

Time and Place Tuesday and Thursday 10:00 – 10:52 am, OTTS 0116.
Friday 11:00 – 12:52 pm, OTTS 0021

Instructor Dr. Justin Kile
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Office: OTTS 24
Office Phone: 342-1675

Office Hours: Monday: 9:00 am – 10:00 am and 11:00 am – Noon
(Tentative) Tuesday 11:00 am – 1:00 pm
Wednesday: 9:00 am – 10:00 am and 11:00 am – 1:00 pm
Thursday: 11:00 am – 1:00 pm
Friday: 9:00 am – 10:00 am
By appointment

Prerequisite: IE 3530, and GENENG 2820

Contribution to Professional Component: 3 credits

Course Objectives:

- 1) To introduce to the student the concepts of Material Handling and pertinent analysis.
- 2) To identify and discuss the merits and limitations of various material handling equipment types.
- 3) To introduce the student to design and evaluation of material handling systems.
- 4) To introduce the student to the applications of automatic identification technologies in industrial materials handling.
- 5) To expose the student to the current developments in material handling through journal articles.

Textbooks: Bartholdi III, J. J. and Hackman, S. T., *Warehouse & Distribution Science Release 0.80, 2006 (Supplied by Instructor)*

R. A. Kulwiec (editor), *Materials Handling Handbook, 2nd edition*, Wiley, 1985

P. J. Sands, *Design of Handling, Warehousing and Distribution Systems*, UW-Platteville, 1997

Webpage Available on D2L (<https://uwplatt.courses.wisconsin.edu/>) to registered students. It is your responsibility to check this page frequently for announcements, homework assignments, homework solutions, and other resources. I do not have this site open on a regular basis so please do not use the pager function.

Grading	Homework	20%
	Labs	20%
	Exam 1	20%
	Exam 2	20%
	Exam 3	20%
	Final Exam	20% (Optional/See Below)

Final Exam: The final exam may be used to replace your choice of one of your first three exam scores.

Lab Sessions:

Since the field of Material Handling is such a large and diverse area of study, the lab sessions for this course will be used to explore many of the different aspects of the field. Therefore, the lab session each week will not be directly related to the material being covered in the regular lecture. The success of these lab sessions will depend heavily on student interaction and therefore students will receive an attendance and participation grade for each lab session.

General Policies:

Students are expected to attend class and act in a professional manner. Attendance is crucial in order for you to benefit from this class. Come to class and be prepared to participate. Students who miss class without prior approval of instructor or proof of unavoidable absence, will lose points. In case of unavoidable absence the student should contact the instructor as soon as possible.

Assignments and lab reports are due at the beginning of the class on the due date unless otherwise specified. No late assignments will be accepted without prior approval of instructor or proof of unavoidable absence. In case of unavoidable absence the student should contact the instructor as soon as possible.

Guidelines for completing and submitting homework/quizzes/cases/activities/exams will be included with each assignment.

Request for changes to the grade of your graded work must be submitted in writing no later than one week from when the graded work was made available to the students. The entire assignment will be re-graded, meaning that you may actually lose points on the re-grade if there were mistakes made in your benefit.

Quizzes and other in class activities may be used to determine class grades. Quizzes and other in class activities can not be made up. Arrangements may be made to compensate for missed quizzes/activities with prior approval of instructor or proof of unavoidable absence. In case of unavoidable absence the student should contact the instructor as soon as possible.

Students should maintain a file of all submitted work. Grades will be posted on-line and students should verify accuracy periodically. If a discrepancy occurs please bring your graded work to the instructor to update the grade sheet.

Exams are to be taken at the schedule time. If you know you can not make an exam time an alternative time may be arranged with prior approval of instructor. If you miss an exam do to an unavoidable absence contact the instructor as soon as possible to discuss alternatives.

Cell phones and other electronic communication devices are to be turned off during class. If you have an extra ordinary circumstance and need to be reachable during class time please discuss this with the instructor ahead of time. Disruptions of class by electronic communication devices may result in a zero for an assignment.

Additional Issues

Religious Accommodations

Students have the right to miss class for religious observances. Students wishing time off for this reason should let their instructor know within the first two weeks of class.

Students with Disabilities

Any student who may need an accommodation due to a disability, please make an appointment to see me during my office hours. A VISA from Services for Students with Disabilities authorizing your accommodations will be needed.

Absences

Sometimes absence from class is unavoidable because of illness. Such illness should be reported to the Student Health Services. Emergencies other than illness which cause absence from classes should be reported to the Office of Student Affairs. If you have such an emergency, please contact your instructors as soon as possible after the crisis has passed and arrange to make up any missed work.

Attendance as a Factor in Grading

From the UWP Student Handbook: The administration and the faculty assume students will attend classes regularly, and teachers are expected to keep records of attendance in their classes. Those instructors who set limits on un-excused absences will inform students of their attendance policies in writing and orally at the beginning of the semester. Instructors are not obligated to seek out or counsel students concerning absenteeism or to allow students any special consideration. Note that attendance is part of your final grade for this course.

Academic Misconduct

From the UWP Student Handbook: Students are responsible for the honest completion or representation of their work, for the appropriate citation of sources, and for respect of others' academic endeavors. Students who violate these standards must be confronted and must accept the consequences of their actions.

Tentative Course Outline:

Date	Topic	Read Bartholdi/Sands/Kulwiec)
1/22	Introduction: Material Handling	N/A / A: Chap 1 / Chap. 1
1/24	Material Handling; Definition and Principles	N/A / A: Chap 1 and 2 / Chap. 1
1/25 (L)	Equipment Selection and placement Concepts	N/A / A: Chap. 4 / Parts 2 and 3
1/29	Equipment Review (Functions and Terminology)	Chap. 5 / A: Chap. 4 /Parts 2 and 3
1/31	Equipment Review (Functions and Terminology)	Chap. 5 / A: Chap. 4 /Parts 2 and 3
2/1 (L)	10 Principles of System Design	
2/5	Automated Storage/Retrieval Systems - Unit Load	N/A / N/A /Chap 12.2-12.3
2/7	Automated Storage/Retrieval Systems - Unit Load	N/A / N/A /Chap 12.2-12.3
2/8 (L)	10 Principles of System Design	
2/12	Automated Storage/Retrieval Systems - Unit Load	N/A / N/A /Chap 12.2-12.3
2/14	Automated Storage/Retrieval Systems - Unit Load	N/A / N/A /Chap 12.2-12.3
2/15 (L)	Warehouse functions	Chap. 3 / N/A / N/A
2/19	End-of-Aisle Order Picking – Carousels	N/A / N/A / Chap 12.5
2/21	Review	
2/22 (L)	Exam 1	
2/26	End-of-Aisle Order Picking – Carousels	N/A / N/A /Chap 12.5
2/28	End-of-Aisle Order Picking – Carousels	N/A / N/A /Chap 12.5
2/29 (L)	Warehouse Management Systems / RFID	Chap. 4 / N/A / N/A
3/4	End-of-Aisle Order Picking – Carousels	N/A / N/A /Chap 12.5
3/6	End-of-Aisle Order Picking – Miniload AS/RS	N/A / N/A /Chap 12.6
3/7 (L)	Material Handling Systems Design	Chap. 2 / B. Chap 1 and 2/ Chap 2
3/11	End-of-Aisle Order Picking – Miniload AS/RS	N/A / N/A /Chap 12.6
3/13	End-of-Aisle Order Picking – Miniload AS/RS	N/A / N/A /Chap 12.6
3/14 (L)	Economic Justification of Material Handling Systems	N/A / B. Chap 3/ Chap 3
3/18, 3/20, 3/21 (L)	No Class (Spring Recess)	
3/25	End-of-Aisle Order Picking – Miniload AS/RS	N/A / N/A /Chap 12.6
3/27	In-the-Aisle Order Picking - Person-on-Board AS/RS	N/A / N/A /Chap 12.2-3
3/28 (L)	Topic TBD	
4/1	In-the-Aisle Order Picking - Person-on-Board AS/RS	N/A / N/A /Chap 12.2-3
4/3	No Class (Engineering Expo)	
4/4 (L)	Unit Load Concept/Cube Utilization	Chap. 2 / A. Chap 3 /Chap. 4 and 5
4/8	In-the-Aisle Order Picking - Walk-and-Pick	N/A / N/A /Chap 13.1-13.3
4/10	Review	
4/11 (L)	Exam 2	
4/15	In-the-Aisle Order Picking - Walk-and-Pick	N/A / N/A /Chap 13.1-13.3
4/17	Automated Guided Vehicle Systems (AGVS)	N/A / N/A /Chap 8
4/19 (L)	Ethics and Safety	
4/22	Automated Guided Vehicle Systems (AGVS)	N/A / N/A /Chap 8
4/24	Automated Guided Vehicle Systems (AGVS)	N/A / N/A /Chap 8
4/25 (L)	Topic TBD	
4/29	Automated Guided Vehicle Systems (AGVS)	N/A / N/A /Chap 8
5/1	Review	
5/2 (L)	Exam 3	
5/6	Milk Runs	
5/8	Milk Runs	
5/9 (L)	Presentations of Current Technologies	
5/13	Final Exam 1:00-2:52, Room TBA	