

ISE 403/503 – Material Handling Systems

Winter 2006

Course: ISE 403/503 – Material Handling Systems - 4 credit hours

04155/04169

Sessions: M-W 1:10-3:00, 106 Stocker

Catalog description:

Provides a broad understanding of materials handling engineering from a system design and application engineering point of view. Instruction in the engineering principles, design criteria, operating parameters, performance requirements, equipment resources, and applications of engineering practices involved in the planning, design, and operation of materials handling systems for manufacturing, physical distribution, and government operations. A materials handling system design project is a required part of the course.

Instructor: Dale Masel *masel@ohio.edu*

273 Stocker Center, 593-1541

Office hours: MW – 9:30-11:00

T – 1:30-3:30

Detailed schedule available at <http://imse.ent.ohiou.edu/>

Textbook:

Warehouse and Distribution Science, Bartholdi and Hackman, Aug. 2005. Binder available at Grade A Notes (13 W. Union St.)

Course objectives:

This course will cover the different classifications of material handling equipment. Within each of these classifications, we will discuss the alternate types of equipment available and what situations are appropriate for applying the different variations. We will also discuss how to analyze the performance of equipment so that you can select the correct option for a given situation.

A special emphasis will be on the application of material handling equipment in a warehouse environment. Distribution activities are becoming a focus for many industrial engineers and the ability to apply and evaluate material handling equipment is an essential part of evaluating and managing a storage facility. In addition to traditional warehouse operations, emerging distribution systems such as cross-docking and small order fulfillment will be discussed.

A group project is also required for this course. The project will involve the design of a material handling system for a manufacturing facility. To complete the project, each group will need to select equipment, determine the layout of the facility, and describe the operations.

Attendance policy:

Attendance will not be taken for lecture classes, but students are expected to be present for all class periods and are responsible for all material covered in class.

Grading policy:

Assignments:

• Homework assignments (≈1 per week)	25%
• Group project	20%
• One midterm in class—closed book (Wednesday, February 1)	25%
• Final exam—closed-book (Thursday, March 16 at 12:20)	30%
	100%

<u>Grading Scale:</u>	A	94% - 100%	A-	90% - 93%			
B+	87% - 89%	B	84% - 86%	B-	80% - 83%		
C+	77% - 79%	C	74% - 76%	C-	70% - 73%		
D+	67% - 69%	D	64% - 66%	D-	60% - 63%	F	0% - 59%

Graduate students in this course will be graded based on the same percentages, but they will be responsible for additional homework problems and additional questions on the exams.

Academic misconduct:

Cheating will not be tolerated. If you copy from another person, plagiarize, turn in someone else’s work as your own, or otherwise fail to maintain a high standard of academic honesty, you will receive a 0 on the assignment and the case will be referred to the university judiciary office.

Tentative schedule:

Week	Date	Topic(s)
1	Jan. 2	<i>No Class</i>
	Jan. 4	Introduction to material handling classifications and concepts
2	Jan. 9	Pallets, Containers, and Packaging
	Jan. 11	Conveyors
3	Jan. 16	<i>No Class</i>
	Jan. 18	Vehicles
4	Jan. 23	Analysis of Conveyor and Vehicle Systems
	Jan. 25	Storage Equipment
5	Jan. 30	Storage Equipment Analysis PROJECT ASSIGNED
	Feb. 1	MIDTERM
6	Feb. 6	Warehouse Operations
	Feb. 8	Data Analysis
7	Feb. 13	Storage Management
	Feb. 15	Order Picking Management
8	Feb. 20	Order Picking Management
	Feb. 22	Other Warehouse Management Issues
9	Feb. 27	Automatic Identification
	Mar. 1	Overhead Systems; Robots & Automation
10	Mar. 6	Review PROJECT DUE
	Mar. 8	Project Presentations