

IE-341 Section 1, CRN: 62596/62597/80531-91742

Second Semester 1446 (Spring-2025) – 3(2,1,2) "HUMAN FACTORS ENGINEERING"

	Thursday,	Thursday, May 1st, 2025 (03/11/1446H)	
Homework: MMH [5 Points]			
Name:	Student Number:	Section: 9-10	
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Answer ALL of the following questions

For Questions 1 and 2, use the slides for "Manual Materials Handling (Chapter 8) part 2 – Case Studies" to solve the following problems.

- 1) Case 2: Effect of Horizontal Distance on RWL (slide 14) [5 Points]
- 2) Case 3: Effect of Vertical Distance on RWL (slide 15) [5 Points]



3) Consider the following MMH case study then answer the questions to follow. [10 Points]

Examine the figure on the right.

Note the following:

- one lift is performed every 4 hours (shift of 8 hours)
- there is a firm grasp on the water bottle
- feet remain fixed in place, and no twisting is involved



- A. Determine components and multipliers of the lifting task (using the Lifting Analysis Worksheet) [2 points]
- B. What is the Recommended Weight Limit for the task? [1 pt]
- C. Is the lifting task considered safe or dangerous? [1 pt]
- D. If you answered "dangerous", what is the critical factor?[1 pt]
- E. If you answered "dangerous", you are now asked to redesign the lifting process by showing how you would account for the critical factor you mentioned above. You must:
 - a. Sketch the design of the new lifting process [3 pt]
 - b. Show steps and calculations to determine the new RWL value [1 pt]
 - c. Show whether the modified process is now safe or dangerous [1 pt]

Note, if "dangerous" you should repeat the process until it is safe.



Rules:

- You must prepare and submit the homework **individually** (this is *not* a group assignment).
- All work must be **neatly** typed and printed.
- Use proper English.
- Show all work and answer each question on a **separate sheet**.
- Due date: **Thursday, May 8**, 2025 (10/11/1446) by 1:00 PM to Engr. Ahmed Tawheed (Ergonomics Lab). No late homework will be accepted.