

Operations Research (OR)

Prepared by Dr. Ayman Khallel

IT262

Operations Research

Introduction



Outline

1. About me
2. Course content
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About me

- **Name:** Ayman Khallel Ibrahim Al-ani
- **Professional Background:**
 - Head of the Cybersecurity Engineering Department
 - Conducting research in IPv6 network security, focusing on Neighbor Discovery Protocol and Duplicate Address Detection
- **Education:**
 - PhD from USM, Malaysia
 - MS from UUM, Malaysia
- **Interests:**
 - Cybersecurity methodologies and AI applications
 - Continuous learning and lecturing

Course content

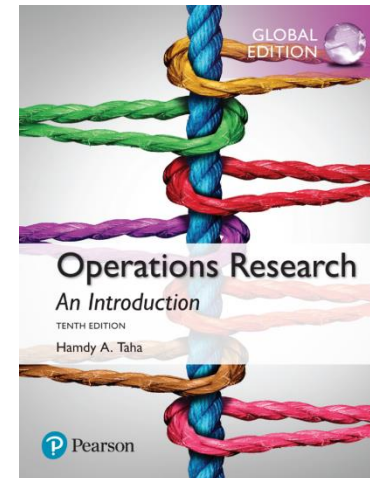
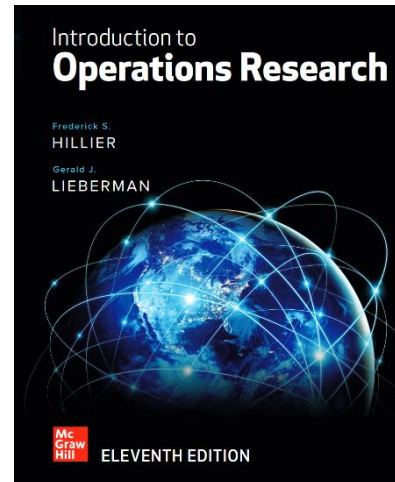
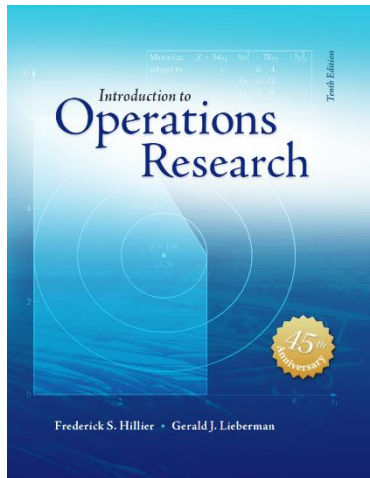
1. The nature of operations research
2. Linear programming: Formulations and graphical solution.
3. Algebraic solution: the simplex methods and dual-simplex method.
4. Sensitivity analysis.
5. Transportation and assignment problems.
6. integer programming: cutting-plane algorithms, branch, and bound method.
7. Dynamic programming: examples of the dynamic programming.
8. Models and computations, solution of linear programs by dynamic programs.

Course Objectives

1. **Understand mathematical methods** for solving complex optimization problems, including linear, dynamic, and integer programming.
2. **Apply OR techniques** like the simplex method, sensitivity analysis, and transportation models to real-world decision-making scenarios.

References

- Hillier F. Introduction to Operations Research 10ed 2015(11ed 2021)
- Taha H. Operations Research. An Introduction 10ed 2017





Thank You