alone senior-year math component
- c. Three units of science including at least two lab-based science courses

College Tech Prep programs will use a state-developed Technical Competency Profile (TCP) as the basis for pathway development. The pathway document should reflect secondary and post-secondary course work and should be made available for stakeholders. All secondary and post-secondary TCP competencies must be clearly identified and addressed. The TCP is the framework used to develop all associated curricular documents; however, components from other competency profiles such as OCAP's (Occupational Competency Analysis Profile), ITAC's (Integrated Technical and Academic Competencies) and SCANS (The Secretary's Commission on Achieving Necessary Skills—America 2000) may be included and are not mutually excluded from a TCP.

Articulated pathways will be reviewed every two-years at the consortia level.

Pathways operate under an articulation agreement between/among partners in a consortium.

College Tech Prep programs at the secondary level will operate as state-approved, career-technical education programs.

Academic and technical instruction is integrated and delivered in a contextual approach where possible.

Programs have common representation from secondary education, higher education, business, and labor members.

Post-secondary programs contain advanced skills in the TCP document.

Programs must operate under either regionally accredited post-secondary institutions/degrees or approved apprenticeship programs meeting U.S. Department of Labor standards.

College Tech Prep programs, secondary and post-secondary, must comply with the state College Tech Prep Advisory Council's performance measures.

State College Tech Prep Advisory Council
Revised and Approved: May 1, 2002

Key to Profile Codes

Importance of Competencies

All of the competencies in this document represent the minimum requirements for a College Tech Prep program. It is the responsibility of the local consortia to further define and/or expand, as needed, the key indicators for each competency. Each competency must be taught at the Proficient level (P) by the completion of the College Tech Prep program, which is an Associate Degree (AD). A minimal number of competencies have been identified as Introduce (I) at the Associate Degree level. These may require further higher education.

This document integrates college prep level academics with technical skill. Technical skills are a required component.

I = Introduce (Learner will demonstrate knowledge and comprehension of the competency.)

P = Proficient (Learner will demonstrate ability to apply knowledge of and/or perform the competency.)

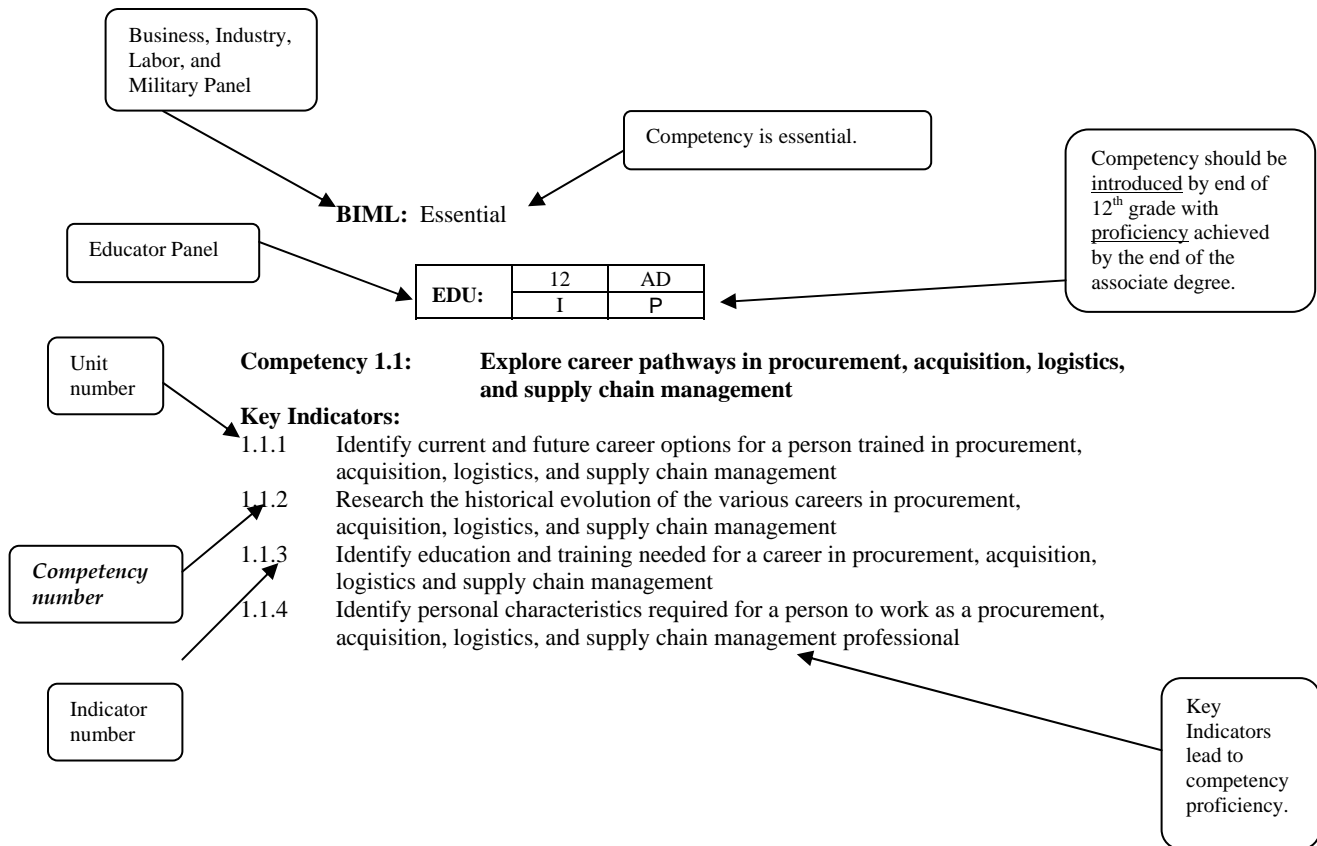
R = Reinforced (Competencies marked proficient at the secondary level are to be reinforced at the associate degree level.)

Grade Level: **12** = by the end of grade 12
 AD = by the end of the Associate Degree

ACADEMIC CONNECTION

All College Tech Prep programs are responsible for meeting the academic content standards.

EXAMPLE:



Procurement, Acquisition, Logistics, and Supply Chain Management

The Procurement, Acquisition, Logistics, and Supply Chain Management industry continues to evolve and as it does, new terms and definitions emerge. As a result, the industry does not yet have one standard definition that the Ohio Business Review panels could identify. The panels recommended that the industry title include the four areas of procurement, acquisition, logistics, and supply chain management and that this document reference various views of the industry. Listed below are four definitions from national associations and government agencies. These definitions serve, as a group, to provide definition for this career area. This document covers all essential competencies across all areas of this industry.

“The supply chain—a term commonly used internationally—encompasses every effort involved in producing and delivering a final product or service, from the supplier’s supplier to the customer’s customer. Supply Chain Management includes managing supply and demand, sourcing raw materials and parts, manufacturing and assembly, warehousing and inventory tracking, order entry and order management, distribution across all channels, and delivery to the customer.”

The Supply-Chain Council
(www.supply-chain.org)

“Logistics is the part of the supply chain process that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customers’ requirements.”

The Council of Logistics Management
(www.clml.org)

“The Government realm of acquisition includes not only the act of acquiring, but also any development effort necessary to design an item, the actual production process, getting the item to the troops in the field, and ensuring that the items can be operated and maintained in the field. Acquisition begins at the point when agency needs are established and includes the description of requirements to satisfy agency needs, solicitation and selection of sources, award of contracts, contract financing, contract performance, contract administration, and those technical and management functions directly related to the process of fulfilling agency needs by contract.”

Defense Acquisition University
(www.dau.mil)

“The identification, acquisition, access, positioning, and management of resources the organization needs or potentially needs in the attainment of its strategic objectives.”

Institute for Supply Management
Formerly called the National Association of Purchasing Management
(www.napm.org)

Sample Occupations

Account Director	Integrated Logistics Planner	Purchasing Analyst
Cargo Scheduler	International Logistics Specialist	Quality Manager
Claims Associate	Inventory Control Manager	Rail Fleet Management Specialist
Contract Specialist	Logistics Analyst	Sourcing Agent
Customer Service Manager	Materials Analyst	Supply Chain Engineer
Director of Inventory Management	Materials Manager	Supply Program Manager
Dispatcher	Operation Research Manager	Supply Technician
Distribution Area Manager	Operations Supervisor	Traffic Manager
Distribution Center Operations Manager	Order Fulfillment Supervisor	Transportation Coordinator
Distribution Planning analyst	Packaging Supervisor	Transportation Manager
Expedited Cargo Sales	Plant Receiving/Shipping Supervisor	Transportation Solutions Director
Facilities Supervisor	Procurement Clerk/Technician	Warehouse Operations Supervisor
Forecaster	Product Manager-Tracing and Tracking	Warehouse Shift Supervisor
Import/Export Analyst	Purchasing Agent	

2004 Procurement, Acquisition, Logistics, and Supply Chain Management Competency Chart

At the end of the secondary program (12) and associate degree (AD) each competency is coded:
I = Introductory; P = Proficient; R = Reinforce. In addition, the business, industry, military, and
labor partnership (BIML) validated each competency: BIML: E = Essential; R = Required

Competency	12	AD	BIML
Unit 1: Professional Development and Networking			
1.1 Explore career pathways in procurement, acquisition, logistics, and supply chain management	P	R	E
1.2 Explore professional development opportunities for a procurement, acquisition, logistics, and supply chain management professional	P	R	E
1.3 Utilize professional marketing/research resource materials	P	R	E
1.4 Prepare for career advancement in procurement, acquisition, logistics, and supply chain management	I	P	E
Unit 2: Professional Effectiveness			
2.1 Explain professional responsibilities in procurement, acquisition, logistics, and supply chain management	P	R	E
2.2 Develop self-management skills	I	P	E
2.3 Demonstrate appropriate work ethics as they apply to procurement, acquisition, logistics, and supply chain management	P	R	E
2.4 Apply problem-solving techniques	P	R	E
2.5 Manage stressful situations	I	P	E
2.6 Build professional communication skills	I	P	E
2.7 Disseminate information	P	R	E
2.8 Develop and achieve goals	P	R	E
2.9 Manage change	I	P	E
Unit 3: Procurement, Acquisition, Logistics, and Supply Chain Management Basics			
3.1 Characterize the nature of business	P	R	E
3.2 Describe the role of marketing	P	R	E
3.3 Explain the nature and scope of logistics	P	R	E
Unit 4: Transportation			
4.1 Assess the importance of the transportation system	P	R	E
4.2 Explain the scope of the domestic and global transportation system	P	R	E
4.3 Describe various services in the transportation industry and how these services are coordinated	I	P	E

Competency	12	AD	BIML
4.4 Explain the infrastructure and equipment used by the various modes of transportation		I	R
4.5 Determine the costs/benefits of company-owned versus for-hire transportation	I	P	E
4.6 Explain the scope of international transportation	P	R	E
4.7 Explain the complexities of international transportation	I	R	R
4.8 Explain the general costs included in transportation rates	I	P	E
4.9 Analyze rate structures		P	E
4.10 Determine line-haul rates	I	P	E
4.11 Explain various transportation documents	I	P	E
4.12 Explain procedures to expedite deliveries and conduct follow-up procedures as needed	I	P	E
Unit 5: Warehousing and Materials Handling			
5.1 Explain the reasons for maintaining warehousing	P	R	E
5.2 Explain the functions of warehouses	P	R	E
5.3 Compare and contrast public and private warehouses	I	P	E
5.4 Explain various warehouse documents	I	P	E
5.5 Describe materials handling functions	P	R	E
5.6 Explain the elements that influence space layout in warehousing (e.g. productivity, damage, safety, etc.)	I	P	E
5.7 Use the various methods to conduct cost-benefit analysis	I	P	E
5.8 Explain the product characteristics that impact logistics	I	P	E
5.9 Explain order fulfillment procedures	I	P	E
Unit 6: Packaging			
6.1 Assess types of packaging	P	R	E
6.2 Explain the functions of packaging	P	R	E
6.3 Explain how packaging influences other logistic activities	I	P	E
Unit 7: Inventory and Supply Planning			
7.1 Explain the importance of inventory	I	P	E
7.2 Explain how inventory management is measured	I	P	E
7.3 Analyze Just-in Time (JIT) inventory process	I	P	E
7.4 Analyze the Materials Requirement Planning (MRP) system		P	E
7.5 Analyze types of products and their impact on logistics		P	E
7.6 Explain the disposition of assets	I	P	E
Unit 8: Supply Chain Management			
8.1 Explain the concept of Supply Chain Management (SCM)	I	P	E
8.2 Evaluate Supply Chain Management (SCM)		P	E
Unit 9: Reverse Logistics			
9.1 Assess the nature and scope of reverse logistics	I	P	E
9.2 Explain the waste management process	I	P	E
Unit 10: Purchasing/Contracting			
10.1 Develop a procurement/acquisition plan	I	P	E
10.2 Analyze organizational requirements for purchasing requisitions	I	P	E
10.3 Determine appropriate methods of procurement	I	P	E
10.4 Perform cost/benefit analysis on planned acquisitions	I	P	E

Competency	12	AD	BIML
10.5 Work collaboratively to develop and review specifications, statements of work, performance terms, and/or acceptance criteria		P	E
10.6 Identify and select potential sources of materials or services	I	P	E
10.7 Explain competitive bids, quotations, and proposals	I	P	E
10.8 Prepare and solicit competitive bids, quotations, and proposals		P	R
10.9 Evaluate competitive bids to determine the best offer		P	R
10.10 Conduct supplier visits and/or evaluations to determine suitability when needed		P	R
10.11 Analyze elements of contracts	I	P	E
10.12 Issue contracts		P	R
10.13 Review legal implications of contracting	I	P	E
10.14 Manage contracts and purchase orders from award to completion		P	E
10.15 Resolve contract and/or purchase order differences with suppliers	I	P	E
10.16 Explain payment problems with suppliers and user departments		P	E
10.17 Discuss the scope of compliance requirements		P	E
10.18 Conduct a negotiation	I	P	E
Unit 11: Production			
11.1 Explain the relationship between manufacturing, purchasing, and logistics	I	P	E
11.2 Explain the concept of production	P	R	E
11.3 Plan production		P	E
11.4 Apply best practices for production operations		I	R
11.5 Explain impact of new production technology for profitability	I	R	R
11.6 Analyze job costing	I	P	E
Unit 12: Product Management			
12.1 Describe the factors involved in product/service operations	P	R	E
12.2 Plan product/service management strategies	I	P	E
12.3 Explain types of products and their impact on logistics	P	R	E
12.4 Explain the impact of packaging on product/service management	P	R	E
12.5 Use selling processes and techniques	P	R	E
12.6 Explain the nature and scope of promotion	P	R	E
Unit 13: Pricing			
13.1 Explain pricing fundamentals	P	R	E
13.2 Evaluate pricing fundamentals	I	P	R
13.3 Explain how logistics cost can influence pricing decisions	I	P	E
13.4 Determine prices for products/services	I	P	R
Unit 14: Customer Relationship Management			
14.1 Explain basic Customer Relationship Management (CRM) concepts	I	P	E
14.2 Demonstrate quality customer service focus	I	P	E
14.3 Describe the concept of order cycle time	I	P	E

Competency	12	AD	BIML
14.4 Explain the importance of logistic performance on customer service in generating revenue	I	P	E
14.5 Explain the role of technology in order processing, tracking, and customer research	I	P	E
14.6 Process orders and returns	I	P	E
Unit 15: Finance			
15.1 Explain how logistic costs impact net profit	P	R	E
15.2 Utilize various inventory valuation methods	I	P	E
15.3 Explain the impact of logistics on time value of money	P	R	E
Unit 16: Management			
16.1 Explain management concepts	P	R	E
16.2 Assess and manage human resources and integrated teams	P	R	E
16.3 Provide leadership to procurement, acquisition, logistic, and supply chain management employees	P	R	E
16.4 Apply sound decision-making strategies	I	P	E
Unit 17: Risk Management			
17.1 Explain types of risk	P	R	E
17.2 Explain risk management	P	R	E
17.3 Analyze safety/security risks	P	R	E
Unit 18: Project and Quality Management			
18.1 Plan and coordinate the diverse components of a project	P	R	E
18.2 Assess and manage a project	I	P	E
18.3 Build interpersonal skills with individuals and teams	P	R	E
18.4 Explain quality assurance	I	P	E
18.5 Select and employ quality tools	I	P	E
18.6 Examine quality cost implications	I	P	E
Unit 19: Business Law, Ethics and Legal Issues			
19.1 Review and discuss current legal and ethical considerations as they relate to procurement, acquisition, logistics, and supply chain management	P	R	R
19.2 Evaluate policies for managing privacy and ethical issues	P	R	E
Unit 20: Economics			
20.1 Compare basic features of different economic systems	P	R	E
20.2 Explain importance of resources to the economy	P	R	E
20.3 Explain concept of organized labor and business	P	R	E
20.4 Apply business economic concepts	P	R	E
20.5 Analyze economic indicators and trends	P	R	E
20.6 Explain measures used to analyze economic conditions	P	R	E
20.7 Explain the nature of international trade	P	R	E
20.8 Explain the impact of cultural and social environments on world trade	I	P	E
20.9 Compare/contrast influences on a nation's ability to trade	I	P	E

Competency	12	AD	BIML
Unit 21: Marketing Information Management			
21.2 Explain nature and scope of the marketing information management function	P	R	E
21.2 Explain procurement, acquisition, logistics, and supply chain management information management	P	R	E
21.3 Explain use of databases in organizing marketing data	P	R	E
21.4 Use database information analysis	I	P	E
21.5 Write marketing reports	P	R	E
21.6 Present marketing report findings and recommendations	P	R	E
21.7 Explain the scope of demand forecasting	I	P	E
21.8 Forecast demand	I	P	E
21.9 Examine data using common statistical procedures	I	P	E
21.10 Develop a marketing plan	P	R	E
Unit 22: Market Research			
22.1 Describe market research	P	R	E
22.2 Differentiate between basic market research tools	P	R	R
22.3 Use online market research tools	I	P	E
22.4 Use data collection methods	I	R	R
22.5 Analyze information from various sources	I	P	E
22.6 Evaluate and conduct research	P	R	E
Unit 23: Writing Documentation			
23.1 Assess report writing requirements	I	P	E
23.2 Write reports	P	R	E
Unit 24: Information Technology Applications for PALS			
24.1 Explain the concepts and use of various information technologies in logistics	I	P	E
24.2 Describe the impact of technology on society	P	R	E
24.3 Describe types of business software	P	R	E
24.4 Describe Internet-based business	P	R	E
24.5 Select and apply information technology application for procurement, acquisition, logistics, and supply chain management	I	P	E
24.6 Access the Internet	P	R	E
24.7 Utilize Internet services	P	R	E
Unit 25: Knowledge-Management			
25.1 Explore knowledge-management		I	R
25.2 Analyze importance of capture and transfer of strategic knowledge		I	R
25.3 Analyze organizational culture and the role of knowledge-management		I	R
25.4 Determine barriers that affect knowledge-management implementation		I	R
25.5 Evaluate various knowledge-management measurement approaches		I	R
25.6 Measure intellectual capital		I	R

Procurement, Acquisition, Logistics, and Supply Chain Management Units

1. Professional Development and Networking
2. Professional Effectiveness
3. Procurement, Acquisition, Logistics, and Supply Chain Management Basics
4. Transportation
5. Warehousing and Materials Handling
6. Packaging
7. Inventory and Supply Planning
8. Supply Chain Management
9. Reverse Logistics
10. Purchasing/Contracting
11. Production
12. Product Management
13. Pricing
14. Customer Relationship Management
15. Finance
16. Management
17. Risk Management
18. Project and Quality Management
19. Business Law, Ethics and Legal Issues
20. Economics
21. Marketing Information Management
22. Market Research
23. Writing Documentation
24. Information Technology Applications for Procurement, Acquisition, Logistics and Supply Chain Management
25. Knowledge-Management

Ohio College Tech Prep Curriculum Services

Procurement, Acquisition, Logistics, and Supply Chain Management TCP

Instructional Unit 1: Professional Development and Networking

BIML: Essential

EDU:	12	AD
	P	R

Competency 1.1: Explore career pathways in procurement, acquisition, logistics, and supply chain management

Key Indicators:

- 1.1.1 Identify current and future career options for a person trained in procurement, acquisition, logistics, and supply chain management
- 1.1.2 Research the historical evolution of the various careers in procurement, acquisition, logistics, and supply chain management
- 1.1.3 Identify education and training needed for a career in procurement, acquisition, logistics, and supply chain management
- 1.1.4 Identify personal characteristics required for a person to work as a procurement, acquisition, logistics, and supply chain management professional

BIML: Essential

EDU:	12	AD
	P	R

Competency 1.2: Explore professional development opportunities for a procurement, acquisition, logistics, and supply chain management professional

Key Indicators:

- 1.2.1 Research continuing education courses or programs available to enhance skills, to remain current in the profession, and for career advancement
- 1.2.2 Describe various certifications for procurement, acquisition, logistics, and supply chain management professionals
- 1.2.3 Identify professional associations opportunities for procurement, acquisition, logistics, and supply chain management professionals
- 1.2.4 Build internal/external procurement, acquisition, logistics, and supply chain management professional mentor relationships
- 1.2.5 Use websites for professional development
- 1.2.6 Identify networking opportunities internally and externally
- 1.2.7 Interact with procurement, acquisition, logistics, and supply chain management professionals
- 1.2.8 Establish professional relationships with procurement, acquisition, logistics, and supply chain management professionals

BIML: Essential

EDU:	12	AD
	P	R

Competency 1.3: Utilize professional marketing/research resource materials

Key Indicators:

- 1.3.1 Identify resources to maintain professional procurement, acquisition, logistics, and supply chain management skills
- 1.3.2 Identify procurement, acquisition, logistics, and supply chain management publications (e.g., books, periodicals, newsletters, websites, online resources)
- 1.3.3 Differentiate among types of information (e.g., essential, important, critical, nice to know)
- 1.3.4 Explore validity and reliability issues in procurement, acquisition, logistics, and supply chain management resources
- 1.3.5 Utilize reading skills according to information needs (e.g., skim, comprehend, analyze)
- 1.3.6 Maintain resource files

BIML: Essential

EDU:	12	AD
	I	P

Competency 1.4: Prepare for career advancement in procurement, acquisition, logistics, and supply chain management

Key Indicators

- 1.4.1 Identify advancement opportunities in procurement, acquisition, logistics, and supply chain management (e.g., internally and externally)
- 1.4.2 Keep up-to-date on changes in the procurement, acquisition, logistics, and supply chain management profession
- 1.4.3 Identify skills needed for advancement
- 1.4.6

Instructional Unit 2: Professional Effectiveness

BIML: Essential

EDU:	12	AD
	P	R

Competency 2.1: Explain professional responsibilities in procurement, acquisition, logistics, and supply chain management

Key Indicators:

- 2.1.1 Explain the need for professional and ethical standards
- 2.1.2 Explain the responsibility of the individual to apply ethical standards
- 2.1.3 Explain consequences of unprofessional and/or unethical behavior
- 2.1.4 Explain importance of conflict resolution in the work environment
- 2.1.5 Explain legal ramifications of breaching rules and regulations

BIML: Essential

EDU:	12	AD
	I	P

Competency 2.2: Develop self-management skills

Key Indicators:

- 2.2.1 Propose a procurement, acquisition, logistics, and supply chain management project
- 2.2.2 Organize tasks, manage time, meet deadlines, and maintain business records
- 2.2.3 Make long-term and short-term plans
- 2.2.4 Examine and report progress
- 2.2.5 Describe procedures to acquire appropriate licenses, registrations, and/or credentials

BIML: Essential

EDU:	12	AD
	P	R

Competency 2.3: Demonstrate appropriate work ethics as they apply to procurement, acquisition, logistics, and supply chain management

Key Indicators:

- 2.3.1 Recognize the need to adhere to company and/or governmental policies, procedures, rules, and regulations
- 2.3.2 Exercise confidentiality
- 2.3.3 Adhere to rules of conduct
- 2.3.4 Accept constructive criticism and offer constructive criticism
- 2.3.5 Exhibit pride in work
- 2.3.6 Resolve conflict
- 2.3.7 Avoid harassment
- 2.3.8 Adjust to changes in the work environment
- 2.3.9 Demonstrate punctuality
- 2.3.10 Assume responsibility for decisions, actions, and assignments
- 2.3.11 Follow chain-of-command
- 2.3.12 Identify factors that influence work ethic
- 2.3.13 Describe how personal values are reflected in work ethic
- 2.3.14 Describe how interactions in the workplace affect personal work ethic
- 2.3.15 Describe how life changes affect personal work ethic

BIML: Essential

EDU:	12	AD
	P	R

Competency 2.4: Apply problem-solving techniques

Key Indicators:

- 2.4.1 Identify problem
- 2.4.2. Employ appropriate problem solving tools/techniques
- 2.4.3 Identify causes of underlying problem
- 2.4.4 Identify appropriate solutions and consequences (e.g., long term, short term, crisis)
- 2.4.5 Utilize resources to explore possible solutions to problem
- 2.4.6 Contrast advantages and disadvantages of each solution
- 2.4.7 Identify appropriate action
- 2.4.8 Identify post-preventive action
- 2.4.9 Examine and make recommendations based on the results

BIML: Essential

EDU:	12	AD
	I	P

Competency 2.5: Manage stressful situations

Key Indicators:

- 2.5.1 Identify factors contributing to stress
- 2.5.2 Describe physical and emotional responses to stress
- 2.5.3 Describe positive and negative effects of stress on productivity
- 2.5.4 Identify strategies and/or methods to reduce/channel stress
- 2.5.5 Implement strategies to manage stress
- 2.5.6 Create strategies for developing and maintaining support systems

BIML: Essential

EDU:	12	AD
	I	P

Competency 2.6: Build professional communication skills

Key Indicators:

- 2.6.1 Identify networking opportunities internally and externally
- 2.6.2 Develop effective conversation and oral communication skills
- 2.6.3 Demonstrate self-esteem and self-confidence
- 2.6.4 Establish relationships and interact with other professionals
- 2.6.5 Describe and practice effective listening skills
- 2.6.6 Identify barriers to effective listening

BIML: Essential

EDU:	12	AD
	P	R

Competency 2.7: Disseminate information

Key Indicators:

- 2.7.1 Share information with the appropriate organizational interests
- 2.7.2 Communicate strategic action plan
- 2.7.3 Monitor progress continuously

BIML: Essential

EDU:	12	AD
	P	R

Competency 2.8: Develop and achieve goals**Key Indicators:**

- 2.8.1 Develop personal goals and set appropriate performance standards in relation to organizational/departmental goals
- 2.8.2 List responsibilities in relation to organizational/departmental goals
- 2.8.3 Communicate goals with supervisor/peers
- 2.8.4 Exercise responsibility and accomplish assigned tasks in relation to organizational/departmental goals
- 2.8.5 Monitor progress by evaluating feedback
- 2.8.6 Promote organizational/departmental image and mission

BIML: Essential

EDU:	12	AD
	I	P

Competency 2.9: Manage change**Key Indicators:**

- 2.9.1 Identify steps in the change process
- 2.9.2 Identify barriers to change
- 2.9.3 Discuss the necessity of change as it relates to organizational prosperity
- 2.9.4 Describe the continuous nature of change
- 2.9.5 Participate in the change process

Instructional Unit 3: Procurement, Acquisition, Logistics, and Supply Chain Management Basics

BIML: Essential

EDU:	12	AD
	P	R

Competency 3.1: Characterize the nature of business

Key Indicators:

- 3.1.1 Identify types of business organizations and functions (e.g., outsourcing, partnerships, and alliances)
- 3.1.2 Define the role of strategic planning in business
- 3.1.3 Identify components of a business plan
- 3.1.4 Identify business reporting and information flow
- 3.1.5 Identify the ways in which organizational functions are interdependent
- 3.1.6 Identify types of communication channels (e.g., formal, informal)
- 3.1.7 Define stakeholder relationships (e.g., customers, employees, shareholders, and suppliers)
- 3.1.8 Identify generally accepted business ethics, and differentiate between ethics and legality
- 3.1.9 Explain the importance of business partnerships and relationships

BIML: Essential

EDU:	12	AD
	P	R

Competency 3.2: Describe the role of marketing

Key Indicators:

- 3.2.1 Define marketing and common marketing terminology
- 3.2.2 Identify the marketing concept, the primary functions of marketing, and market identification
- 3.2.3 Describe the evolution, and review criticisms of marketing philosophies
- 3.2.4 Identify the principles of direct marketing
- 3.2.5 Identify the importance of marketing in a global economy
- 3.2.6 Identify the relationship between ethics in marketing and the company culture
- 3.2.7 Identify the differences between products and services
- 3.2.8 Identify the value that marketing adds to a product or service

BIML: Essential

EDU:	12	AD
	P	R

Competency 3.3: Explain the nature and scope of procurement, acquisition, logistics, and supply chain management

Key Indicators:

- 3.3.1 Describe the procurement, acquisition, logistics, and supply chain management industry
- 3.3.2 Identify the processes/activities involved in procurement, acquisition, logistics, and supply chain management
- 3.3.3 Explain how procurement, acquisition, logistics, and supply chain management benefits society, and business
- 3.3.4 Identify trends in the procurement, acquisition, logistics, and supply chain management industry and the impact of technology in logistics
- 3.3.5 Discuss global procurement, acquisition, logistics, and supply chain management issues
- 3.3.6 Describe the interrelationship between logistics, production, and marketing functions
- 3.3.7 Explain the role of procurement, acquisition, logistics, and supply chain management in customer satisfaction

Instructional Unit 4: Transportation

BIML: Essential

EDU:	12	AD
	P	R

Competency 4.1: Assess the importance of the transportation system

Key Indicators:

- 4.1.1 Identify the basic modes of transportation
- 4.1.2 Identify the impact of transportation on logistics
- 4.1.3 Explain how transportation costs can impact competition and economies of scale
- 4.1.4 Describe the impact of transportation costs on prices
- 4.1.5 Explain the impact of deregulation on transportation modes

BIML: Essential

EDU:	12	AD
	P	R

Competency 4.2: Explain the scope of the domestic and global transportation system

Key Indicators:

- 4.2.1 Describe the transportation system for tangible items (freight, people)
- 4.2.2 Describe the transportation system for intangible items (electrical power, information)
- 4.2.3 Describe types of agencies that facilitate and coordinate the movement of tangible and intangible items
- 4.2.4 Describe the transportation services that specialize in the movement of small shipments
- 4.2.5 Explain trends in the use of transportation modes
- 4.2.6 Explain the types of products moved by various transportation modes
- 4.2.7 Explain the advantages/disadvantages of movement by various transportation modes

BIML: Essential

EDU:	12	AD
	I	P

Competency 4.3: Describe various services in the transportation industry and how these services are coordinated

Key Indicators:

- 4.3.1 Describe the types of coordinated services and plans available using different transportation modes
- 4.3.2 Compare/contrast the cost, transit time and variability, loss, and damage of the various transportation modes
- 4.3.3 Describe the effect of economies of scale on transportation costs for the various transportation modes

BIML: Recommended

EDU:	12	AD
		I

Competency 4.4: Explain the infrastructure and equipment used by the various modes of transportation**Key Indicators:**

- 4.4.1 Describe the types and two classes of tracks used in the railroad industry
- 4.4.2 Identify the types of cars used by the railroad industry
- 4.4.3 Explain the issues related to maintenance and growth of railroad tracks
- 4.4.4 Describe the issues related to use of the highway system for the trucking industry
- 4.4.5 Identify how the maintenance, operation and construction of the highway system is financed and the methods used to recover that financing
- 4.4.6 Identify the operating equipment used in the motor transport industry
- 4.4.7 Describe the over-the-road equipment used in the motor transport industry
- 4.4.8 Explain the issues related to the use of the natural waterways for water traffic
- 4.4.9 Describe the inland waterway system and the types of equipment used on the waterway system (e.g. large vessels, barges)
- 4.4.10 Describe the issues related to the use of the airways for air transport
- 4.4.11 Describe the equipment used to guide air traffic and designate airway pathways
- 4.4.12 Explain how transporters pay for airport usage
- 4.4.13 Identify the types of equipment used in air transport
- 4.4.14 Describe types of pipeline systems and identify who builds and maintains the pipeline system
- 4.4.15 Describe trends in equipment and infrastructure in the transportation industry

BIML: Essential

EDU:	12	AD
	I	P

Competency 4.5: Determine the costs/benefits of company-owned versus for-hire transportation**Key Indicators:**

- 4.5.1 Describe the advantages and disadvantages of company-owned transportation
- 4.5.2 Calculate the cost of company-owned transportation
- 4.5.3 Identify situations when company-owned transportation is essential and/or cost effective

BIML: Essential

EDU:	12	AD
	P	R

Competency 4.6: Explain the scope of international transportation**Key Indicators:**

- 4.6.1 Describe the dominance of particular modes based on the nature/location of the country
- 4.6.2 Describe the importance of international transportation
- 4.6.3 Explain how international transportation changes have impacted the domestic economy and manufacturing industry
- 4.6.4 Identify international trade terminology
- 4.6.5 Discuss international methods of payment
- 4.6.6 Discuss international trade tariff structures and impact on business decisions

BIML: Recommended

EDU:	12	AD
	I	R

Competency 4.7: Explain the complexities of international transportation**Key Indicators:**

- 4.7.1 Describe the issues related to ports and customer points
- 4.7.2 Describe how legal requirements impact international shipments
- 4.7.3 Explain the limited liability of international carriers and its impact on transportation costs
- 4.7.4 Explain the assessments governments place on imported goods
- 4.7.5 Describe the trade agreements that impact imported-goods assessments
- 4.7.6 Describe the benefits of trade zones on international transportation
- 4.7.7 Explain how trade zones can impact the routing of goods
- 4.7.8 Identify the types of middlemen or agents and how they provide assistance to the individuals involved

BIML: Essential

EDU:	12	AD
	I	P

Competency 4.8: Explain the general costs included in transportation rates**Key Indicators:**

- 4.8.1 Explain the nature of variable and fixed costs in transportation
- 4.8.2 Explain the problems involved in establishing fixed and variable costs
- 4.8.3 Explain how back haul costs impact variable costs (e.g. accessorials; fuel surcharges, etc.)
- 4.8.4 Describe the fixed versus variable costs in rail, truck, water, air, pipeline, wire, and wireless transportation
- 4.8.5 Explain how the ratio of fixed to variable costs impact the total costs of each mode of transportation

BIML: Essential

EDU:	12	AD
		P

Competency 4.9: Analyze rate structures**Key Indicators:**

- 4.9.1 Describe the uniform, proportional, tapering, and blanket rate structures
- 4.9.2 Explain the concept of line-haul rates
- 4.9.3 Illustrate how demand and competition can impact rate structures

BIML: Essential

EDU:	12	AD
	I	P

Competency 4.10: Determine line-haul rates**Key Indicators:**

- 4.10.1 Explain the concepts of Uniform and National Motor Freight Classification codes
- 4.10.2 Explain how transportation carriers handle non-classified products
- 4.10.3 Explain how a class rating is determined
- 4.10.4 Read a Freight Classification chart
- 4.10.5 Explain the concept of a rate table
- 4.10.6 Read a rate table chart
- 4.10.7 Use the charts to determine a transportation rate
- 4.10.8 Explain the use of contract rates
- 4.10.9 Describe the general circumstances that determine whether a class rate or contracted rate is used
- 4.10.10 Explain the nature of freight-all kinds (FAK) and all-commodity rate (ACR) structures
- 4.10.11 Describe the impact of shipment size on transportation rates
- 4.10.12 Calculate rates based on shipment size and distance and class ratings
- 4.10.13 Describe special types of line-haul services that can impact rates

BIML: Essential

EDU:	12	AD
	I	P

Competency 4.11: Explain various transportation documents**Key Indicators:**

- 4.11.1 Explain the correct preparation of transportation documents for the various modes (e.g. bills of lading, OS&D, waybills, freight bills, delivery receipts, etc.)
- 4.11.2 Describe the types of related non-transportation documents that are required in international transportation (e.g. certificate of origin)

BIML: Essential

EDU:	12	AD
	I	P

Competency 4.12: Explain procedures to expedite deliveries and conduct follow-up procedures as needed

Key Indicators:

- 4.12.1 Identify types of follow-up
- 4.12.2 Identify circumstances when follow-up and/or expediting may be needed
- 4.12.3 Identify methods used to follow-up and/or expedite as needed
- 4.12.4 Explain how to ensure performance measures are met
- 4.12.5 Identify cost and logistical considerations when following-up and/or expediting

Instructional Unit 5: Warehousing and Materials Handling

BIML: Essential

EDU:	12	AD
	P	R

Competency 5.1 Explain the reasons for maintaining warehousing

Key Indicators:

- 5.1.1 Identify the reasons for product storage
- 5.1.2 Explain the relationship between warehousing, production, and transportation costs

BIML: Essential

EDU:	12	AD
	P	R

Competency 5.2 Explain the functions of warehouses

Key Indicators:

- 5.2.1 Explain how length of time that goods are maintained impacts storage issues (shelf-life)
- 5.2.2 Explain how type of product impacts storage issues
- 5.2.3 Explain the potential benefits of warehouse consolidation of products
- 5.2.4 Explain the potential benefits of warehouse break-bulk of products
- 5.2.5 Explain how warehouses are used to “mix” shipments
- 5.2.6 Identify types of facilities and environments
- 5.2.7 Describe LIFO/FIFO as it relates to warehousing

BIML: Essential

EDU:	12	AD
	I	P

Competency 5.3: Compare and contrast public and private warehouses

Key Indicators:

- 5.3.1 Compare and contrast the advantages and disadvantages of private warehouses versus public warehouses
- 5.3.2 Describe the common types of public warehouses
- 5.3.3 Describe the types of services provided by warehouses
- 5.3.4 Describe the regulation of public warehouses

BIML: Essential

EDU:	12	AD
	I	P

Competency 5.4: Explain various warehouse document**Key Indicators:**

- 5.4.1 Explain various warehouse receipts
- 5.4.2 Differentiate between negotiable and non-negotiable receipts
- 5.4.3 Explain how the bill of lading is used
- 5.4.4 Explain various over, short, and damage (O.S.& D.) reports
- 5.4.5 Explain various inventory status reports

BIML: Essential

EDU:	12	AD
	P	R

Competency 5.5: Describe materials handling functions**Key Indicators:**

- 5.5.1 Describe the scope of loading and unloading activities
- 5.5.2 Describe the warehouse movement activities that may occur
- 5.5.3 Describe the purpose of load unitization, palletization, and containerization
- 5.5.4 Describe the types of equipment used in materials handling

BIML: Essential

EDU:	12	AD
	I	P

Competency 5.6: Explain the elements that influence space layout in warehousing (e.g. productivity, damage, safety, etc.)**Key Indicators:**

- 5.6.1 Explain how stock turnover and order picking requirements impact layout
- 5.6.2 Explain how order sequencing and zoning can impact picking time
- 5.6.3 Explain the advantages and disadvantages of sequencing and zoning
- 5.6.4 Identify the alternatives for warehouse layout (layout options, space utilization, tools used)

BIML: Essential

EDU:	12	AD
	I	P

Competency 5.7: Use the various methods to conduct cost-benefit analysis**Key Indicators:**

- 5.7.1 Describe the storage, handling, and clerical costs
- 5.7.2 Describe the methods used to price public warehouse services
- 5.7.3 Describe the methods used to price leased warehouse services
- 5.7.4 Compare public/leased warehousing with private ownership

BIML: Essential

EDU:	12	AD
	I	P

Competency 5.8: Explain the product characteristics that impact logistics**Key Indicators:**

- 5.8.1 Calculate weight-to-bulk ratios
- 5.8.2 Explain how product density impacts logistics decisions
- 5.8.3 Calculate product dollar value-to-weight ratios
- 5.8.4 Explain how value-weight ratios impact logistics decisions
- 5.8.5 Explain how product substitutability impacts logistics decisions
- 5.8.6 Explain how product risk factors (perishability, flammability, value, tendency to explode, ease of being stolen) impact logistics decisions
- 5.8.7 Explain how packaging can influence or change product characteristics

BIML: Essential

EDU:	12	AD
	I	P

Competency 5.9: Explain order fulfillment procedures**Key Indicators:**

- 5.9.1 Describe processes for retrieving items from stock
- 5.9.2 Describe processes for packing items for shipping
- 5.9.3 Describe processes for scheduling the shipment for delivery
- 5.9.4 Describe processes for preparing shipping documentation
- 5.9.5 Explain when shipment consolidation may be appropriate

Instructional Unit 6: Packaging

BIML: Essential

EDU:	12	AD
	P	R

Competency 6.1: Assess types of packaging

Key Indicators:

- 6.1.1 Explain the purpose of packaging
- 6.1.2 Describe the types of packaging and their relationship (e.g. commercial, military, consumer)
- 6.1.3 Describe the types of packaging materials
- 6.1.4 Illustrate how to determine the best industrial packaging materials
- 6.1.5 Choose appropriate packaging materials to pack products
- 6.1.6 Identify the impact of packaging materials on the environment (e.g. Hazmat)
- 6.1.7 Describe how some types of packaging can be recycled

BIML: Essential

EDU:	12	AD
	P	R

Competency 6.2: Explain the functions of packaging

Key Indicators:

- 6.2.1 Explain how containment issues influence packaging and transportation
- 6.2.2 Explain the various types of protection needed by products
- 6.2.3 Describe how unitization improves product handling
- 6.2.4 Describe how the need for convenience influences packaging choices
- 6.2.5 Describe how packaging needs to provide information (e.g. handle with care, require refrigeration)

BIML: Essential

EDU:	12	AD
	I	P

Competency 6.3: Explain how packaging influences other logistics activities

Key Indicators:

- 6.3.1 Explain how packaging interacts with transportation costs and impacts transport activities
- 6.3.2 Explain how packaging interacts with handling costs
- 6.3.3 Explain how packaging interacts with warehousing costs and impacts warehouse operations
- 6.3.4 Explain how packaging impacts procurement
- 6.3.5 Explain how packaging impacts production activities

Instructional Unit 7: Inventory and Supply Planning

BIML: Essential

EDU:	12	AD
	I	P

Competency 7.1: Explain the importance of inventory

Key Indicators:

- 7.1.1 Identify the reasons for holding inventory
- 7.1.2 Describe the functional classes of stock (e.g. cycle, safety, in-transit, speculative, promotional, seasonal, and dead stock)
- 7.1.3 Identify inventory carrying costs
- 7.1.4 Explain the trade-offs that occur between carrying inventory and ordering
- 7.1.5 Explain the history of inventory management (ABC item analysis)
- 7.1.6 Explain the impact of technology on inventory management

BIML: Essential

EDU:	12	AD
	I	P

Competency 7.2: Explain how inventory management is measured

Key Indicators:

- 7.2.1 Explain how out-of-stock situations impact customer satisfaction and business success
- 7.2.2 Describe the outcomes of back-ordering and expediting
- 7.2.3 Describe the impact on inventory turnover
- 7.2.4 Describe the importance of the inventory-to-sales ratio
- 7.2.5 Describe the importance of the gross-profit-to-sales ratio
- 7.2.6 Identify the factors that can influence the gross-profit-to-sales ratio
- 7.2.7 Explain unit and dollar inventory control systems
- 7.2.8 Calculate Economic Order Quantities
- 7.2.9 Estimate Fill Rate

BIML: Essential

EDU:	12	AD
	I	P

Competency 7.3: Analyze Just-in-Time (JIT) inventory process

Key Indicators:

- 7.3.1 Explain the concept and potential advantages/disadvantages of JIT process
- 7.3.2 Explain how a JIT process operates
- 7.3.3 Describe how the JIT process uses short, consistent lead times
- 7.3.4 Explain how lead times impact the relationship with suppliers
- 7.3.5 Describe how JIT impacts production runs
- 7.3.6 Analyze how JIT impacts inventory levels

BIML: Essential

EDU:	12	AD
		P

Competency 7.4: Analyze the Materials Requirement Planning (MRP) system**Key Indicators:**

- 7.4.1 Describe the MRP
- 7.4.2 Explain how the bill of materials impacts the materials planning process
- 7.4.3 Explain how the master production schedule is used to create a bill of materials
- 7.4.4 Explain how inventory impacts the bill of materials
- 7.4.5 Describe how the master production schedule and bill of materials are used to determine stock requirements (MRPII)
- 7.4.6 Describe how ordering occurs based on these stock requirements and their lead times
- 7.4.7 Describe the types of reports needed to manage the MRP system
- 7.4.8 Explain how computers are used in the MRP system
- 7.4.9 Analyze the advantages and disadvantages of the MRP system
- 7.4.10 Examine the differences between an MRP system and a Manufacturing Resource Planning System II (MRP II)
- 7.4.11 Explain how the Distribution Resource Planning (DRP) system differs from the MRP system
- 7.4.12 Explore different software packages for MRP, MRPII, DRP

BIML: Essential

EDU:	12	AD
		P

Competency 7.5: Analyze types of products and their impact on logistics**Key Indicators:**

- 7.5.1 Explain the concept of the 80-20 curve
- 7.5.2 Explain the concept of ABC classification
- 7.5.3 Describe how the 80-20 curve and ABC classification impact logistics decisions and planning

BIML: Essential

EDU:	12	AD
	I	P

Competency 7.6 : Explain the disposition of assets**Key Indicators:**

- 7.6.1 Describe issues associated with the disposal of products, capital equipment or facilities
- 7.6.2 Explain the life cycle of a product

Instructional Unit 8: Supply Chain Management

BIML: Essential

EDU:	12	AD
	I	P

Competency 8.1: Explain the concept of Supply Chain Management (SCM)

Key Indicators:

- 8.1.1 Identify components of the supply chain
- 8.1.2 Identify the components of supply chain management which can be processed electronically in an e-commerce environment
- 8.1.3 Explain the benefits of supply chain collaboration
- 8.1.4 Explain the advantages/disadvantages of interorganizational supply chains
- 8.1.5 Identify the components that impact supply chains
- 8.1.6 Explain integrated operations in supply chains

BIML: Essential

EDU:	12	AD
		P

Competency 8.2: Evaluate Supply Chain Management (SCM)

Key Indicators:

- 8.2.1 Evaluate how supply chain management reduces order response times, reduces inventory requirements, reduces costs, increases revenues, and reduces cumulative cycle time
- 8.2.2 Evaluate role of Electronic Data Interchange (EDI, XML, HTML) in supply chain management
- 8.2.3 Evaluate the role of intranets and extranets in supply chain management
- 8.2.4 Examine future trends in supply chain management
- 8.2.5 Evaluate the symbiotic R & D relationship between logistics, acquisitions and product development

Instructional Unit 9: Reverse Logistics

BIML: Essential

EDU:	12	AD
	I	P

Competency 9.1: Assess the nature and scope of reverse logistics

Key Indicators:

- 9.1.1 Define reverse logistics
- 9.1.2 Identify the types of goods known as value carriers
- 9.1.3 Compare/contrast carriers distributed to consumers and carriers used in a closed loop
- 9.1.4 Assess the value of value carriers
- 9.1.5 Describe how the return of unsold goods is handled
- 9.1.6 Analyze the impact of product returns and exchanges as reverse logistics costs
- 9.1.7 Describe how damaged goods, incorrectly ordered or supplied goods, and goods returned for warranties impact costs and identify methods to manage those costs
- 9.1.8 Explain the nature of product recalls and the importance of determining who pays for the necessary reverse logistics
- 9.1.9 Analyze the financial implications of reverse logistics
- 9.1.10 Describe asset recovery

BIML: Essential

EDU:	12	AD
	I	P

Competency 9.2: Explain the waste management process

Key Indicators:

- 9.2.1 Explain why it is important to manage waste
- 9.2.2 Compare the difference between hazardous and non-hazardous waste
- 9.2.3 Identify ways to reduce waste generation
- 9.2.4 Identify how hazardous and non-hazardous waste is collected and transported
- 9.2.5 Describe how hazardous and non-hazardous waste disposal occurs
- 9.2.6 Explain how and why waste is recycled
- 9.2.7 Define ISO 14000, and explain why ISO 14000 is used by companies
- 9.2.8 Explain how ISO 14000 can be a marketing and risk advantage
- 9.2.9 Describe how ISO 9000 (the quality management system) is used to monitor and audit ISO 14000

Instructional Unit 10: Purchasing / Contracting

BIML: Essential

EDU:	12	AD
	I	P

Competency 10.1: Develop a procurement / acquisition plan

Key Indicators:

- 10.1.1 Identify organizational objectives that influence procurement
- 10.1.2 Identify operational, marketing, financial and supply strategies that influence purchasing
- 10.1.3 Identify marketing conditions that may lead to decisions to buy
- 10.1.4 Explain how supplier/contractor marketing strategies can relate to buying decisions
- 10.1.5 Utilize a short- and long-range materials/service plan
- 10.1.6 Explain how standardization, consolidation, outsourcing, partnering and cooperative purchasing influence procurement plans
- 10.1.7 Ensure that purchasing practices meet health, safety, environmental, confidentiality, and business regulation laws
- 10.1.8 Ensure that purchasing practices are ethical

BIML: Essential

EDU:	12	AD
	I	P

Competency 10.2: Analyze organizational requirements for purchase requisitions

Key Indicators:

- 10.2.1 Analyze types of purchase orders
- 10.2.2 Describe common organizational requirements for requisitions
- 10.2.3 Identify company socioeconomic commitments as they relate to requisitions (i.e. environmental friendly)
- 10.2.4 Analyze budgetary procedures for requisitions
- 10.2.5 Explain common expense allocation processes
- 10.2.6 Describe the types of funds used (e.g. grants, capital) for purchases
- 10.2.7 Analyze priority procedures used by businesses for purchases

BIML: Essential

EDU:	12	AD
	I	P

Competency 10.3: Determine appropriate methods of procurement**Key Indicators:**

- 10.3.1 Determine when to use competitive bidding and/or negotiations [Vendor Managed Inventory (VMI)]
- 10.3.2 Identify consignment methods
- 10.3.3 Explain the nature of a blanket order
- 10.3.4 Describe the function of systems contracting
- 10.3.5 Describe various methods for ordering (e.g. telephone, fax, mail)
- 10.3.6 Identify the advantages and disadvantages of procurement methods
- 10.3.7 Explain stockless buying and inventory systems
- 10.3.8 Explain standing orders
- 10.3.9 Explain when credit cards and procurement cards are used for purchases
- 10.3.10 Explain the concept of “Kanban”/pull signals
- 10.3.11 Describe the process of supplier managed inventory
- 10.3.12 Describe the concept of e-procurement and auction processes and associated costs
- 10.3.13 Describe the concept of Supplier Relationship Management

BIML: Essential

EDU:	12	AD
	I	P

Competency 10.4: Perform cost/benefit analysis on planned acquisitions**Key Indicators:**

- 10.4.1 Calculate direct, indirect, and total costs
- 10.4.2 Describe purchase price variance
- 10.4.3 Discriminate between direct and indirect costs
- 10.4.4 Allocate overhead
- 10.4.5 Calculate life-cycle and opportunity costs
- 10.4.6 Describe activity-based costing for procurement
- 10.4.7 Use financial tools (e.g. return on investment, return on assets employed, return on total assets, margin analysis, and profitability)

BIML: Essential

EDU:	12	AD
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Competency 10.5: Work collaboratively to develop and review specifications, statements of work, performance terms, and/or acceptance criteria

Key Indicators:

- 10.5.1 Review supplier samples and/or demonstrations with the buying organization management and/or user departments following confidentiality and supplier policies
- 10.5.2 Identify the internal and external inputs needed for development and review of specifications (e.g. organizational, industry standards, competitors, etc.)
- 10.5.3 Work collaboratively to develop internal and external performance and design specifications for a product
- 10.5.4 Work collaboratively to specify statistical process control (SPC) features as appropriate
- 10.5.5 Work collaboratively to identify potential specification problems and abuses
- 10.5.6 Explain the concept statements of work
- 10.5.7 Describe international standards differences when appropriate
- 10.5.8 Identify timeline milestones as needed
- 10.5.9 Specify supplier performance evaluation factors

BIML: Essential

EDU:	12	AD
	I	P

Competency 10.6: Identify and select potential sources of materials or services

Key Indicators:

- 10.6.1 Identify the degree and nature of competition and its effects on procurement
- 10.6.2 Identify potential sources for products
- 10.6.3 Compare/contrast purchasing from manufacturers versus distributors, large versus small suppliers, and national versus local suppliers
- 10.6.4 Explain the regulations and costs that must be considered when comparing national versus international suppliers, and internal versus external suppliers
- 10.6.5 Use mandatory suppliers when required
- 10.6.6 Explain the use of emergency suppliers
- 10.6.7 Describe when socioeconomic or other factors may influence supplier choice
- 10.6.8 Describe cooperative or leveraged buying
- 10.6.9 Discuss joint ventures
- 10.6.10 Identify ways to locate suppliers
- 10.6.11 Identify the factors that help determine whether existing or new sources are used
- 10.6.12 Manage and develop lists of recommended sources (e.g. approved, preferred, partnered, certified, pre-qualified, certifiable, and disqualified)

BIML: Essential

EDU:	12	AD
	I	P

Competency 10.7: Explain competitive bids, quotations, and proposals**Key Indicators:**

- 10.7.1 Identify the types of solicitations and bids used in procurement
- 10.7.2 Describe pre-bid or pre-proposal conferences
- 10.7.3 Identify when to use pre-bid or pre-proposal conferences
- 10.7.4 Discuss general solicitations using commonly accepted procedures
- 10.7.5 Explain the role of ethics in bidding procedures
- 10.7.6 Describe the procedure to cancel solicitations
- 10.7.7 Identify the regulations (internal and external) that can affect the bidding process
- 10.7.8 Explain the impact of the Uniform Commercial Code
- 10.7.9 Describe the impact of antitrust and trade regulations
- 10.7.10 Describe the regulations of federal procurement and public projects
- 10.7.11 Describe the regulation of international commerce
- 10.7.12 Describe the impact of the Americans with Disabilities Act
- 10.7.13 Explain the impact of Department of Agriculture rulings
- 10.7.14 Describe government price support regulations
- 10.7.15 Identify other federal/state/local laws that may be applicable to various products
- 10.7.16 Describe the types of terms and conditions used in solicitations
- 10.7.17 Determine when terms and conditions should be used
- 10.7.18 Explain when bonds and other types of surety are used in solicitations

BIML: Recommended

EDU:	12	AD
		P

Competency 10.8: Prepare and solicit competitive bids, quotations, and proposals**Key Indicators:**

- 10.8.1 Conduct pre-bid or pre-proposal conferences
- 10.8.2 Prepare general solicitations using commonly accepted procedures
- 10.8.3 Establish issue, opening, and closing dates
- 10.8.4 Comply with federal, state, and local laws that may be applicable to various products

BIML: Recommended

EDU:	12	AD
		P

Competency 10.9: Evaluate competitive bids to determine the best offer**Key Indicators:**

- 10.9.1 Receive, control, and abstract bids
- 10.9.2 Provide general response to bids based on specifications, timelines, terms, and conditions
- 10.9.3 Complete a technical and operational analysis
- 10.9.4 Complete cost and price analysis, including profit, total cost, and life cycle cost analysis
- 10.9.5 Complete a learning curve analysis
- 10.9.6 Determine bidder capability and responsibility
- 10.9.7 Analyze transportation terms
- 10.9.8 Analyze other possible factors (availability, lead-time, logistical concerns, etc.)

BIML: Recommended

EDU:	12	AD
		P

Competency 10.10: Conduct supplier visits and/or evaluations to determine suitability when needed**Key Indicators:**

- 10.10.1 Identify factors indicating a supplier's ability to perform using rating systems and/or predetermined standards
- 10.10.2 Identify factors that can distort ratings
- 10.10.3 Identify factors indicating a supplier's financial status
- 10.10.4 Identify factors used to analyze a supplier's cost system
- 10.10.5 Identify factors used to determine a supplier's quality assurance, quality control, and related systems
- 10.10.6 Examine supplier's organization and management capabilities
- 10.10.7 Classify factors to determine a supplier's labor status
- 10.10.8 Identify issues used to determine whether to visit a supplier

BIML: Essential

EDU:	12	AD
	I	P

Competency 10.11: Analyze elements of contracts**Key Indicators:**

- 10.11.1 Identify the elements of a contract
- 10.11.2 Explain the legal difference between written and oral contracts
- 10.11.3 Explain when an oral contract is acceptable
- 10.11.4 Describe the issues related to electronic contracts
- 10.11.5 Describe trading partner agreements
- 10.11.6 Explain the difference between binding and non-binding letters of intent
- 10.11.7 Describe fixed price, cost reimbursable, indefinite delivery, and letter contracts
- 10.11.8 Describe dealer agreements
- 10.11.9 Explain exceptions to terms and conditions
- 10.11.10 Explain when an acknowledgment serves as a counteroffer
- 10.11.11 Identify the legal issues involved in preparing obligation documents

BIML: Recommended

EDU:	12	AD
		P

Competency 10.12: Issue contracts**Key Indicators:**

- 10.12.1 Complete a letter of intent
- 10.12.2 Issue service/goods contracts
- 10.12.3 Issue a notice of award
- 10.12.4 Debrief unsuccessful bidders
- 10.12.5 Resolve bidder protests

BIML: Essential

EDU:	12	AD
	I	P

Competency 10.13: Review legal implications of contracting**Key Indicators:**

- 10.13.1 Explain signature authority (law of agency)
- 10.13.2 Describe the role of legal counsel
- 10.13.3 Identify issues requiring legal advice
- 10.13.4 Examine a legal document

BIML: Essential

EDU:	12	AD
		P

Competency 10.14: Manage contracts and purchase orders from award to completion**Key Indicators:**

- 10.14.1 Examine work control and compliance
- 10.14.2 Follow approving procedures
- 10.14.3 Assure that all terms and conditions are met
- 10.14.4 Complete documentation requirements
- 10.14.5 Supervise the supplier and seek their feedback
- 10.14.6 Require progress reports when needed
- 10.14.7 Obtain internal and external customer feedback
- 10.14.8 Review the statement of work and annual work plan against the contract/ statement of work
- 10.14.9 Complete administrative responsibilities
- 10.14.10 Close out the contract

BIML: Essential

EDU:	12	AD
	I	P

Competency 10.15: Resolve contract and/or purchase order differences with suppliers**Key Indicators:**

- 10.15.1 Explain description, pricing and omissions errors that can occur
- 10.15.2 Describe situations where a supplier fails or refuses to perform
- 10.15.3 Describe liability situations arising from differences with suppliers
- 10.15.4 Identify problems that may arise if a supplier becomes financially troubled
- 10.15.5 Identify possible transportation problems
- 10.15.6 Explain the “Law of Mistake”
- 10.15.7 Explain the issues related to rejection or revocation of a contract or purchase order
- 10.15.8 Describe modifications and waivers that may occur with a contract or order
- 10.15.9 Describe breach of contract and default issues and potential remedies
- 10.15.10 Explain how a contract is terminated or suspended
- 10.15.11 Identify when the purchaser has a right to inspect and reject goods/services
- 10.15.12 Explain the use of arbitration, mediation, and “mini-trials” in dispute resolution
- 10.15.13 Describe when renegotiation may be possible
- 10.15.14 Describe when litigation is needed
- 10.15.15 Identify the different points of ownership depending on terms and specifications
- 10.15.16 Describe express and implied warranties and how their effective dates are determined
- 10.15.17 Describe contingency planning options

BIML: Essential

EDU:	12	AD
		P

Competency 10.16: Explain payment problems with suppliers and user departments**Key Indicators:**

- 10.16.1 Explain the advantages and disadvantages of progress/milestone payments
- 10.16.2 Explain the advantages and disadvantages of partial payments not directly related to performance
- 10.16.3 Identify the purchaser and supplier obligations in cost/price overruns
- 10.16.4 Identify the issues pertaining to the funding and control of cost reimbursable-type contracts
- 10.16.5 Offer solutions and scenarios to resolve invoice problems
- 10.16.6 Identify payment problems (e.g. no receiving report, differences between P.O. and invoice, etc)
- 10.16.7 Describe procedures for avoiding payment problems

BIML: Essential

EDU:	12	AD
		P

Competency 10.17: Discuss the scope of compliance requirements**Key Indicators:**

- 10.17.1 Identify current compliance requirements
- 10.17.2 Employ government, legal, and organizational requirements

BIML: Essential

EDU:	12	AD
	I	P

Competency 10.18: Conduct a negotiation**Key Indicators:**

- 10.18.1 Identify negotiation objectives
- 10.18.2 Identify when conditions favor negotiation
- 10.18.3 Identify a negotiation site
- 10.18.4 Identify a negotiation team
- 10.18.5 Demonstrate expertise in the relevant information (proposals, backgrounds of players, etc.)
- 10.18.6 Examine the seller's and purchaser's position
- 10.18.7 Examine market and product conditions
- 10.18.8 Study organizational factors that may impact negotiations
- 10.18.9 Identify potential negotiation strategies and tactics
- 10.18.10 Describe negotiation philosophies (win-win/cooperational, win-lose/adversarial or competitive, and lose-lose/confrontational)
- 10.18.11 Describe fall-back alternatives

Instructional Unit 11: Production

BIML: Essential

EDU:	12	AD
	I	P

Competency 11.1: Explain the relationship between manufacturing, purchasing, and logistics

Key Indicators:

- 11.1.1 Describe the interaction of manufacturing with procurement and logistics
- 11.1.2 Identify impact of economies of scale and economy of scope
- 11.1.3 Describe manufacturing constraints, including capacity, equipment, setup/changeover, and lead time
- 11.1.4 Explain the relationship between manufacturing strategy (make-to-plan, make-to-order, and make-to-stock) and purchasing
- 11.1.5 Describe logistics in the early stages of product planning
- 11.1.6 Explain the changes required in procurement processes involving global partners

BIML: Essential

EDU:	12	AD
	P	R

Competency 11.2: Explain the concept of production

Key Indicators:

- 11.2.1 Define production terms (e.g., production, operation, inputs, and outputs)
- 11.2.2 Identify inputs used by organizations for production
- 11.2.3 Distinguish between tangible and intangible outputs
- 11.2.4 Describe importance of production to an organization
- 11.2.5 Identify production activities
- 11.2.6 Describe goals of production activities

BIML: Essential

EDU:	12	AD
		P

Competency 11.3: Plan production**Key Indicators:**

- 11.3.1 Create a Master Production Schedule (MPS)
- 11.3.2 Create a Finite Capacity Schedule (FCS)
- 11.3.3 Identify factors in having a Master Production Schedule
- 11.3.4 Calculate effective forecasting
- 11.3.5 Analyze product lead time
- 11.3.6 Utilize query reports for problems
- 11.3.7 Adjust long-term plan to maintain continuity
- 11.3.8 Prioritize purchase of long lead-time components
- 11.3.9 Describe capacity levels so master production schedule does not inadvertently build in critical resource conflicts
- 11.3.10 Create a Rough Cut Capacity Plan (RCP)
- 11.3.11 Maintain data integrity

BIML: Recommended

EDU:	12	AD
		I

Competency 11.4: Apply best practices for production operations**Key Indicators:**

- 11.4.1 Identify techniques of quality/service costing
- 11.4.2 Measure the cost impact of nonconformance
- 11.4.3 Monitor cost of conformance and nonconformance in cost of quality/service measurements
- 11.4.4 Use quality tools and techniques to identify root causes from the cost of quality/service analysis
- 11.4.5 Describe advantages of benchmarking practices

BIML: Recommended

EDU:	12	AD
	I	R

Competency 11.5: Explain impact of new production technology for profitability**Key Indicators:**

- 11.5.1 Distinguish between product-based and process-based technology and how each is applied in business environment
- 11.5.2 Match high quality or low cost of ideas with effective commercial exploitation
- 11.5.3 Explain how technology can be applied to lower operating costs (e.g., welding, materials, packing, manual vs. automation)
- 11.5.4 Describe current examples

BIML: Essential

EDU:	12	AD
	I	P

Competency 11.6: Analyze job costing

Key Indicators:

- 11.6.1 Identify cost of a job
- 11.6.2 Interpret outcome of job costing
- 11.6.3 Establish target costs
- 11.6.4 Measure actual vs. estimated costs
- 11.6.5 Identify interaction between operations and accounting

Instructional Unit 12: Product Management

BIML: Essential

EDU:	12	AD
	P	R

Competency 12.1: Describe the factors involved in product/service operations

Key Indicators:

- 12.1.1 Identify organization objectives
- 12.1.2 Identify the stages of product/service development
- 12.1.3 Identify the elements of product positioning
- 12.1.4 Identify the stages in a product life cycle
- 12.1.5 Identify the importance of product grades and standards
- 12.1.6 Describe the importance of warranties and guaranties
- 12.1.7 Describe product liability issues

BIML: Essential

EDU:	12	AD
	I	P

Competency 12.2: Plan product/service management strategies

Key Indicators:

- 12.2.1 Describe the role of product/service management in business success
- 12.2.2 Describe the components of product/service management
- 12.2.3 Describe the product/service planning process
- 12.2.4 Describe the characteristics of product/service bundling
- 12.2.5 Explain the impact of business environment (e.g., online vs. “brick-and-mortar”) on product selection
- 12.2.6 Compare/contrast competition (e.g. product/service mix, prices, sales, promotional techniques)
- 12.2.7 Explain targeting strategy
- 12.2.8 Plan product/service mix
- 12.2.9 Solicit and utilize customer feedback
- 12.2.10 Participate in the evaluation of product/service management strategies
- 12.2.11 Participate in the evaluation of factors used in adjusting product/service mix

BIML: Essential

EDU:	12	AD
	P	R

Competency 12.3: Explain types of products and their impact on logistics**Key Indicators:**

- 12.3.1 Identify consumer products, and differentiate between convenience products, shopping products, and specialty products
- 12.3.2 Explain how different types of consumer products can impact logistics decisions and costs
- 12.3.3 Describe types of industrial products
- 12.3.4 Explain the impact of industrial products on logistics decisions and costs
- 12.3.5 Explain how product stages impact logistics decisions
- 12.3.6 Explain how packaging impacts the nature of the product

BIML: Essential

EDU:	12	AD
	P	R

Competency 12.4: Explain the impact of packaging on product/service management**Key Indicators:**

- 12.4.1 Describe primary functions of packaging
- 12.4.2 Describe the impact of packaging decisions on customer response and on marketing mix elements
- 12.4.3 Describe the elements of package design (e.g., color, style, copy, form)
- 12.4.4 Explain the necessity of packaging decision tradeoffs
- 12.4.5 Describe typical criticisms of packaging
- 12.4.6 Explain costs associated with packaging
- 12.4.7 Explain how packaging impacts product shipment and returns
- 12.4.8 Describe the three basic kinds of labels and the main function of a label on a package
- 12.4.9 Explain how labeling decisions supplement packaging decisions
- 12.4.10 Explain packaging and labeling laws
- 12.4.11 Participate in packaging decisions

BIML: Essential

EDU:	12	AD
	P	R

Competency 12.5: Use selling processes and techniques**Key Indicators:**

- 12.5.1 Describe the selling process
- 12.5.2 Prepare for the sales presentation
- 12.5.3 Establish a relationship with client/customer
- 12.5.4 Question client/customer to determine needs
- 12.5.5 Facilitate customer buying decisions
- 12.5.6 Describe organizational buying behavior
- 12.5.7 Recommend specific product/service
- 12.5.8 Demonstrate product
- 12.5.9 Close the sale
- 12.5.10 Implement follow-up strategies for selling
- 12.5.11 Use selling support functions
- 12.5.12 Describe the relationship between sales, procurement, and logistics

BIML: Essential

EDU:	12	AD
	P	R

Competency 12.6: Explain the nature and scope of promotion

- 12.6.1 Explain the role of promotion as a marketing function
- 12.6.2 Identify the elements of the promotional mix
- 12.6.3 Explain the nature of a promotional plan
- 12.6.4 Describe coordination of activities in the promotional mix
- 12.6.5 Explain the relationship between promotion, procurement, and logistics

Instructional Unit 13: Pricing

BIML: Essential

EDU:	12	AD
	P	R

Competency 13.1: Explain pricing fundamentals

Key Indicators:

- 13.1.1 Explain the nature and scope of the pricing function
- 13.1.2 Identify the basic considerations consumers and businesses weigh in accepting a price
- 13.1.3 Describe the price-setting process
- 13.1.4 Explain pricing objectives, sensitivity, and elasticity
- 13.1.5 Explain the impact of pricing errors
- 13.1.6 Explain price testing
- 13.1.7 Explain real-time pricing in the online environment

BIML: Recommended

EDU:	12	AD
	I	P

Competency 13.2: Evaluate pricing fundamentals

Key Indicators:

- 13.2.1 Describe zone, uniform, and basing point pricing
- 13.2.2 Explain the use of incentive pricing (quantity discounts, “deals”)
- 13.2.3 Discuss legal issues that may result based on the use of geographic and incentive pricing
- 13.2.4 Evaluate the role of business ethics in pricing
- 13.2.5 Evaluate the use of technology in pricing
- 13.2.6 Evaluate tax issues in online sales
- 13.2.7 Evaluate the relationship of shipping costs to prices in online sales
- 13.2.8 Research competitors’ prices

BIML: Essential

EDU:	12	AD
	I	P

Competency 13.3: Explain how logistics costs can influence pricing decisions

Key Indicators:

- 13.3.1 Describe how geographic location of customers can influence logistics costs and pricing decisions
- 13.3.2 Explain the types of F.O.B (“free on board”) pricing
- 13.3.3 Explain ownership issues related to F.O.B. origin and F.O.B. destination pricing
- 13.3.4 Explain freight equalization pricing
- 13.3.5 Explain how businesses make decisions related to logistics costs and different methods of pricing based on those costs

BIML: Recommended

EDU:	12	AD
	I	P

Competency 13.4: Determine prices for products / services

Key Indicators:

- 13.4.1 Determine pricing objective
- 13.4.2 Discuss the cost and break-even point of a product
- 13.4.3 Discuss elasticity of demand
- 13.4.4 Discuss and select competitors' prices
- 13.4.5 Select a pricing strategy, and estimate prices
- 13.4.6 Adjust prices to maximize profitability
- 13.4.7 Predict difficulties in applying traditional pricing strategies to e-commerce

Instructional Unit 14: Customer Relationship Management

BIML: Essential

EDU:	12	AD
	I	P

Competency 14.1: Explain basic customer relationship management (CRM) concepts

Key Indicators:

- 14.1.1 Describe the reasons and methods to determine what customers want
- 14.1.2 Explain the role of quality, warranties, and guarantees in customer satisfaction
- 14.1.3 Explain the role of website usability in customer satisfaction
- 14.1.4 Explain the link between customer relationships and logistics
- 14.1.5 Describe the relationship between customer satisfaction, loyalty, and value
- 14.1.6 Describe the link between customer satisfaction, loyalty, retention, profit, market-perceived value, and customer lifetime value
- 14.1.7 Explain the relationship between service and sales
- 14.1.8 Explain the concept of a customer relationship focus and its importance to an organization
- 14.1.9 Describe the concept of a *value chain*
- 14.1.10 Explain the importance of using strategic alliances to maximize the *value chain*
- 14.1.11 Identify the logistics elements that impact customer service

BIML: Essential

EDU:	12	AD
	I	P

Competency 14.2: Demonstrate quality customer service focus

Key Indicators:

- 14.2.1 Require employees to project a professional image (e.g., appearance, voice, grammar, word usage, enunciation, nonverbal communication)
- 14.2.2 Require employees to interact with customers and colleagues in a professional manner (e.g., prompt, friendly, courteous, respectful, helpful, knowledgeable, and clear)
- 14.2.3 Follow established business protocols and company policies
- 14.2.4 Communicate company policies to customers
- 14.2.5 Comply with merchandise returns policies
- 14.2.6 Resolve customer complaints in accordance with customer service policy
- 14.2.7 Facilitate customer service through the maintenance of key information systems
- 14.2.8 Monitor follow-through on commitments made to customers (e.g., special orders, delivery specifications, new items)
- 14.2.9 Monitor follow up on order problems

BIML: Essential

EDU:	12	AD
	I	P

Competency 14.3: Describe the concept of order cycle time**Key Indicators:**

- 14.3.1 Describe how order cycle time impacts customer service
- 14.3.2 Identify the elements of order transmittal time
- 14.3.3 Identify the elements of order processing and assembly
- 14.3.4 Describe how stock availability and production time impact order cycle time
- 14.3.4 Identify the components of delivery time
- 14.3.5 Describe how customer service policies can impact order cycle time

BIML: Essential

EDU:	12	AD
	I	P

Competency 14.4: Explain the importance of logistics performance on customer service in generating revenue**Key Indicators:**

- 14.4.1 Explain the impact of logistics performance on sales, customer service, and customer loyalty
- 14.4.2 Describe the relationship between sales and service
- 14.4.3 Describe methods used to determine the sales-service relationship for a specific product
- 14.4.4 Explain the concepts of “service threshold” and “service differential”
- 14.4.5 Describe how logistics performance can provide a competitive advantage
- 14.4.6 Explain the “law of diminishing returns” as it relates to customer service
- 14.4.7 Explain how logistics costs are related to service levels
- 14.4.8 Identify cost-revenue trade-offs in customer service
- 14.4.9 Compare logistics costs at various service levels
- 14.4.10 Describe types of contingency planning for service interruptions

BIML: Essential

EDU:	12	AD
	I	P

Competency 14.5: Explain the role of technology in order processing, tracking and customer research**Key Indicators:**

- 14.5.1 Describe how computer technology has impacted order processing
- 14.5.2 Explain the purpose and use of UPC barcodes
- 14.5.3 Explain how UPC bar codes are created
- 14.5.4 Compare/contrast keyboard entry and bar code entry
- 14.5.5 Explain the purpose and use of radio frequency identification (RFID) tags (e.g. smart tags)
- 14.5.6 Compare/contrast RFID tags and bar codes
- 14.5.7 Describe how and when RFID tags are used now
- 14.5.8 Describe the potential future uses of RFID tags
- 14.5.9 Describe potential privacy issues that may arise with the use of RFID tags

BIML: Essential

EDU:	12	AD
	I	P

Competency 14.6: Process orders and returns**Key Indicators:**

- 14.6.1 Follow order processing priorities
- 14.6.2 Describe when and how order batching is used
- 14.6.3 Enter and check accuracy of order
- 14.6.4 Check availability of requested items
- 14.6.5 Prepare back order documents when needed
- 14.6.6 Check customer credit status
- 14.6.7 Prepare billing statements
- 14.6.8 Provide quality customer service
- 14.6.9 Describe processes to customer
- 14.6.10 Trace/track orders
- 14.6.11 Communicate with customers about order after sale
- 14.6.12 Compare/contrast industrial, retail and consumer order processing
- 14.6.13 Process return of products

Instructional Unit 15: Finance

BIML: Essential

EDU:	12	AD
	P	R

Competency 15.1: Explain how logistics costs impact net profit

Key Indicators:

- 15.1.1 Describe the impact of logistic decisions on company financial performance
- 15.1.2 Identify fixed and variable storage costs
- 15.1.3 Identify fixed and variable transport costs
- 15.1.4 Explain transportation costs when deliveries are made to more than one customer
- 15.1.5 Describe how inventory impacts costs

BIML: Essential

EDU:	12	AD
	I	P

Competency 15.2: Utilize various inventory valuation methods

Key Indicators:

- 15.2.1 Describe why the valuation of stock can be a difficult process
- 15.2.2 Explain the LIFO (Last In First Out) method to determine the value of stock
- 15.2.3 Illustrate when the LIFO method should be used
- 15.2.4 Explain the FIFO (First In First Out) method to determine the value of stock
- 15.2.5 Describe when the FIFO method should be used
- 15.2.6 Explain the ACVO (Average Cost) weighted average cost method to determine the value of ACVO stock
- 15.2.7 Describe when the ACVO method should be used
- 15.2.8 Describe the impact of closing stock value on net profit and current assets

BIML: Essential

EDU:	12	AD
	P	R

Competency 15.3: Explain the impact of logistics on time value of money

Key Indicators:

- 15.3.1 Compute compound interest and the resulting compound amount at the maturity date for savings and investments
- 15.3.2 Compute present value of an investment with compound interest
- 15.3.3 Compute finance/additional charges, periodic payment, total costs, and APR (annual percentage rate) on an installment contract
- 15.3.4 Compute dollar amount of markdown, regular selling price, or reduced price when one of the three variables are unknown

Instructional Unit 16: Management

BIML: Essential

EDU:	12	AD
	P	R

Competency 16.1: Explain management concepts

Key Indicators:

- 16.1.1 Identify the major functions and activities of management
- 16.1.2 Describe management styles
- 16.1.3 Explain the role of authority, accountability, and responsibility in task accomplishment
- 16.1.4 Describe current and emerging management trends
- 16.1.5 Explain importance of strategic planning
- 16.1.6 Identify the risks/rewards associated with on-line business
- 16.1.7 Describe methods to manage risks
- 16.1.8 Describe continuous improvement programs

BIML: Essential

EDU:	12	AD
	P	R

Competency 16.2 Assess and manage human resources and integrated teams

Key Indicators:

- 16.2.1 Describe ethics in personnel issues
- 16.2.2 Plan/organize the work efforts of others
- 16.2.3 Debate assigning and accepting responsibility in individual and team situations
- 16.2.4 Describe the importance of accountability in a business environment
- 16.2.5 Explain job performance to an employee
- 16.2.6 Establish individual and team goals based on standards
- 16.2.7 Develop job descriptions
- 16.2.8 Follow personnel/human resource policies
- 16.2.9 Recognize chain of command
- 16.2.10 Manage an employee performance development/improvement plan
- 16.2.11 Describe methods of team decision-making
- 16.2.12 Facilitate team discussions and reach conclusion

BIML: Essential

EDU:	12	AD
	P	R

Competency 16.3: Provide leadership to procurement, acquisition, logistics, and supply chain management employees**Key Indicators:**

- 16.3.1 Compare/contrast different leadership styles
- 16.3.2 Identify factors that influence choice of leadership style in a given situation
- 16.3.3 Identify methods to build employee morale
- 16.3.4 Describe ways to motivate employees
- 16.3.5 Discuss the relationship between communication and employee attitude
- 16.3.6 Discuss the concept of employee participation in decision-making
- 16.3.7 Provide feedback regarding marketing work efforts
- 16.3.8 Encourage team building among marketing staff and with other stakeholders
- 16.3.9 Discuss employee complaint management
- 16.3.10 Discuss equitable opportunities for employees
- 16.3.11 Examine employee morale
- 16.3.12 Conduct staff meetings

BIML: Essential

EDU:	12	AD
	I	P

Competency 16.4: Apply sound decision-making strategies**Key Indicators:**

- 16.4.1 Identify the decision/problem (e.g., recognize a problem exists, search for underlying cause, define problem, refine problem, classify problem, and define additional goals)
- 16.4.2 Describe alternative responses to decisions/problems
- 16.4.3 Establish criteria for evaluating alternative responses to decisions/problems
- 16.4.4 Project outcomes of alternatives to decisions/problems
- 16.4.5 Implement financial analysis techniques to make decisions
- 16.4.6 Implement non-financial analysis techniques to make decisions
- 16.4.7 Establish decision enactment steps

Instructional Unit 17: Risk Management

BIML: Essential

EDU:	12	AD
	P	R

Competency 17.1: Explain types of risk

Key Indicators:

- 17.1.1 Identify types of risks to the business/project (i.e. political, regulatory, cultural, global, environmental, financial, marketing, production etc.)
- 17.1.2 Explain how risk affects business/project

BIML: Essential

EDU:	12	AD
	P	R

Competency 17.2: Explain risk management

Key Indicators:

- 17.2.1 Explain ways business/managers can protect themselves from risk
- 17.2.2 Describe ways that risk can be reduced through careful planning
- 17.2.3 Explain role of management in reducing risk
- 17.2.4 Identify types of business insurance and their application
- 17.2.5 Explain principles of a sound risk management program
- 17.2.6 Discuss appropriate levels of insurance for business/individuals
- 17.2.7 Explain supplier/customer credit risk management and effect on supply chain partners

BIML: Essential

EDU:	12	AD
	P	R

Competency 17.3: Analyze safety/security risks

Key Indicators:

- 17.3.1 Explain routine security precautions
- 17.3.2 Follow safety precautions
- 17.3.3 Identify procedures for handling accidents
- 17.3.4 Identify procedures for dealing with workplace threats
- 17.3.5 Explain procedures for correcting hazardous conditions
- 17.3.6 Describe fire-prevention program
- 17.3.7 Describe safety policies and procedures
- 17.3.8 Describe information/communication security (i.e. cyberspace)

Instructional Unit 18: Project and Quality Management

BIML: Essential

EDU:	12	AD
	P	R

Competency 18.1: Plan and coordinate the diverse components of a project

Key Indicators:

- 18.1.1 Review and comment on a project plan that takes into account all aspects of the project
- 18.1.2 Develop a written statement outlining the scope, extent, and limits of the project
- 18.1.3 Define a baseline plan for a project's scope, time, and cost
- 18.1.4 Develop a project charter to serve as a proposal or contract document which can be used to get project approval
- 18.1.5 Determine the type and quantity of resources needed to complete project activities (e.g., people, equipment, software)
- 18.1.6 Execute activities in the project plan

BIML: Essential

EDU:	12	AD
	I	P

Competency 18.2: Assess and manage a project

Key Indicators:

- 18.2.1 Manage/coordinate business, organizational, technological, and resource changes that affect an entire project
- 18.2.2 Redefine scope, time, and cost plan for a project when one factor must be traded off against the other
- 18.2.3 Determine usefulness of project management software tools
- 18.2.4 Use project management software tools to plan and control a project
- 18.2.5 Monitor project scope progress against the plan
- 18.2.6 Shut down a project at appropriate review points if problems are identified
- 18.2.7 Conclude a project when all requirements are met
- 18.2.8 Explain quality control standards in project management

BIML: Essential

EDU:	12	AD
	P	R

Competency 18.3: Build interpersonal skills with individuals and teams

Key Indicators:

- 18.3.1 Explain the interdependence of empathetic listening, synergy, and consensus building
- 18.3.2 Define roles within the group decision-making process (e.g., consensus)
- 18.3.3 Apply knowledge of group dynamics
- 18.3.4 Promote teamwork, leadership, and empowerment
- 18.3.5 Identify strategies for fostering creativity
- 18.3.6 Recognize the effect of influence, power, and politics on communication
- 18.3.7 Identify negotiation techniques
- 18.3.8 Describe the phases of team building
- 18.3.9 Interact effectively with technical and non-technical team members
- 18.3.10 Participate appropriately in team meetings
- 18.3.11 Complete assigned responsibilities in timely, acceptable manner so as to ensure progress of the team

BIML: Essential

EDU:	12	AD
	I	P

Competency 18.4: Explain quality assurance

Key Indicators:

- 18.4.1 Discuss the evolution and current application of quality assurance/total quality management (e.g., Deming Theory, ISO 9000, 9001 [International Organization for Standards], quality assurance, continuous improvement)
- 18.4.2 Discuss the changes brought about by global quality leaders
- 18.4.3 Discuss standards/requirements for various quality systems (e.g. Baldrige, ISO 9001)
- 18.4.4 Explain quality management terminology
- 18.4.5 Identify the role of quality within an organization
- 18.4.6 Identify features and benefits of quality planning
- 18.4.7 Describe measuring devices used to increase quality in functional areas
- 18.4.8 Describe relationship among organizational structures, policies, procedures, and quality assurance
- 18.4.9 Discuss successful efforts by industry to improve quality and/or reduce costs
- 18.4.10 Identify internal and external customers
- 18.4.11 Differentiate between prevention and detection
- 18.4.12 Differentiate between variable and attribute data
- 18.4.13 Identify types of control charts
- 18.4.14 Explain how statistical techniques are used to control quality (e.g., Six-Sigma)

BIML: Essential

EDU:	12	AD
	I	P

Competency 18.5: Select and employ quality tools**Key Indicators:**

- 18.5.1 Describe characteristics and functions of quality tools
- 18.5.2 Select quality tools appropriate to a situation

BIML: Essential

EDU:	12	AD
	I	P

Competency 18.6: Examine quality cost implications**Key Indicators:**

- 18.6.1 Establish cost/quality objectives
- 18.6.2 Classify costs (e.g., direct and indirect, fixed and variable, methods and standards)
- 18.6.3 Classify quality costs (e.g., prevention, evaluation, pre-delivery failure, post-delivery failure)

Instructional Unit 19: Business Law, Ethics and Legal Issues

BIML: Recommended

EDU:	12	AD
	P	R

Competency 19.1: Review and discuss current legal and ethical considerations as they relate to procurement, acquisition, logistics, and supply chain management

Key Indicators:

- 19.1.1 Relate current laws and regulations to business contracts, policies, and procedures
- 19.1.2 Discuss legal terminology
- 19.1.3 Describe procedures for maintaining the confidentiality of client information

BIML: Essential

EDU:	12	AD
	P	R

Competency 19.2: Evaluate policies for managing privacy and ethical issues

Key Indicators:

- 19.2.1 Identify privacy issues within an organization
- 19.2.2 Apply appropriate federal and state laws pertaining to privacy
- 19.2.3 Identify personal information that should not be shared
- 19.2.4 Explain the risks and dangers of sharing personal information
- 19.2.5 Discuss basic issues related to responsible use of technology and describe personal consequences of inappropriate use
- 19.2.6 Explain organization policies for privacy and intellectual property
- 19.2.7 Demonstrate legal and ethical behaviors when using information technology
- 19.2.8 Identify/explain property, privacy, access, and accuracy issues pertaining to technology (e.g., impact of these issues on individuals and organizations)

Instructional Unit 20: Economics

BIML: Essential

EDU:	12	AD
	P	R

Competency 20.1: Compare basic features of different economic systems

Key Indicators:

- 20.1.1 Discuss existing economies by comparing command, mixed, and market economies based on the criteria of freedom, efficiency, equity, security, employment, stability, and growth
- 20.1.2 Describe how change in one component of the circular flow of economic activity affects other components
- 20.1.3 Describe how economic systems, resources, and culture affect each other
- 20.1.4 Discuss how wages and prices are determined in command and market economies

BIML: Essential

EDU:	12	AD
	P	R

Competency 20.2: Explain importance of resources to the economy

Key Indicators:

- 20.2.1 Describe economic resource terms (e.g., economic resources, natural resources, capital goods, human resources, factors of production)
- 20.2.2 List reasons that economic resources are important for business
- 20.2.3 Explain why natural resources, capital resources, and human resources are limited
- 20.2.4 Describe ways that businesses respond to limited resources

BIML: Essential

EDU:	12	AD
	P	R

Competency 20.3: Explain concept of organized labor and business

Key Indicators:

- 20.3.1 Discuss the evolution of the labor movement and associated terminology (e.g., labor union, local, national, federation, collective bargaining, strikes, picketing, boycotts, featherbedding, lockouts, injunctions, strikebreakers)
- 20.3.2 Identify types of labor issues
- 20.3.3 Classify types of unions and levels of union organization

BIML: Essential

EDU:	12	AD
	P	R

Competency 20.4: Apply business economic concepts**Key Indicators**

- 20.4.1 Identify economic resources
- 20.4.2 Examine the functions of money
- 20.4.3 Identify the relationship between business, society, and government
- 20.4.4 Apply the concept of economic goods and services to given business situations
- 20.4.5 Apply the concept of utility, supply and demand, competition, price and opportunity cost to given business situations

BIML: Essential

EDU:	12	AD
	P	R

Competency 20.5: Analyze economic indicators and trends**Key Indicators:**

- 20.5.1 Identify business cycles
- 20.5.2 Investigate the nature of current and past economic problems
- 20.5.3 Identify leading indicators and lagging indicators

BIML: Essential

EDU:	12	AD
	P	R

Competency 20.6: Explain measures used to analyze economic conditions**Key Indicators:**

- 20.6.1 Describe: unemployment rate, frictional unemployment, structural unemployment, cyclical unemployment, seasonal unemployment, technological unemployment, full employment, inflation rate, price level, interest rate
- 20.6.2 Describe cost of unemployment for a nation
- 20.6.3 Describe causes of inflation and recession
- 20.6.4 Explain how inflation impacts the economy
- 20.6.5 Explain the impact of interest rate fluctuations on an economy

BIML: Essential

EDU:	12	AD
	P	R

Competency 20.7: Explain the nature of international trade**Key Indicators:**

- 20.7.1 Describe: imports, exports, international trade, absolute advantage, and comparative advantage
- 20.7.2 Describe reasons that international trade takes place
- 20.7.3 List gains from international trade
- 20.7.4 Identify ways in which the U.S. economy is affected by international trade
- 20.7.5 Describe types of trade barriers
- 20.7.6 Explain techniques used by governments to improve international trade relations
- 20.7.7 Explain the impact of the internet on globalization of business
- 20.7.8 Explain currency conversion

BIML: Essential

EDU:	12	AD
	I	P

Competency 20.8: Explain the impact of cultural and social environments on world trade**Key Indicators:**

- 20.8.1 Describe: culture, beliefs, values, assumptions, cultural baggage, business subculture, family unit, gender roles, family-work relationships, mobility, class system, language, customs, and social relationships
- 20.8.2 Explain why business subcultures shape the behaviors of business people
- 20.8.3 Describe how culture influences the components of social organization
- 20.8.4 Explain how culture influences communication
- 20.8.5 Describe the impact of values on culture
- 20.8.6 Explain the importance of understanding the culture of international trading partners
- 20.8.7 Describe the negotiation tactics and decision-making processes used in various cultures

BIML: Essential

EDU:	12	AD
	I	P

Competency 20.9: Compare/contrast influences on a nation's ability to trade**Key Indicators:**

- 20.9.1 Describe: trade sanctions, expropriation, economic nationalism, civil unrest, exchange rates, literacy level, agricultural dependency, industrialized countries, less-developed countries, developing countries, and infrastructure
- 20.9.2 Describe the impact of political risk on a nation's ability to trade
- 20.9.3 Discuss the impact of economic risks on a nation's ability to trade
- 20.9.4 Describe factors that affect a nation's ability to trade, (e.g., government policies, geographic location, fluctuating interest rates)
- 20.9.5 Describe factors that influence a nation's level of economic development
- 20.9.6 Compare/contrast the economic development of less-developed, developing, and industrialized countries
- 20.9.7 Describe the impact of a country's infrastructure on its ability to trade

Instructional Unit 21: Marketing Information Management

BIML: Essential

EDU:	12	AD
	P	R

Competency 21.1: Explain nature and scope of the marketing information management function

Key Indicators:

- 21.1.1 Describe need for marketing information
- 21.1.2 Describe types of marketing information as primary or secondary
- 21.1.3 Describe types of information marketers should obtain
- 21.1.4 Categorize internal sources of marketing information
- 21.1.5 Discuss external sources of marketing information
- 21.1.6 Review functions of a marketing-information management system
- 21.1.7 Contrast marketing research with a marketing information system
- 21.1.8 Describe use of a marketing information system
- 21.1.9 Explain benefits of a marketing information management system
- 21.1.10 Describe limitations of marketing information management systems

BIML: Essential

EDU:	12	AD
	P	R

Competency 21.2: Explain procurement, acquisition, logistics, and supply chain management information management

Key Indicators:

- 21.2.1 Describe the need for a comprehensive information management system for managing procurement, acquisition, logistics, and supply chain management systems
- 21.2.2 Identify internal sources of procurement, acquisition, logistics, and supply chain management information
- 21.2.3 Identify external sources of procurement, acquisition, logistics, and supply chain management information
- 21.2.4 Explore potential new sources of procurement, acquisition, logistics, and supply chain management information as needed
- 21.2.5 Explain the importance of credibility and objectivity in procurement, acquisition, logistics, and supply chain management information management
- 21.2.6 Describe ethical issues in information management
- 21.2.7 Define environmental scanning

BIML: Essential

EDU:	12	AD
	P	R

Competency 21.3: Explain use of databases in organizing marketing data**Key Indicators:**

- 21.3.1 Compare way in which sequential database systems organize information with that of relational database systems
- 21.3.2 Discuss advantages and limitations of various database systems
- 21.3.3 Describe importance of data base management and mining
- 21.3.4 Explain ways databases can be used to organize information about customers and their purchases
- 21.3.5 Describe ways that databases can be used to generate marketing reports
- 21.3.6 Identify internal records for marketing information (e.g., sales and expense reports, customer records, shipping information)
- 21.3.7 Identify external marketing information sources (e.g., customers, staff, and vendors)

BIML: Essential

EDU:	12	AD
	I	P

Competency 21.4: Use database information analysis**Key Indicators:**

- 21.4.1 Describe considerations in manipulating data to create reports
- 21.4.2 Describe procedures for manipulating data for information analysis
- 21.4.3 Demonstrate use of database for information analysis

BIML: Essential

EDU:	12	AD
	P	R

Competency 21.5: Write marketing reports**Key Indicators:**

- 21.5.1 Discuss characteristics of an effective marketing report
- 21.5.2 Identify elements of a marketing report
- 21.5.3 Describe types of visual aids that can be used effectively in marketing reports
- 21.5.4 Create tables and graphs for reports
- 21.5.5 Describe considerations in manipulating data to create reports
- 21.5.6 Prepare marketing reports using key elements and characteristics

BIML: Essential

EDU:	12	AD
	P	R

Competency 21.6: Present marketing report findings and recommendations**Key Indicators:**

- 21.6.1 Compare/contrast presentation of marketing reports in oral versus written format
- 21.6.2 Identify elements of a marketing report that should be addressed in an oral presentation
- 21.6.3 Demonstrate procedures for presenting report findings and recommendations
- 21.6.4 Utilize presentation software to enhance presentation of marketing reports

BIML: Essential

EDU:	12	AD
	I	P

Competency 21.7: Explain the scope of demand forecasting**Key Indicators:**

- 21.7.1 Explain the importance of forecasting demand
- 21.7.2 Explain the difference between spatial and temporal demand
- 21.7.3 Describe types of temporal and spatial demand variations
- 21.7.4 Explain how temporal demand variations and spatial demand variations impact the logistics system
- 21.7.5 Explain top-down and bottom-up demand forecasting
- 21.7.6 Explain irregular versus regular demand patterns
- 21.7.7 Explain the differences between independent and derived demand
- 21.7.8 Describe how independent and derived demand impact the forecasting of demand

BIML: Essential

EDU:	12	AD
	I	P

Competency 21.8: Forecast demand**Key Indicators:**

- 21.8.1 Describe types of qualitative methods of forecasting demand
- 21.8.2 Describe when qualitative methods are used
- 21.8.3 Describe the historic projection and causal methods
- 21.8.4 Describe the exponential smoothing method of calculating demand
- 21.8.5 Explain time series decomposition model
- 21.8.6 Forecast demand using various models

BIML: Essential

EDU:	12	AD
	I	P

Competency 21.9: Examine data using common statistical procedures**Key Indicators:**

- 21.9.1 Use tables, charts, and graphs (e.g. construct, read, interpret)
- 21.9.2 Infer data from tables, charts, and graphs
- 21.9.3 Calculate measures of central tendency (i.e. mean, median, mode)
- 21.9.4 Construct frequency distribution
- 21.9.5 Use probability concepts to solve problems involving uncertainty

BIML: Essential

EDU:	12	AD
	P	R

Competency 21.10: Develop a marketing plan**Key Indicators:**

- 21.10.1 Identify the potential uses of a marketing plan
- 21.10.2 Identify the organization's mission
- 21.10.3 Complete a basic SWOT (strengths, weaknesses, opportunities, threats) analysis
- 21.10.4 Identify overall marketing objectives
- 21.10.5 Select target markets
- 21.10.6 Use marketing research as needed
- 21.10.7 Develop objectives for each target market
- 21.10.8 Develop marketing mix strategies
- 21.10.9 Develop tactics (i.e. action plan)

Instructional Unit 22: Market Research

BIML: Essential

EDU:	12	AD
	P	R

Competency 22.1: Describe market research

Key Indicators:

- 22.1.1 Describe market research as both a formal and informal process
- 22.1.2 Identify common market research activities and the type of information each provides
- 22.1.3 Explain the role of ethics in marketing research
- 22.1.4 Describe the differences between primary and secondary sources of market research information
- 22.1.5 Describe the differences between qualitative and quantitative sources of market research information
- 22.1.6 Match primary and secondary sources with their advantages and disadvantages
- 22.1.7 Describe the differences between internal from external research and the advantages and disadvantages of each
- 22.1.8 Describe factors limiting market research (e.g. objectives, level of commitment, resources available)
- 22.1.9 Identify the steps of market research

BIML: Recommended

EDU:	12	AD
	P	R

Competency 22.2: Differentiate between basic market research tools

Key Indicators:

- 22.2.1 Describe the basics of sampling
- 22.2.2 Differentiate between data generated from surveys and questionnaires collected over the telephone, by mail, online, and in person
- 22.2.3 Describe the purpose and types of experiments, observational research, and focus groups

BIML: Essential

EDU:	12	AD
	I	P

Competency 22.3: Use online market research tools

Key Indicators:

- 22.3.1 Identify electronic research tools (e.g. e-mail, web surveys, list serves)
- 22.3.2 Use online market research services
- 22.3.3 Use methods of conducting online research
- 22.3.4 Describe the challenges of online surveys
- 22.3.5 Identify online random sampling methods
- 22.3.6 Describe the use of voluntary research panels
- 22.3.7 Identify the advantages and disadvantages of conducting online market research

BIML: Recommended

EDU:	12	AD
	I	R

Competency 22.4: Use data collection methods

Key Indicators:

- 22.4.1 Describe pros and cons of commonly used qualitative research techniques
- 22.4.2 Describe pros and cons of direct questioning, observation, and in-market experiments
- 22.4.3 Describe major uses of focus groups and in-depth interviews, on-line panels, and wireless panels
- 22.4.4 Describe general characteristics, advantages, disadvantages, and uses of diary panels
- 22.4.5 Discuss pros and cons of using survey research

BIML: Essential

EDU:	12	AD
	I	P

Competency 22.5: Analyze information from various sources

Key Indicators:

- 22.5.1 Retrieve information from a variety of sources
- 22.5.2 Examine the credibility and bias of information sources
- 22.5.3 Interpret information for use in decision-making
- 22.5.4 Find/classify retrieved information
- 22.5.5 Cite sources of all types of data
- 22.5.6 Use search procedures appropriate to type of information, nature of source, and nature of query
- 22.5.7 Examine the accuracy, relevance, and comprehensiveness of retrieved information
- 22.5.8 Draw conclusions and make generalizations based on information gathered
- 22.5.9 Analyze/synthesize information
- 22.5.10 Analyze the effectiveness of online information resources to support collaborative tasks, research, publications, communications, and increased productivity

BIML: Essential

EDU:	12	AD
	P	R

Competency 22.6: Evaluate and conduct research**Key Indicators:**

- 22.6.1 Define the marketing-research problem
- 22.6.2 Identify research objectives
- 22.6.3 Identify data sources (primary, secondary, internal, external)
- 22.6.4 Select research approaches
- 22.6.5 Use data collection instruments
- 22.6.6 Develop sampling plan (e.g. who, how many, how chosen)
- 22.6.7 Interpret data
- 22.6.8 Perform basic statistical analysis
- 22.6.9 Prepare report
- 22.6.10 Discuss concepts of validity and reliability

Instructional Unit 23: Writing Documentation

BIML: Essential

EDU:	12	AD
	I	P

Competency 23.1: Assess report writing requirements

Key Indicators:

- 23.1.1 Define/prioritize communication needs
- 23.1.2 Resolve conflicting requirements
- 23.1.3 Specify project objectives
- 23.1.4 Determine the size and specifics of the work to be completed
- 23.1.5 Estimate time, materials, and capabilities needed to complete assignment
- 23.1.6 Identify criteria for successful completion of project
- 23.1.7 Evaluate strengths, weaknesses, opportunities, and threats (S.W.O.T.) of completed project

BIML: Essential

EDU:	12	AD
	P	R

Competency 23.2: Write reports

Key Indicators:

- 23.2.1 Identify audience
- 23.2.2 Access needed information using standard references and sources
- 23.2.3 Identify type of report needed
- 23.2.4 Compile relevant data
- 23.2.5 Organize data into charts and graphs
- 23.2.6 Interpret data
- 23.2.7 Draw conclusions from data interpretations
- 23.2.8 Outline report
- 23.2.9 Draft report
- 23.2.10 Edit report (e.g. check spelling, grammar, punctuation, sentence structure, accuracy of content)
- 23.2.11 Review report with peers
- 23.2.12 Revise report as needed based on peer feedback
- 23.2.13 Proofread revised report
- 23.2.14 Present reports

Instructional Unit 24: Information Technology Applications for Procurement, Acquisition, Logistics, and Supply Chain Management

BIML: Essential

EDU:	12	AD
	I	P

Competency 24.1: Explain the concepts and use of various information technologies in procurement, acquisition, logistics, and supply chain management

Key Indicators:

- 24.1.1 Explain the importance of information as a key driver of procurement, acquisition, logistics, and supply chain management efficiency and the impact of incompatible communications
- 24.1.2 Explain the concept and use of a computerized purchasing system (e.g. online buying, EDI)
- 24.1.3 Explain the concept and use of implementing and maintaining a database of specifications, suppliers, products, and services
- 24.1.4 Explain the concept and use of a computerized inventory and/or capital equipment tracking system
- 24.1.5 Explain the concept and use of MRP, DRP and ERP computerized systems
- 24.1.6 Explain the concept and use of decision support and negotiation support systems
- 24.1.7 Explain the concept and use of electronic file transfer (EFT)
- 24.1.8 Explain the concept and use of technology for performance measurement and project management
- 24.1.9 Explain the concept and use of analytical technology applications
- 24.1.10 Explain the concept and use of technology for transactions, cost data management, asset management, and maintenance management
- 24.1.11 Explain the concept and use of computerized Warehouse Management Systems (WHS) and operation systems
- 24.1.12 Explain the concept and use of technology for transportation analysis and management
- 24.1.13 Explain the concept and use of off-the-shelf, in-house and outsourced software for purchasing and supply management
- 24.1.14 Explain the concept and use of in-house and outsourced software training
- 24.1.15 Explain the impact of computer systems to the business
- 24.1.16 Explain the concept and use of demand planning/forecasting computerized system

BIML: Essential

EDU:	12	AD
	P	R

Competency 24.2: Describe the impact of technology on society

Key Indicators:

- 24.2.1 Describe how technology (e.g. PCs [personal computers], larger computer systems, and infrastructure) impacts people and organizations
- 24.2.2 Describe the impact of computers on career pathways in business/industry (e.g., elimination and creation of jobs)
- 24.2.3 Identify security risks and associated safeguards
- 24.2.4 Describe the impact of computers on access to information and information exchange worldwide
- 24.2.5 Identify issues and trends affecting computers and information privacy
- 24.2.6 Identify markets that are most and least impacted by technology

BIML: Essential

EDU:	12	AD
	P	R

Competency 24.3: Describe types of business software

Key Indicators:

- 24.3.1 Identify key functions of systems software used in marketing applications
- 24.3.2 Describe widely used software applications (e.g. browsers, word processing, database management, spreadsheet development, Customer Relations Management (CRM) applications, web content development, Interview Management, Statistical Analysis, Business Planning, Market Planning)
- 24.3.3 Identify new and emerging classes of software

BIML: Essential

EDU:	12	AD
	P	R

Competency 24.4: Describe Internet-based business

Key Indicators:

- 24.4.1 Use word-processing software to create and revise documents
- 24.4.2 Use database software to create and maintain an electronic database
- 24.4.3 Use spreadsheet software to create and maintain an electronic spreadsheet
- 24.4.4 Use basic functions of desktop publishing software to create and revise documents
- 24.4.5 Use presentation graphics software to prepare, modify, and deliver electronic presentations
- 24.4.6 Integrate software computer applications
- 24.4.7 Use e-mail
- 24.4.8 Use scheduling applications to maintain an electronic schedule
- 24.4.9 Use teleconferencing to facilitate electronic meetings
- 24.4.10 Describe business intranet systems and how they can be used to communicate
- 24.4.11 Use Personal Digital Assistant (PDA) to maintain schedules, read e-mail, and access customer information

BIML: Essential

EDU:	12	AD
	I	P

Competency 24.5: Select and apply information technology application for procurement, acquisition, logistics, and supply chain management

Key Indicators:

- 24.5.1 Explain basic e-commerce concepts
- 24.5.2 Explain global business-to-business e-commerce
- 24.5.3 Describe the impact of e-commerce on business and society
- 24.5.4 Explain concepts of electronic business systems
- 24.5.5 Explain electronic Data Interchange (EDI)
- 24.5.6 Describe electronic payment mechanisms

BIML: Essential

EDU:	12	AD
	P	R

Competency 24.5: Access the Internet**Key Indicators:**

- 24.5.1 Identify the key characteristics of the Internet
- 24.5.2 Describe the ownership/administration of the Internet
- 24.5.3 Describe the relationship between the Internet and the World Wide Web (WWW)
- 24.5.4 Identify current issues related to the Internet
- 24.5.5 Identify services and tools offered on the Internet (e.g. file transfer protocol, news lists, e-mail)
- 24.5.6 Use accepted Internet etiquette (i.e. netiquette)
- 24.5.7 Identify current uses and applications of the Internet
- 24.5.8 Abide by company Internet security issues
- 24.5.9 Identify the components of Internet software
- 24.5.10 Use browser features
- 24.5.11 Unpack files using compression software
- 24.5.12 Apply virus protection techniques

BIML: Essential

EDU:	12	AD
	P	R

Competency 24.6: Utilize Internet services**Key Indicators:**

- 24.6.1 Access business and technical information using the Internet
- 24.6.2 Identify the specific strengths, weaknesses, and special features of available search engines and portals
- 24.6.3 Identify search engine(s) to use
- 24.6.4 Identify appropriate search procedures and approaches
- 24.6.5 Locate information using search engine(s) and Boolean logic
- 24.6.6 Navigate websites using software functions (e.g. forward, back, go to, bookmarks)
- 24.6.7 Examine Internet resources (e.g., accuracy of information)
- 24.6.8 Access library catalogs on the Internet
- 24.6.9 Access commercial, government, and education resources
- 24.6.10 Bookmark web addresses (URLs)
- 24.6.11 Subscribe to mailing lists
- 24.6.12 Participate in newsgroups
- 24.6.13 Retrieve online tools
- 24.6.14 Explore the multimedia capabilities of the World Wide Web
- 24.6.15 Use collaboration tools
- 24.6.16 Participate in online audio and video conferencing
- 24.6.17 Archive files
- 24.6.18 Compile a collection of business sites (e.g. finance, investment)
- 24.6.19 Describe company policies related to Internet usage
- 24.6.20 Describe firewalls and encryption and their impact on Internet usage
- 24.6.21 Identify ways to protect privacy online

Instructional Unit 25: Knowledge-Management

BIML: Recommended

EDU:	12	AD
		I

Competency 25.1: Explore knowledge-management

Key Indicators:

- 25.1.1 Describe why knowledge is considered most important asset for organizations
- 25.1.2 Describe the difference between explicit and tacit knowledge and why distinction is important in knowledge-management
- 25.1.3 Identify drivers for organizations to effectively manage knowledge
- 25.1.4 State reasons to implement knowledge-management
- 25.1.5 Recognize barriers to knowledge-management
- 25.1.6 Examine the financial potential of knowledge-management for businesses
- 25.1.7 Describe the role knowledge workers and the relationship to knowledge-management
- 25.1.8 Examine the core concepts of learning organization

BIML: Recommended

EDU:	12	AD
		I

Competency 25.2: Analyze importance of capture and transfer of strategic knowledge

Key Indicators:

- 25.2.1 Identify factors that lead to loss of organizational knowledge
- 25.2.2 Identify ways of preventing loss of knowledge
- 25.2.3 Identify what knowledge is being lost in organization
- 25.2.4 Determine the consequences of knowledge loss
- 25.2.5 Find solutions to knowledge loss
- 25.2.6 Choose various approaches in transferring strategic knowledge

BIML: Recommended

EDU:	12	AD
		I

Competency 25.3: Analyze organizational culture and the role of knowledge-management

Key Indicators:

- 25.3.1 Determine how organization acquires culture
- 25.3.2 Explain culture as tacit knowledge
- 25.3.3 Demonstrate importance of organization culture and its role in implementing knowledge-management

BIML: Recommended

EDU:	12	AD
		I

Competency 25.4 Determine barriers that affect knowledge-management implementation

Key Indicators:

- 25.4.1 Identify cultural assumptions that derail knowledge-management approach
- 25.4.2 Identify conditions that create favorable acceptance to knowledge-management approach
- 25.4.3 Create new values (rewards/recognition) that support knowledge sharing
- 25.4.4 Use the skills of change agent in implementing knowledge-management

BIML: Recommended

EDU:	12	AD
		I

Competency 25.5: Evaluate various knowledge-management measurement approaches

Key Indicators:

- 25.5.1 Create balanced scorecard performance measurement system
- 25.5.2 Determine the four perspectives of balanced scorecard measurement system
- 25.5.3 Evaluate strengths and weaknesses of each perspective of balanced scorecard measurement system
- 25.5.4 Survey employees' opinions as a knowledge-management measure

BIML: Recommended

EDU:	12	AD
		I

Competency 25.6: Measure intellectual capital

Key Indicators:

- 25.6.1 Define intellectual capital
- 25.6.2 Examine various approaches for measuring intellectual capital
- 25.6.3 Use the intangible assets monitor method for measuring intellectual assets (human competence, external structure, internal structure)

Supplemental Unit

The following Unit was provided by Defense Acquisition University. For those schools focusing on the military side of procurement, acquisition, logistics, and supply chain management, this unit is an essential addition. Each consortium should level these competencies if they include them in the local TCP.

Instructional Unit 26: Defense Acquisition and Logistics

Differentiate between selected private and public sector concepts for Units 1 through 25 and incorporate these concepts within the selected core business competencies.

Supplement to Unit 1: Professional Effectiveness

Competency 26.1: Describe the benefits of working for the Department of Defense (DoD)

Key Indicators:

- 26.1.1 Describe the difference between private and public sector Acquisition and Logistics
- 26.1.2 Define acquisition and logistics career field opportunities (Program Manager, Quality Assurance Specialist, Logistician, Contract Specialist, etc.)
- 26.1.3 Describe the world and national events, technological improvements and Congressional actions that influence changes in the acquisition environment

Supplement to Unit 3: Procurement, Acquisition, Logistics, and Supply Chain Management Basics

Competency 26.2: Summarize the DoD Acquisition and Logistics mission

Key Indicators:

- 26.2.1 Describe the variety of DoD mission areas and examples of corresponding acquisitions required to support the missions (i.e., food, arms, medical supplies, technology, services, etc.)
- 26.2.2 Compare and contrast the differences and relationships of the acquisition technology and logistics missions
- 26.2.3 Describe the role of the functional area team members (i.e., Program Management, Contracting, Logistics, Finance, Legal, Engineering, etc.)
- 26.2.4 Describe the interdependence of functional team members

Supplement to Unit 8: Supply Chain Management

Competency 26.3 Define the role of the Acquisition Logistics Professional in the Department of Defense (DoD)

Key Indicators:

- 26.3.1 Define Acquisition Logistics
- 26.3.2 Define the key areas of acquisition logistics management within the Integrated Product and Process Development/Integrated Product Team (IPPD/IPT) environment
- 26.3.3 Describe the critical importance of maintenance planning as the foundation for proper acquisition logistics support
- 26.3.4 Describe the interrelationships/interdependencies of logistics support elements
- 26.3.5 Describe the current shift in philosophy from organic to contractor support
- 26.3.6 Identify key factors that define the budget and funding process for acquisition logistics
- 26.3.7 Identify the acquisition logistician's role in reviewing and providing input to various acquisition documents
- 26.3.8 Distinguish the difference between the role of the Acquisition Logistician in the IPPD process as practiced by private industry and government

Competency 26.4 Define Sustainment Logistics and its impact on Acquisition Logistics

Key Indicators:

- 26.4.1 Describe the need to place emphasis on sustainment logistics as it relates to life cycle costs
- 26.4.2 Describe the need for close interface with the sustainment community
- 26.4.3 Describe the significance of diminishing manufacturing sources on the defense industrial base
- 26.4.4 Describe the requirement for post production support as it relates to acquisition logistics
- 26.4.5 Identify and describe the traditional elements of logistics support to include manpower personnel, computer resource support, maintenance planning, technical data, facilities, supply support, support equipment, training, packaging, handling, and transportation, design interface, etc.

Supplement to Unit 10: Purchasing/Contracting

Competency 26.5 Apply DoD purchasing/contracting policies and procedures

Key Indicators:

- 26.5.1 Describe the role of Congress and its interaction/interface with DoD with regard to the budget, requirements, and acquisitions
- 26.5.2 Describe the importance of the Federal Acquisition Regulation (FAR)
- 26.5.3 Examine the impact of competition and partnering in contracting
- 26.5.4 Compare and contrast government buying practices with commercial buying practices and identify potential impacts
- 26.5.5 Apply principles of contract and fiscal laws and regulations (e.g. the Anti-Deficiency Act, procurement integrity and the specific purpose statutes) as they pertain to development of program funding, contracts and strategies
- 26.5.6 Describe the benefits of Alternative Dispute Resolution and other techniques for resolving and avoiding disputes and litigation
- 26.5.7 Calculate the affordability of a program in terms of life cycle cost
- 26.5.8 Describe the fixed price and cost type contracts
- 26.5.9 Examine what considerations determine the contract type (risk, mission, technology, urgency, etc.)
- 26.5.10 Originate a complete solicitation that effectively communicates the government's requirements, acquisition strategy and factors for award
- 26.5.11 Construct evaluation criteria and evaluate proposals received in response to a solicitation
- 26.5.12 Negotiate a contract

Supplement to Unit 15: Finance

Competency 26.6 Explain financial considerations in DoD Acquisitions

Key Indicators:

- 26.6.1 Explain the different types of appropriations including their purpose and time period in which funds must be obligated
- 26.6.2 Describe the different situations in which the Anti-Deficiency Act would apply
- 26.6.3 Outline the mission and functions of the government financial community (i.e. forecast costs, structure budgets, expenditure management)
- 26.6.4 Explain how smart business arrangements reflect consideration of total life cycle costs of doing business

Appendix A

Review Panels

Procurement, Acquisition, Logistics and Supply Chain Management Draft Writing Panel

Davis, Anthony, Marketing Teacher/Coordinator, Patterson Career Center

Johnson, Debbie, Professor, Defense Acquisitions University

Mann, Carolyn, Chair Life Long Learning, Sinclair Community College

Marino, Greg, Marketing Teacher, Stebbins High School

Oxendine, Pam, Professor, Defense Acquisitions University

Sheehan, Bob, Miami Valley Tech Prep Consortium

Smith, Bev, Facilitator, Miami Valley Tech Prep Consortium Curriculum Provider

Sommers, Kathy, Assistant Director, Industrial and Engineering Technology Education, Ohio
Department of Education

Sturgill, Dee, Marketing Education Consultant, Ohio Department of Education

Wilson, Nick, Assistant Director, K-16 Initiatives, Ohio Board of Regents

Wood, Karen, International Business Teacher, Centerville High School

Wortman, Debra, Chair Business, Stebbins High School

Procurement, Acquisition, Logistics and Supply Chain Management Business Panel

Calandra, John, Business Development Manager, Exel Technology & Global Freight Management

Clark, Paul, Supervisor-Purchasing, Dayton Power & Light Company

Forker, Mort, Sr. Manager, Business Development, Lockheed Martin

House, Walter, Knowledge Management Program Manager, DSCC-DE

Humphrey, Gregory, Human Resource Management Analyst, Aeronautical Systems Center

Jarrett, W. Michael, President, Jarrett Logistics Systems, Ltd.

Keane, Katy, President, People, Planning, Process Forecasting and Redesign

Keefer, Steve, Customer Service, Dick Lavy Trucking, Inc.

Malone, Tony, HR Manager, Limited Brands Logistics Services

Neilson, Izola, Marketing & Business Development, Neilson Enterprises

Oxendine, Pamela, Professor, Defense Acquisitions University

Russell, Lt. Col. David, Program Management Admin Special Projects

Tucker, Angela, General Supply Specialist Lead/Instructor, DLA Training Center

Valerio, Tim, Business Development Representative, Boeing

Weilbacher, Leslie, Executive Director, Advanced Logistic Council, Greater Columbus Chamber of Commerce

Procurement, Acquisition, Logistics and Supply Chain Management Educator Panel

Blythe, Wesley, Instructor, Columbus State Community College

Butts, Susan, Business Academy Teacher, Greenville High School

Campbell, Terri, Assistant Professor, Clark State Community College

Cline, Richard, Teacher, Greenville High School

Cape, Jane, Dean Business & Applied Technology Department, Clark State Community College

Cohan, Bud, Adjunct Instructor, Columbus State Community College

Davis, Anthony, Marketing Teacher/Coordinator, Patterson Career Center

Eilers, Al, Instructor, Cincinnati State Technical and Community College

Gordie, Gregg, Internet Marketing Tech Prep Instructor, Warren County Career Center

Holweger, Robin, Marketing Technology Instructor, Kettering Fairmount High School

Marino, Greg, Marketing Instructor, Stebbins High School

Meyers, Wendell, Career Pathway Coordinator, Centerville High School

Oxendine, Pamela, Professor, Defense Acquisitions University

Ricca, Dan, Chair, Assistant Professor, Sinclair Community College

Robinson, Kelly, Marketing & Logistic Instructor, Groveport-Madison High School

Walker, Jamie, Business Teacher, Oakwood High School

Waxman, William, Assistant Professor of Marketing, Edison Community College

Procurement, Acquisition, Logistics and Supply Chain Management Stakeholder Panel

Blythe, Wesley, Instructor, Columbus State Community College

Calandra, John, Business Development Manager, Exel Technology & Global Freight Management

Davis, Anthony, Marketing Teacher/Coordinator, Patterson Career Center

Eilers, Al, Instructor, Cincinnati State Technical and Community College

Forker, Mort, Sr. Manager, Business Development, Lockheed Martin

House, Walter, Knowledge Management Program Manager, DSCC-DE

Keane, Katy, President, People, Planning, Process Forecasting and Redesign

Oxendine, Pamela, Professor, Defense Acquisitions University

Weilbacher, Leslie, Executive Director, Advanced Logistic Council, Greater Columbus Chamber of Commerce

Appendix B

College Tech Prep Pathway Template

(High School)

(Career Center)

(Community College)

College Tech Prep Program

(School Year)

9 th GRADE	CREDIT	10 th GRADE	CREDIT	11 th GRADE	CREDIT	12 th GRADE	CREDIT
Recommended Prerequisites for Grade 11 of Tech Prep				Recommended for College Portion of Tech Prep			
Junior Year Tech Center/College Technical Courses				Senior Year Tech Center/College Technical Courses			
*Technical Subjects		On-transcript _____ College Credits		*Technical Subjects		_____ College Credits	
Articulated Credits: - _____ Community College							

This template is used to facilitate Ohio College Tech Prep Pathways and is submitted by the Ohio College Tech Prep Consortium with the application.
Revised 6/20/03

DEGREE: ASSOCIATE OF _____

- College Tech Prep _____

(Career Center)

(Name of College Tech Prep Program)

Term Taken	First Term	Pre-requisite	Co-requisite	Quarter Credit Hours	University Pathway Equivalent	Completed as Tech Prep Component
Term Taken	Second Term	Pre-requisite	Co-requisite			
Term Taken	Third Term	Pre-requisite	Co-requisite			

DEGREE: ASSOCIATE OF _____

- College Tech Prep _____

(Career Center)

(Name of College Tech Prep Program)

Term Taken	Fourth Term	Pre-requisite	Co-requisite	Quarter Credit Hours	University Pathway Equivalent	Completed as Tech Prep Component
Term Taken	Fifth Term	Pre-requisite	Co-requisite			
Term Taken	Sixth Term	Pre-requisite	Co-requisite	Quarter Credit Hours	University Pathway Equivalent	Completed as Tech Prep Component

Appendix C

Professional Associations and Certifications

Certification Programs Associated with Logistics

Certified in Transportation and Logistics (American Society for Transportation and Logistics)
CIRM-Certified in Integrated Resource Management and CPIM-Certified in Production Inventory Management (APICS The Educational Society for Resource Management)
Certified Claims Professional (Certified Claims Professional Accreditation Council)
CPM-Certified Purchasing Manager and APP-Accredited Purchasing Manager (Institute for Supply Management)
CPP-Certified Packaging Professional and CPT-Certified Professional in Training (Institute of Packaging Professionals)
CLP-Certified Logistics Practitioner (Institute of Logistical Management)
CPL-Certified Professional Logistician (SOLE—The International Society of Logistics)
CFCM-Certified Federal Contracts Manager, CCCM-Certified Commercial Contracts Manager and CPCM-Certified Professional Contracts Manager (National Contract Management Association)

Professional Associations

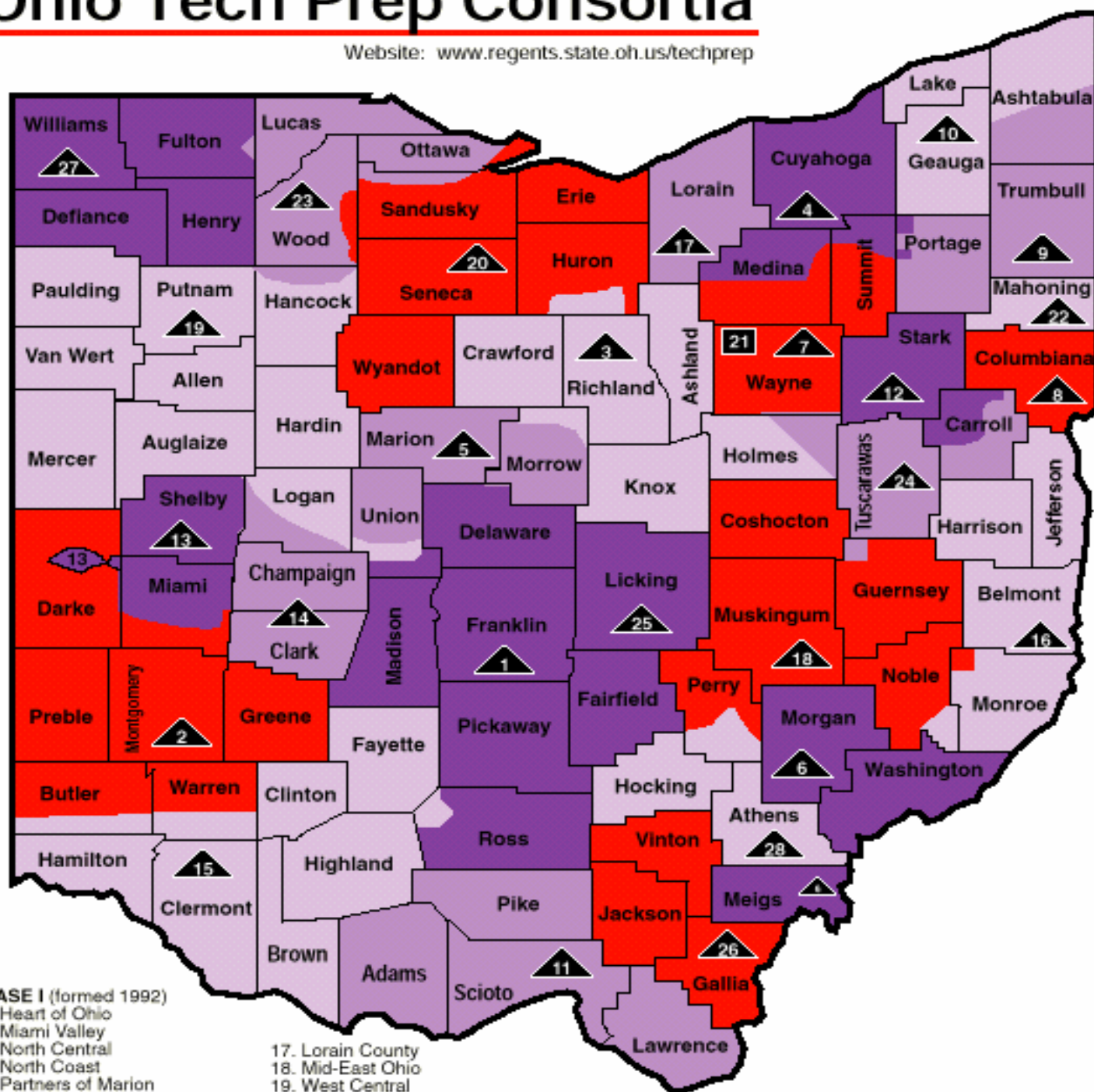
APICS (The Educational Society for Resource Management)
The American Society of Transportation and Logistics
Council of Logistics Management
Intermodal Association of North America
International Warehouse Logistics Association
The Material Handling Institute
The International Society of Logistics
Warehousing Education and Research Council
National Contract Management Association
Institute for Supply Management
The Supply-Chain Council
Institute of Packaging Professionals
Institute of Logistical Management

Appendix D

Ohio Tech Prep Consortia

Ohio Tech Prep Consortia

Website: www.regents.state.oh.us/techprep



PHASE I (formed 1992)

- 1. Heart of Ohio
- 2. Miami Valley
- 3. North Central
- 4. North Coast
- 5. Partners of Marion
- 6. Washington-Morgan-Meigs

- 17. Lorain County
- 18. Mid-East Ohio
- 19. West Central
- 20. Workforce Development Council

PHASE II (formed 1993)

- 7. Akron
- 8. Columbus Area
- 9. Kent
- 10. Lakeland
- 11. Ohio South
- 12. Stark County
- 13. Upper Miami Valley

PHASE IV (formed 1995)

- 21. Ohio State Agricultural Education Institute (with programs at locations throughout Ohio)
- 22. Mahoning Area
- 23. Northwest Ohio
- 24. Tuscarawas Valley

PHASE III (formed 1994)

- 14. Clark State
- 15. Greater Cincinnati
- 16. Eastern Ohio Valley

PHASE V (formed 1996)

- 25. East Central Ohio
- 26. Ohio Valley
- 27. Maumee Valley
- 28. Southeast