Course Description:
Materials Management is the third course in the Distribution and Logistics pathway. Materials Management is concerned with planning, organizing, and control flow of materials from their initial purchase to destination. Topics include product receiving, proper materials storage, order processing in relation to warehouse operations, packaging materials, inventory control, safe handling of hazardous materials, transportation modes, dispatch, routing and tracking operations.

Students will be instructed through the use of lectures, guided inquiry, project-based learning, interviews with industry professionals, job shadowing, teamwork, problem solving, simulations, and/or school based enterprise. Students should also participate in leadership development activities with a Career Technical Student Organizations (CTSOs). Successful completion of this course will prepare students for the Certified Logistics Technician (CLT) exam. Students must complete Logistics Fundamentals, Logistics Operations, Certified Logistics Associate (CLA) exam, and Materials Management in order to be eligible to take the CLT exam. The prerequisite for this course is Logistics Operations.

Course Standard 1

TDL-MM-1
The following standard is included in all CTAE courses adopted for the Career Cluster/Pathways. Teachers should incorporate the elements of this standard into lesson plans during the course. The topics listed for each element of the standard may be addressed in differentiated instruction matching the content of each course. These elements may also be addressed with specific lessons from a variety of resources. This content is not to be treated as a unit or separate body of knowledge but rather integrated into class activities as applications of the concept.

Standard: Demonstrate employability skills required by business and industry.
The following elements should be integrated throughout the content of this course.

1.1 Communicate effectively through writing, speaking, listening, reading, and interpersonal abilities.
### Nonverbal Communication
- Communicating Nonverbally
- Reading Body Language and mixed Messages
- Matching Verbal and Nonverbal communication
- Improving Nonverbal Indicators
- Nonverbal Feedback
- Showing Confidence Nonverbally
- Showing Assertiveness

### Written Communication
- Writing Documents
- Constructive Criticism in Writing
- Small Group Communication
- Large Group Communication
- Making Speeches
- Involving the Audience
- Answering Questions

### Speaking
- Using Language Carefully
- One-on-One Conversations
- Things to Include in a Résumé
- Selling Yourself in a Résumé
- Terms to Use in a Résumé
- Describing Your Job Strengths
- Answering Questions
- Organizing Your Résumé
- Visual and Media Aids
- Writing an Electronic Résumé
- Errors in Presentation
- Dressing Up Your Résumé

### Applications and Effective Résumés
- Completing a Job Application
- Writing a Cover Letter
- Things to Include in a Résumé
- Selling Yourself in a Résumé
- Terms to Use in a Résumé
- Describing Your Job Strengths
- Answering Questions
- Organizing Your Résumé
- Visual and Media Aids
- Writing an Electronic Résumé
- Errors in Presentation
- Dressing Up Your Résumé

### 1.2 Demonstrate creativity by asking challenging questions and applying innovative procedures and methods.

<table>
<thead>
<tr>
<th>Teamwork and Problem Solving</th>
<th>Meeting Etiquette</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thinking Creatively</td>
<td>Preparation and Participation in Meetings</td>
</tr>
<tr>
<td>Taking Risks</td>
<td>Conducting Two-Person or Large Group Meetings</td>
</tr>
<tr>
<td>Building Team Communication</td>
<td>Inviting and Introducing Speakers</td>
</tr>
<tr>
<td></td>
<td>Facilitating Discussions and Closing</td>
</tr>
<tr>
<td></td>
<td>Preparing Visual Aids</td>
</tr>
<tr>
<td></td>
<td>Virtual Meetings</td>
</tr>
</tbody>
</table>

### 1.3 Exhibit critical thinking and problem solving skills to locate, analyze and apply information in career planning and employment situations.

<table>
<thead>
<tr>
<th>Problem Solving</th>
<th>Customer Service</th>
<th>The Application Process</th>
<th>Interviewing Skills</th>
<th>Finding the Right Job</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transferable Job Skills</td>
<td>Gaining Trust and Interacting with Customers</td>
<td>Providing Information, Accuracy and Double Checking</td>
<td>Preparing for an Interview</td>
<td>Locating Jobs and Networking</td>
</tr>
<tr>
<td>Becoming a Problem Solver</td>
<td>Learning and Giving Customers What They Want</td>
<td>Online Application Process</td>
<td>Questions to Ask in an Interview</td>
<td>Job Shopping Online</td>
</tr>
<tr>
<td>Identifying a Problem</td>
<td>Keeping Customers Coming Back</td>
<td>Following Up After Submitting an Application</td>
<td>Things to Include in a Career Portfolio</td>
<td>Job Search Websites</td>
</tr>
<tr>
<td>Becoming a Critical Thinker</td>
<td>Seeing the Customer’s Point</td>
<td>Effective Résumés: Traits Employers are Seeking</td>
<td>Participation in Job Fairs</td>
<td></td>
</tr>
<tr>
<td>Managing</td>
<td>Selling Yourself and the Company</td>
<td>Matching Your Talents to a Job</td>
<td>Considerations Before Taking a Job</td>
<td>Searching the Classified Ads</td>
</tr>
<tr>
<td></td>
<td>Handling Customer Complaints</td>
<td>When a Résumé Should be Used</td>
<td>Using Employment Agencies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Strategies for Customer Service</td>
<td></td>
<td>Landing an Internship</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Staying Motivated to Search</td>
<td></td>
</tr>
</tbody>
</table>
1.4 Model work readiness traits required for success in the workplace including integrity, honesty, accountability, punctuality, time management, and respect for diversity.

<table>
<thead>
<tr>
<th>Workplace Ethics</th>
<th>Personal Characteristics</th>
<th>Employer Expectations</th>
<th>Business Etiquette</th>
<th>Communicating at Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrating Good Work Ethic</td>
<td>Demonstrating a Good Attitude</td>
<td>Behaviors Employers Expect</td>
<td>Language and Behavior</td>
<td>Handling Anger</td>
</tr>
<tr>
<td>Behaving Appropriately</td>
<td>Gaining and Showing Respect</td>
<td>Objectionable Behaviors</td>
<td>Keeping Information Confidential</td>
<td>Dealing with Difficult Coworkers</td>
</tr>
<tr>
<td>Maintaining Honesty</td>
<td>Demonstrating Responsibility</td>
<td>Establishing Credibility</td>
<td>Avoiding Gossip</td>
<td>Dealing with a Difficult Boss</td>
</tr>
<tr>
<td>Playing Fair</td>
<td>Showing Dependability</td>
<td>Demonstrating Your Skills</td>
<td>Appropriate Work Email</td>
<td>Dealing with Difficult Customers</td>
</tr>
<tr>
<td>Using Ethical Language</td>
<td>Being Courteous</td>
<td>Building Work Relationships</td>
<td>Cell Phone Etiquette</td>
<td>Dealing with Conflict</td>
</tr>
<tr>
<td>Showing Responsibility</td>
<td>Gaining Coworkers’ Trust</td>
<td></td>
<td>Appropriate Work Texting</td>
<td></td>
</tr>
<tr>
<td>Reducing Harassment</td>
<td>Persevering</td>
<td></td>
<td>Understanding Copyright</td>
<td></td>
</tr>
<tr>
<td>Respecting Diversity</td>
<td>Handling Criticism</td>
<td></td>
<td>Social Networking</td>
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</tr>
<tr>
<td>Making Truthfulness a Habit</td>
<td>Showing Professionalism</td>
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<td></td>
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<tr>
<td>Leaving a Job Ethically</td>
<td></td>
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</tr>
</tbody>
</table>

1.5 Apply the appropriate skill sets to be productive in a changing, technological, diverse workplace to be able to work independently and apply team work skills.

<table>
<thead>
<tr>
<th>Expected Work Traits</th>
<th>Teamwork</th>
<th>Time Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrating Responsibility</td>
<td>Teamwork Skills</td>
<td>Managing Time</td>
</tr>
<tr>
<td>Dealing with Information Overload</td>
<td>Reasons Companies Use Teams</td>
<td>Putting First Things First</td>
</tr>
<tr>
<td>Transferable Job Skills</td>
<td>Decisions Teams Make</td>
<td>Juggling Many Priorities</td>
</tr>
<tr>
<td>Managing Change</td>
<td>Team Responsibilities</td>
<td>Overcoming Procrastination</td>
</tr>
<tr>
<td>Adopting a New Technology</td>
<td>Problems That Affect Teams</td>
<td>Organizing Workspace and Tasks</td>
</tr>
<tr>
<td>Expressing Yourself on a Team</td>
<td>Giving and Receiving Constructive Criticism</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Staying Organized</td>
<td>Finding More Time</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Managing Projects</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Prioritizing Personal and Work Life</td>
</tr>
</tbody>
</table>

1.6 Present a professional image through appearance, behavior and language.

<table>
<thead>
<tr>
<th>On-the-Job Etiquette</th>
<th>Person-to-Person Etiquette</th>
<th>Communication Etiquette</th>
<th>Presenting Yourself</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using Professional Manners</td>
<td>Meeting Business Acquaintances</td>
<td>Creating a Good Impression</td>
<td>Looking Professional</td>
</tr>
<tr>
<td>Introducing People</td>
<td>Meeting People for the First Time</td>
<td>Keeping Phone Calls Professional</td>
<td>Dressing for Success</td>
</tr>
<tr>
<td>Appropriate Dress</td>
<td>Showing Politeness</td>
<td>Proper Use of Work Email</td>
<td>Showing a Professional Attitude</td>
</tr>
<tr>
<td>Business Meal Functions</td>
<td></td>
<td>Proper Use of Cell Phone</td>
<td>Using Good Posture</td>
</tr>
<tr>
<td>Behavior at Work Parties</td>
<td></td>
<td>Proper Use in Texting</td>
<td>Presenting Yourself to Associates</td>
</tr>
<tr>
<td>Behavior at Conventions</td>
<td></td>
<td></td>
<td>Accepting Criticism</td>
</tr>
</tbody>
</table>
Support of CTAE Foundation Course Standards and Georgia Standards of Excellence L9-10RST 1-10 and L9-10WHST 1-10:
Georgia Standards of Excellence ELA/Literacy standards have been written specifically for technical subjects and have been adopted as part of the official standards for all CTAE courses.

**Course Standard 2**

**TDL-MM-2**

Describe the process of receiving products.

2.1 Describe the essential activities of receiving.
2.2 Identify and describe the procedures for handling in-bound trucks.
2.3 Describe load and security conditions prior to unloading.
2.4 List and describe standard product receipt documents.
2.5 Describe procedures for checking and reporting inbound products during unloading.

**Course Standard 3**

**TDL-MM-3**

Construct knowledge related to proper product storage techniques based on product life, risk of damage, hazards, and weight and size.

3.1 Describe methods of determining the destination and direction of unloaded products.
3.2 Illustrate the key issues affecting forms in which products are stored.
3.3 Describe the forms in which products are stored.
3.4 Discuss other methods of storage and retrieval.
3.5 Construct a diagram and describe how an automated storage and retrieval system operates.

**Course Standard 4**

**TDL-MM-4**

Synthesize knowledge of order processing in terms of picking processes and how they impact warehouse operations.

4.1 Describe best practices in order cycle and procurement process, including information flow.
4.2 Explain pick ticket inspection.
4.3 Identify and explain processes for accurately pulling products from storage identified in pick ticket.
4.4 Explain how audits are conducted to ensure pulled products are as ordered.
4.5 Describe staging of pulled products for shipping.
4.6 Describe steps involved in developing a packing manifest.

**Course Standard 5**

**TDL-MM-5**

Develop a logical argument of various types of packaging materials best suited for different product size, weight, function and design for shipment.

5.1 Identify and demonstrate selecting the most appropriate and current packing material to package products, when necessary.
5.2 Describe the selection of packaging tools best suited for handling and packaging products.
5.3 Explain typical steps to protect product from weather.
5.4 Describe process to ensure that outbound product counts are accurate and products are free from defects.
5.5 Describe process for verifying outbound product counts against customer orders.
5.6 Describe correct product labeling in accordance with domestic and international regulations and company policy.
5.7 Identify and explain the steps to verify that the right packages are securely loaded in the correct trailer.
5.8 Identify and explain the steps to ensure that packages are securely loaded into trailers and correctly distributed based on safe loading procedures.

**Course Standard 6**

**TDL-MM-6**
Hypothesize how inventory control affects overall operations.

6.1 Describe fundamentals of inventory control.
6.2 List and explain the main inventory control systems.
6.3 Explain methods of accurate counting.
6.4 Describe methods for capturing logistics information.
6.5 Describe “reverse” logistics.

**Course Standard 7**

**TDL-MM-7**
Discuss safe handling of hazardous materials, including classification, regulations, specifications, and methods of shipping and routing of dangerous goods.

7.1 Explain government regulations related to hazardous materials handling.
7.2 Describe safe work practices for unloading and loading hazardous materials.
7.3 Discuss government and other safe work practices for transfer and storage of hazardous materials.
7.4 Describe how hazardous materials are identified in shipping documentation.

**Course Standard 8**

**TDL-MM-8**
Discuss and analyze common transportation modes used to transport goods and cargo, including air, marine, rail, pipeline, and intermodal.

8.1 Describe the modes of transportation and their advantages and disadvantages.
8.2 Describe the main considerations in determining the best mode.
8.3 Explain how to use the information on performance of the different modes for rapid decision making.
8.4 Illustrate examples of transportation documentation.

**Course Standard 9**

**TDL-MM-9**
Demonstrate understanding of concepts related to dispatch, routing, and tracking operations, and basic customs terminology and documentation.

9.1 Explain shipping documentation.
9.2 Describe main factors related to vehicle routing.
9.3 Describe ways to track cargo within yard.
9.4 Describe ways to track cargo en route.
9.5 Describe key features of intermodal transportation.
9.6 Summarize basic customs terminology and documentation.

Course Standard 10

TDL-MM-10

Apply basic measurement and conversion techniques to handle and ship materials.

10.1 Discuss and perform the proper procedures to apply the significance of weight of materials for both incoming and outgoing shipments.
10.2 Compare and contrast the three types of scales found in most warehouses.
10.3 Convert a given U.S. standard measurement to a global metric unit of measurement utilizing basic formulas for conversion.

Course Standard 11

TDL-MM-11

Utilize current and acceptable abbreviations and terminology related to proper communications within distribution, logistics, and supply chain management.

11.1 Identify and properly use the following terms accurately in distribution, logistics, and supply chain management communications.
   a. Logistics
   b. Supply Chain Management
   c. 3PL (3rd Party Logistics Provider)
   d. Freight Forwarder
   e. Distribution Centers
   f. Quality Control
   g. Six Sigma
   h. LEAN
   i. Pick to Light
   j. Vertical Lift Module
   k. Automatic Storage and Retrieval System
   l. Order Picking
   m. Warehouse Management System
   n. Yard Management System
   o. Transportation Management System
   p. Barcodes
   q. Radio Frequency Identification

Course Standard 12

TDL-MM-12

Understand and apply terminology used in logistics and supply chain management.

12.1 Define logistics terminology including: outsourcing, asset recovery, repayment terms, bill-of-lading, invoice, prepaid terms, charged back, tariffs, pricing, terms of sale, free-on board, freight claim, freight costs, manifest.
12.2 Define supply chain management terminology including: supply chain strategy, distribution network, motor carriers, railroads, airlines, ocean carriers, pipelines, cross-dock distribution, capacity management, capacity planning, capacity strategy, quality programs, demand forecasting, order fulfillment, procurement, salvage and scrap disposal.
Course Standard 13

TDL-MM-13

Examine how related student organizations are integral parts of career and technology education courses through leadership development, school and community service projects, and competitive events.

13.1 Explain the purpose, mission, objectives, motto, colors, official dress and other distinguishing characteristics of SkillsUSA.

13.2 Explain how participation in SkillsUSA can promote lifelong responsibility for community service, growth, and development.

13.3 Explore the impact and opportunities that SkillsUSA can develop to bring business and industry together with education in a positive working relationship through innovative leadership and career development programs.

13.4 Explore the local, state, and national opportunities available to students through participation in SkillsUSA including but not limited to conferences, competitions, community service, philanthropy, and other SkillsUSA activities.