

IE460 – Spring 2023
Case 1 - Due date – December, 8, Friday, 2023 – 17:00 pm –
for Groups of two students

Information on Case 1

- **Case 1 is 3 %.** Make sure that you review the course material before you start. Cite sources used, if any.
- **Grading Policy:** The case will be graded on a scale of 0-100. Complete solutions are expected to receive a high grade (not effort-based as the homework).
- **Academic Dishonesty (taken from IE460 Course Information):** For cases: Discussion of the course material and working in groups are effective ways of learning. However, you are already working as a group for the case assignment. In return, this means you are not expected to communicate with another group while solving the case. Any violation of the above understanding will result in measures outlined in the student rules and regulations.
- **Submission Information:** Submission is via e-mail and should contain the report (Summary of the results and insights), as well as all the Excel files and/or other program input and output used. Please use Shabnam's e-mail for submission - shabnam.kilic@bilkent.edu.tr
- **Group Formation:** The class size is 34 students. I expect 17 groups. Report to Shabnam the names in the group you have formed (please do it ASAP). If you need help and are searching for a partner, notify Shabnam – and she will try to coordinate.
- **What is asked:** You are asked to respond to the Study Questions at the end of the case write-up. To solve the study questions, you must conduct the required analysis (modeling, solution, computations, etc.). Your report will be **essential to your submission** – it should be clear and concise. All formulas, models, etc., used should be clearly defined. Any software you utilized and its output should be placed in the Appendix, with sufficient explanation. You will submit with detailed results as described in the Submission Information above.

Case 1 - China Imports: (page 444 of your textbook 6th Edition, and page 440 of the 7th Edition)). A copy of the case description is also posted on the WEB.

This case aims to get students to evaluate the cost of using different transportation modes for various product categories. Air freight and ocean shipping are the two transportation modes considered. Air freight is faster and has a lower minimum requirement, but it is more expensive than ocean shipping. Smartphones and decorative hardware are the two product categories considered. Smartphones have high value and low weight, while decorative hardware has lower value and greater importance. Also, the demand for smartphones is more unpredictable than the demand for hardware.

Suggestions: Before you start solving the Case:

- 0) Read - J.S. Hammond, "Learning by the Case Method", *Harvard Business School*, 9-376-201, Revised: April 16, 2002.
- 1) 1) Read the case carefully. Although the assigned case is at the end of Chapter 14, most related material is in Chapter 11, Chapter 12, and Chapter 14. Review/ read these chapters before solving the case (Note that I haven't covered some parts in class – you may also want to review Chapter 4 and Chapter 5 of Nahmias and Olsen – the text you used for IE375).
- 2) 2) The third study question has three sentences, each of which can be named a different subpart. The first one is more general and expects you to evaluate supply chain factors that your model does not consider. The second part asks you to use your computations in Study Questions 1 and 2 and respond. The last part asks how to generalize your findings in the second part, considering the factors mentioned in the first part.

Hints on the solution:

Hint: 0: Outline how you would approach the problem and eventually respond to the question asked in Study Question 3, second sentence (I defined it as the second part above).

Hint 1: Components of expected total cost to consider are Inventory Holding Costs (Cycle, Safety Stock and In-transit) and transportation Costs (Shipping Costs – fixed and variable) – Read Chapter 12 to understand the replenishment policy to use – page 330 and more)

Hint 2: In your textbook, equation 12.11 (Edition 6) and bottom of page 340 (Edition 7, unfortunately, the equation number is missing but should have been Equation 12.11) to handle variability in lead-time and demand.

Hint 3: Use of spreadsheet to simplify computations – Note that you need to explicitly write the equations (formulas you are using in the spreadsheet).