9th Edition

OPERATIONS RESEARCH

AN INTRODUCTION

Hamdy A. Taha

For these special editions, the editorial team at Pearson has collaborated with educators across the world to address a wide range of subjects and requirements, equipping students with the best possible learning tools.

This international edition preserves the cutting-edge approach and pedagogy of the original, but may also feature alterations, customization and adaptation from the United States version.

www.pearson.co.in

ISBN 978-93-325-1822-3

9 789332 518223

This edition is manufactured in India and is authorized for sale only in India, Bangladesh, Bhutan, Pakistan, Nepal, Sri Lanka and the Maldives.

/PearsonIN

Pearson

OPERATIONS RESEARCH

9th Edition

Taha

9th Edition

OPERATIONS RESEARCH

AN INTRODUCTION

Pearson

Hamdy A. Taha

Operations Research

An Introduction

Authorized adaptation from the United States edition, entitled *Operations Research: An Introduction, Ninth Edition,* ISBN 9780132555937, by Hamdy A. Taha, published by Pearson Education Inc.© 2011, Pearson Education Inc.

Indian Subcontinent Version

ISBN 978-93-325-1822-3

First Impression, 2014
Sixth Impression, 2017
Seventh Impression

This edition is authorized for sale only in India, Bangladesh, Bhutan, Pakistan, Nepal, Sri Lanka and the Maldives. Circulation of this edition outside of these territories is UNAUTHORIZED.

Published by Pearson India Education Services Pvt Ltd, CIN: U72200TN2005PTC057128, formerly known as TutorVista Global Pvt Ltd, licensee of Pearson Education in South Asia.

Head Office: 7th Floor, Knowledge Boulevard, A-8(A), Sector 62, Noida 201 309 U.P., India.

Registered Office: 4th floor, Software Block, Elnet Software City, TS 140 Block 2 & 9, Rajiv Gandhi Salai, Taramani, Chennai - 600 113.Fax: 080-30461003, Phone: 080-30461060 www.pearson.co.in,
Email: companysecretary.india@pearson.com

Printed in India by Thomson Press India Ltd.

Table of Contents

What Is Operations Research?

1 INTRODUCTION

The first formal activities of Operations Research (OR) were initiated in England during World War II, when a team of British scientists set out to make scientifically based decisions regarding the best utilization of war materiel. After the war, the ideas advanced in military operations were adapted to improve efficiency and productivity in the civilian sector.

This chapter introduces the basic terminology of OR, including mathematical modeling, feasible solutions, optimization, and iterative computations. It stresses that defining the problem correctly is the most important (and most difficult) phase of practicing OR. The chapter also emphasizes that, while mathematical modeling is a cornerstone of OR, unquantifiable factors (such as human behavior) must be accounted for in the final decision.

2 OPERATIONS RESEARCH MODELS

Imagine that you have a 5-week business commitment between Fayetteville (FYV) and Denver (DEN). You fly out of Fayetteville on Mondays and return on Wednesdays. A regular round-trip ticket costs $400, but a 20% discount is granted if the round-trip dates span a weekend. A one-way ticket in either direction costs 75% of the regular price. How should you buy the tickets for the 5-week period?

The companion website for this chapter is www.pearsonhighered.com/taha.

From Chapter 1 of *Operations Research: An Introduction*, Ninth Edition, Hamdy A. Taha.