CENTRAL TEXAS COLLEGE  
SYLLABUS FOR LMGT1321  
Introduction to Materials Handling  
Semester Hours Credit: 3  
INSTRUCTOR:  
OFFICE HOURS:

I. INTRODUCTION  
A. Introduces the concepts and principles of materials management to include inventory control and forecasting activities.

CIP Code Description: 52.0203 (Logistics, Materials, and Supply Chain Management)

B. LMGT 1321 Introduction to Materials Handling is a required course for Certificate of Completion and Associates of Applied Science Degree in Logistics and Supply Chain Management

C. Introduction to Materials Handling. This is an introductory course in Logistics that examines the role of Materials Handling in the supply chain.

D. Alphanumeric coding used throughout this syllabus denotes integration of the Secretary’s Commission on Achieving Necessary Skills (SCANS) occupational competencies (CA, C1, 2, B, etc.) and foundation skills (B, C1, 2, FA, etc.) for this course. The instructor will ensure the designated SCANS competencies and skills are addressed in the course. A detailed description of each competency/skill is contained in “A SCANS Report for America 2000,” Executive Summary, furnished.

II. LEARNING OUTCOMES Upon successful completion of this course, Introduction to Materials Handling the student will be able to:

A. Explain the various topic terms and how they relate to the overall concept of materials management
B. Apply forecasting techniques related to inventory control
C. interpret the principles of materials handling as it relates to time, form, and place utility
D. The following SCANS competencies and foundations skills will be covered in this course:

1. Foundation Skills:
   a. Basic Skills
      (1) Reading (FA1)
      (2) Writing (FA2)
      (3) Mathematics (FA3)
      (4) Listening (FA4)
(5) Speaking (FA5)

b. Personal Qualities
   (1) Responsibility (FC1)
   (2) Self-esteem (FC2)
   (3) Sociability (FC3)
   (4) Self-management (FC4)
   (5) Integrity/honesty (FC5)

2. Competencies
   a. Resources
      (1) Time (CA1)
      (2) Money/budget (CA2)
   b. Information
      (1) Acquires/uses (CC1)
      (2) Organizes/maintains (CC2)
      (3) Interprets/communicates (CC3)

III. INSTRUCTIONAL MATERIALS

IV. The instructional materials identified for this course are viewable through

   www.ctcd.edu/books

V. COURSE REQUIREMENTS

A. Reading Assignments: Read text assignments and independent research related to the reading on at least one of the discussion questions at the end of each chapter prior to class. Be prepared to discuss the text material and your research answering instructor questions orally with well-organized thoughts and ideas. (CC3, FA1 & 5)

B. Homework Assignments: Instructor will assign two research projects which must be completed as scheduled. (FA2, FA3, FC1, CA1, CC1 through CC3)

This will be a 4-5 page report including the following:

- **Cover Page** including a plagiarism statement
- **Executive Summary** including the thesis statement on an instructor approved topic. What is the primary reason for writing the paper? What are the major points to be covered?
- **Discussion Section** will present arguments to support the thesis statement. Find references or each argument you make in support of
each point you make in the paper. You should have a least three arguments starting with the strongest. There should be a minimum of 10 references from substantive resources.

- **Conclusion Statement** restates the thesis and summarizes the arguments.

Each research paper will be electronically submitted and follow a template which will be provided. The standards will include correct grammar, spelling and style. Each paper will be reviewed for plagiarism (see CTC policy on plagiarism.) Papers that are deemed inadequate may be returned for resubmission at the discretion of the instructor.

How the paper is Graded:

<table>
<thead>
<tr>
<th>Executive Summary: Concisely describes the thesis of the paper and the major arguments supporting that thesis.</th>
<th>20 pts</th>
</tr>
</thead>
<tbody>
<tr>
<td>The paper must be substantially in your own words with an original thesis.</td>
<td>50 pts</td>
</tr>
<tr>
<td>The paper should be clearly relevant to the course learning objectives.</td>
<td>10 pts</td>
</tr>
<tr>
<td>There are three well-reasoned arguments that support the thesis.</td>
<td>30 pts</td>
</tr>
<tr>
<td>Quotes from the course text book must be used to support or disagree with your arguments.</td>
<td>20 pts</td>
</tr>
<tr>
<td>Quotes from scholarly articles must be used to support or disagree with your arguments.</td>
<td>20 pts</td>
</tr>
<tr>
<td>There must be six to twelve citations to scholarly articles in addition to the text.</td>
<td>20 pts</td>
</tr>
<tr>
<td>The paper must be correct with regard to grammar, spelling, punctuation and sentence structure</td>
<td>20 pts</td>
</tr>
<tr>
<td>The paper must be properly submitted.</td>
<td>10 pts</td>
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</tbody>
</table>

**Total** 200 pts
C. Class Attendance: You are expected to attend each class period and be involved in the class discussion. You are responsible for all course material missed due to absence. The instructor does not provide class notes for classes missed. (FA1, FA4, FA5, FC1, FC3 through FC5, CA1, CC1 through CC3)

D. Class participation. This course is using a “flipped classroom” model. You are required to read the chapter prior to coming to class. In addition to the reading you must google at least one topic within the chapter that interests you. Be prepared to cite your research in class including the source.

Classroom time will be focused on discussion of the questions at the end of each chapter. You will be graded on your meaningful participation in those discussions. There will be up to 200 points awarded over the course of the semester. (FA1, FA4, FA5, FC1, FC3 through FC5, CA1, CC1 through CC3)

E. Unit quiz. Each Unit will have a 50 point multiple choice quiz administered in blackboard. There are 8 such quizzes worth 50 points each of 400 total points. There are no major exams.

(CC1 through CC3; CA1, CA2; FA1 through FA5)

VI. How the Grade is Determined

A. Points for grades will be awarded as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Units 1-8 Unit Quiz (50 points each)</td>
<td>400</td>
</tr>
<tr>
<td>Two Research Papers (200 points each)</td>
<td>400</td>
</tr>
<tr>
<td>Classroom participation</td>
<td>200</td>
</tr>
<tr>
<td>Total</td>
<td>1000</td>
</tr>
</tbody>
</table>

B. Letter grades will be assigned based on the percentage of total points earned as follows: 90-100% = A 80- 89% = B 70- 79% = C 60- 69% = D BELOW 60% = F VII.
A. Course Withdrawal: It is the student's responsibility to officially withdraw from a class if circumstances prevent attendance. Any student who desires to, officially withdraw from a course after the first scheduled class meeting must file a Central Texas College Application for Withdrawal (CTC Form 59). The withdrawal form must be signed by the student.

CTC Form 59 will be accepted at any time prior to Friday, the 12th week of classes during the 16-week fall and spring semesters. The deadline for sessions of other lengths is:

- 10-week session Friday of the 8th week
- 8-week session Friday of the 6th week
- 5-week session Friday of the 4th week

The equivalent date (75% of the semester) will be used for sessions of other lengths. The specific last day to withdraw is published each semester in the Schedule Bulletin.

A student who officially withdraws will be awarded the grade of "W", provided the student's attendance and academic performance are satisfactory at the time of official withdrawal. Students must file a withdrawal application with the College before they may be considered for withdrawal. A student may not withdraw from a class for which the instructor has previously issued the student a grade of "F" or "FN" for nonattendance.

B. Administrative Withdrawal: An administrative withdrawal may be initiated when the student fails to meet College attendance requirements. The instructor will assign the appropriate grade on CTC Form 59 for submission to the registrar.

C. Incomplete Grade: The College catalog states, "An incomplete grade may be given in those cases where the student has completed the majority of the course work but, because of personal illness, death in the immediate family, or military orders, the student is unable to complete the requirements for a course..." Prior approval from the instructor is required before the grade of "IP" is recorded. A student who merely fails to show for the final examination will receive a zero for the final and an "F" for the course.

D. Cellular Phones and Beepers: Cellular phones and beepers will be turned off while the student is in the classroom.

E. American’s With Disabilities Act (ADA): Disability Support Services provide services to students who have appropriate documentation of a disability. Students requiring accommodations for class are responsible for contacting the Office of Disability Support Services (DSS) located on the central campus. This service is available to all students, regardless of location. Explore the website at www.ctcd.edu/disability-support for further
information. Reasonable accommodations will be given in accordance with the federal and state laws through the DSS office.

E. Instructor Discretion: The instructor reserves the right of final decision in course requirements.

F. Civility: (FC3) Individuals are expected to be cognizant of what a constructive educational experience is and respectful of those participating in a learning environment. Failure to do so can result in disciplinary action up to and including expulsion.

G. Honesty and Integrity: (FC5) All students are required and expected to maintain the highest standards of scholastic honesty in the preparation of all course work and during examinations. The following will be considered examples of scholastic dishonesty:

a. Plagiarism: The taking of passages from writing of others without giving proper credit to the sources.

b. Collusion: Using another’s work as one’s own; or working together with another person in the preparation of work, unless joint preparation is specifically approved in advance by the instructor.

c. Cheating: Giving or receiving information on examinations. Students guilty of scholastic dishonesty will be administratively dropped from the course with a grade of “F” and will be subject to disciplinary action. (FC5)

VIII. COURSE OUTLINE

**Unit 1 Chapters 1, 2, 3 the foundations of materials management**

Before computer systems were available for companies to use for materials planning, the manual systems then in use contain the key elements of today's current software driven systems. Before the age of computers many companies used card management systems contained columns for logging inventory information. The system, although simplistic, served the purpose of managing inventory. These early systems were the base of today’s Material Requirements Planning (MRP) Systems. MRP is a system that was designed to compute the material needs of the plant both internally and externally. The MRP system reads the customer orders forecasts in the master and then processes that information through the bill of materials in order to generate demand for the components and raw materials. The most important foundation of the MRP system is inventory accuracy without which the MRP system can become chaos or a raging fire.
1. Learning Outcomes: Upon successful completion of this unit, the student will be able to:

- Describe a card-based inventory control system.
- Explain the importance of bill of materials (BOM) accuracy.
- Discuss the advantages of computer-based systems.
- Define Material Requirement Planning (MRP)
- Identify the American production and inventory control Society (APICS)
- Discuss the importance of planning parameters.
- Describe the impact of MRP on assembly operations.
- Evaluate the level of material control company.
- Explain the concept of raging fire with respect to inventory control practices.
- Discuss the importance of setting parameters and MRP systems.
- Discuss the investigation of the material shortages.
- Discuss the importance of good scrap reporting.
- Explain the importance of ownership of and responsibility for inventory.

2. Learning Activities:
   a) Read the assigned chapter. (FA1, FC1)
   b) Summarize the Key Points for the chapter (FA2, FA3, FC1, CA1, CC1 through CC3)
   c) Note the Key Terms and assure that you understand and define each of these terms. (FA2, FA3, FC1, CA1, CC1 through CC3)
   d) Conduct independent research one of the learning objectives in the unit. Be prepared to participate in the class discussion including citing that research. (FA2, FA3, FC1, CA1, CC1 through CC3)
   e) Complete the assigned Quiz in Blackboard to test your knowledge of the materials. There are sixty minutes are allowed for twenty five questions for one submission attempt. (FA1, FA3, FC1, FC4, FC5, CA1, CC1 through CC3)

UNIT 2 CHAPTERS 4, 5, 6. MATERIALS BEST PRACTICES IN A STRONG, WELL-BALANCED MATERIALS ORGANIZATION

Sound materials management is fundamental to a supplier's core business. It is, however, a sometimes neglected area of concern for top management. It is often too easy to blame changing requirements or faulty products for management's failure to properly execute its responsibilities.

1. Learning Outcomes: Upon successful completion of this unit, the student will be able to:
• Identify obstacles preventing material management success,
• Discuss measurements the materials practices success.
• Calculate inventory turns.
• Calculate inventory aging by product.
• Define obsolete inventory.
• Discuss customer generated obsolescence.
• Identify best practices in obsolete inventory control.
• Discuss customer ratings systems.
• Describe best practices in shipping department functions.
• Describe best practices in receiving department functions.
• Define lead or transit time.
• Identify long lead time items.
• Discuss managing customer changes.
• Identify issues with international lead times
• Discuss transit time versus freight cost.
• Identify inhibitors to lower lead times.

2. Learning Activities:
   a) Read the assigned chapter. (FA1, FC1)
   b) Summarize the Key Points for the chapter (FA2, FA3, FC1, CA1, CC1 through CC3)
   c) Note the Key Terms and assure that you understand and define each of these terms. (FA2, FA3, FC1, CA1, CC1 through CC3)
   d) Conduct independent research one of the learning objectives in the unit. Be prepared to participate in the class discussion including citing that research. (FA2, FA3, FC1, CA1, CC1 through CC3)
   e) Complete the assigned Quiz in Blackboard to test your knowledge of the materials. There are sixty minutes are allowed for twenty five questions for one submission attempt. (FA1, FA3, FC1, FC4, FC5, CA1, CC1 through CC3)

UNIT 3 CHAPTER 7, 8, 9 MANAGING INVENTORY ACCURACY, CYCLE COUNTS AND SUPPLIER RELEASES

The old saw "garbage in garbage out" is certainly a truism of the materials management practice. If the underlying inventory information is faulty than the best MRP systems cannot make up for that deficiency. The process of cycle counting is expensive and takes management commitment however it is crucial for inventory accuracy.

1. Learning Outcomes: Upon successful completion of this unit, the student will be able to:
   • Describe the problems of maintaining an accurate perpetual inventory.
- Identify causes of inventory discrepancies.
- Discuss the propriety of scrap reporting systems.
- Identify measures to reduce scrap.
- Describe cycle counting.
- Explain computer-generated cycle counts.
- Identify challenges to proficient cycle counting.
- Describe the process of cycle counting.
- Discuss cycle count adjustments.
- Explain inventory discrepancy resolution.
- Define lead time.
- Discuss firm planned orders and MRP forecast.
- Find supplier release generation.
- Discuss make the order versus just in time inventory practices.
- Identify release system parameters.
- Discuss best practices for shortage control.
- Explain supplier chargeback systems.

2. Learning Activities:
   a) Read the assigned chapter. (FA1, FC1)
   b) Summarize the Key Points for the chapter (FA2, FA3, FC1, CA1, CC1 through CC3)
   c) Note the Key Terms and assure that you understand and define each of these terms. (FA2, FA3, FC1, CA1, CC1 through CC3)
   d) Conduct independent research one of the learning objectives in the unit. Be prepared to participate in the class discussion including citing that research. (FA2, FA3, FC1, CA1, CC1 through CC3)
   e) Complete the assigned Quiz in Blackboard to test your knowledge of the materials. There are sixty minutes are allowed for twenty five questions for one submission attempt. (FA1, FA3, FC1, FC4, FC5, CA1, CC1 through CC3)

UNIT 4 CHAPTERS 10, 11, 12 PLANNING, EDI COMMUNICATIONS AND CONTROL REPORTING

Two of the fundamental functions of management are planning and measuring the variance from that plan for purposes of control.

1. Learning Outcomes: Upon successful completion of this unit, the student will be able to:
   - Identify the relevant planning parameters for an MRP system
   - Calculate minimum balance requirements.
• Explain release dates to suppliers.
• Discuss ship date versus receive date.
• Define electronic data interchange (EDI)
• Recognize the EDI process flow.
• Identify key components for material control reports and graphs.
• Discuss measurement of on-time delivery.
• Discuss measurement of premium freight.
• Discuss measurement of inventory accuracy.
• Discuss measurement of cycle counting.
• Explain inter-plant grading.

2. Learning Activities:
   a) Read the assigned chapter. (FA1, FC1)
   b) Summarize the Key Points for the chapter (FA2, FA3, FC1, CA1, CC1 through CC3)
   c) Note the Key Terms and assure that you understand and define each of these terms. (FA2, FA3, FC1, CA1, CC1 through CC3)
   d) Conduct independent research one of the learning objectives in the unit. Be prepared to participate in the class discussion including citing that research. (FA2, FA3, FC1, CA1, CC1 through CC3)
   e) Complete the assigned Quiz in Blackboard to test your knowledge of the materials. There are sixty minutes are allowed for twenty five questions for one submission attempt. (FA1, FA3, FC1, FC4, FC5, CA1, CC1 through CC3)

UNIT 5 CHAPTERS 13, 14 OBsolescence and Physical inventory

Materials control needs to assign a high priority to managing obsolescence without incurring an excessive amount of cost. Some obsolescence is caused by simple lack of communication while others are caused by a general failure to manage release and inventory properly.

1. Learning Outcomes: Upon successful completion of this unit, the student will be able to:
   • Define balance-out of product or components.
   • Discuss best practices for preventing obsolescence.
   • Discuss best practices to avoid supplier and customer obsolescence.
   • Outline product change process.
   • Discuss best practices for physical inventories.
   • Discuss best practices for inventory reconciliations.
2. Learning Activities:
   a) Read the assigned chapter. (FA1, FC1)
   b) Summarize the Key Points for the chapter (FA2, FA3, FC1, CA1, CC1 through CC3)
   c) Note the Key Terms and assure that you understand and define each of these terms. (FA2, FA3, FC1, CA1, CC1 through CC3)
   d) Conduct independent research one of the learning objectives in the unit. Be prepared to participate in the class discussion including citing that research. (FA2, FA3, FC1, CA1, CC1 through CC3)
   e) Complete the assigned Quiz in Blackboard to test your knowledge of the materials. There are sixty minutes are allowed for twenty five questions for one submission attempt. (FA1, FA3, FC1, FC4, FC5, CA1, CC1 through CC3)

UNIT 6 CHAPTERS 15, 16 RECEIVING AND SHIPPING

Shipping and receiving are two of the major functions of materials management. As in other areas of materials management accuracy and discrepancy resolution are of primary importance.

1. Learning Outcomes: Upon successful completion of this unit, the student will be able to:

   • Identify the 6 key elements of receiving.
   • Define advance shipping notification (ASN)
   • Outline the receiving report discrepancy (RDR) process.
   • Explain how to review receiving practices.
   • Outline the verification process.
   • Discuss best practices in receiving.
   • Explain damaged materials claims.
   • Discuss cumulative balances.
   • Explain electronic releases
   • Discuss annual customer volumes and contracts.
   • Determine ownership of shipments.
   • Discuss shipping errors in short shipments.

2. Learning Activities:
   a) Read the assigned chapter. (FA1, FC1)
   b) Summarize the Key Points for the chapter (FA2, FA3, FC1, CA1, CC1 through CC3)
   c) Note the Key Terms and assure that you understand and define each of these terms. (FA2, FA3, FC1, CA1, CC1 through CC3)
UNIT 7 CHAPTERS 17, 18, 19 CARRIER SELECTION, SUPPLIER SELECTION AND PRODUCTION

Choosing the right partners for transportation carrier and supplier relationships are crucial to an operations success. If the firm considers only price without understanding service levels and reliability may be making a costly mistake.

1. Learning Outcomes: Upon successful completion of this unit, the student will be able to:

- Identify the factors that contribute to freight expenses.
- Chart inbound, outbound, and premium freight expenses.
- Discuss the factors in the carrier selection process.
- Identify freight terms including "EXW", "FAS" and "FOB" as used in both Europe and the United States.
- Discuss the best practices of freight management.
- Discuss the trade-off between best price and customer service.
- Discuss a supplier delivery rating system.
- Outline the production scheduling process.
- Define pull systems.
- Discuss color-coded storage systems.

2. Learning Activities:
   a) Read the assigned chapter. (FA1, FC1)
   b) Summarize the Key Points for the chapter (FA2, FA3, FC1, CA1, CC1 through CC3)
   c) Note the Key Terms and assure that you understand and define each of these terms. (FA2, FA3, FC1, CA1, CC1 through CC3)
   d) Conduct independent research one of the learning objectives in the unit. Be prepared to participate in the class discussion including citing that research. (FA2, FA3, FC1, CA1, CC1 through CC3)
   e) Complete the assigned Quiz in Blackboard to test your knowledge of the materials. There are sixty minutes are allowed for twenty five questions for one submission attempt. (FA1, FA3, FC1, FC4, FC5, CA1, CC1 through CC3)
UNIT 8 CHAPTERS 20, 21 BEST MATERIAL CONTROL PRACTICES AND ADVANCED LOGISTICS PLANNING.

This chapter identifies the authors opinion, based on his experience, the best practices for materials management. Some companies have adopted some or part of these best practices however many companies are still using antiquated processes. This unit also examines the process of calculating the cost of transportation and packaging for quotes and or the continuous planning for the custom order is ready for production. Again many companies do not employ advanced logistics planning.

1. Learning Outcomes: Upon successful completion of this unit, the student will be able to:

- Discuss the goal of 100% accuracy in the bill of materials.
- Discuss the goal of 100% accuracy and planning
- Discuss utilization of barcode scanning to reduce errors.
- Calculate the minimum for component inventory.
- Develop transportation routing models.
- Calculate maximum inventory levels.
- Discuss daily scanning of raw material inventories in closed-loop processes.
- Discuss best practices in shipping and receiving raw materials.
- Identify skip-lot inspection practices.
- Outline the movement of raw materials to blindside areas.
- Define advanced logistics planning.
- Discuss calculation of the make or buy decision.
- Identify the components of the advanced planning matrix.
- Construct a advanced logistics worksheet.

2. Learning Activities:
   a) Read the assigned chapter. (FA1, FC1)
   b) Summarize the Key Points for the chapter (FA2, FA3, FC1, CA1, CC1 through CC3)
   c) Note the Key Terms and assure that you understand and define each of these terms. (FA2, FA3, FC1, CA1, CC1 through CC3)
   d) Conduct independent research one of the learning objectives in the unit. Be prepared to participate in the class discussion including citing that research. (FA2, FA3, FC1, CA1, CC1 through CC3)
   e) Complete the assigned Quiz in Blackboard to test your knowledge of the materials. There are sixty minutes are allowed for twenty five questions for one submission attempt. (FA1, FA3, FC1, FC4, FC5, CA1, CC1 through CC3)
f) Complete the assigned Quiz in Blackboard to test your knowledge of the materials. There are sixty minutes are allowed for twenty five questions for one submission attempt. (FA1, FA3, FC1, FC4, FC5, CA1, CC1 through CC3)