

Revised Edition

OPERATIONS RESEARCH

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Er. PREM KUMAR GUPTA
Dr. D.S. HIRA

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OPERATIONS RESEARCH

**For Engineering, Computer Science, Commerce & Management,
Economics, Statistics, Mathematics, CA, ICWA and CS.
Also Useful for IAS and Other Competitive Examinations.**

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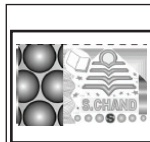
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PREFACE TO THE SEVENTH EDITION

It gives us great pleasure and satisfaction to present this thoroughly revised and enlarged edition before the readers. An attempt has been made to correct all errors and omissions. While revising the book, due consideration has been given to the valuable suggestions made by the students and teachers of the subject. Almost every chapter has been updated by adding to/replacing the material in the previous edition. The chapter on Statistical Quality Control has been thoroughly revised. Many new exercises from the latest examination papers of various Indian Universities/Engineering Institutions have been included. The book now covers question papers up to 2013 examinations.

We are indebted to the publishers, S. Chand & Company Pvt. Ltd., New Delhi for their sincere efforts, unfailing courtesy and cooperation in bringing out the book in this elegant form.

We hope the readers will find this book even more valuable and interesting than its earlier versions. Any constructive suggestions for further improvement of the book will be highly appreciated and thankfully acknowledged.

Er. Prem Kumar Gupta
Dr. D.S. Hira

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PREFACE TO THE FIRST EDITION

For more than thirty years, a new branch of science called Operations Research has been fast developing. The essence of Operations Research are models which help us arrive at optimum decisions. It is these models which constitute the subject matter of this book.

While writing on Operations Research a particular problem may be approached in many different ways. Thus, the exposition may be intended for mathematicians, economists, engineers, sociologists, etc. This book is written primarily for engineering graduates.

This book is simply an introduction to the vast subject of Operations Research. Efforts have been made to simplify the technical material without distorting it. The book does not require a high level of mathematical knowledge on the part of the reader. An elementary knowledge of differential and integral calculus is all that is required to understand the subject.

Each chapter begins with a number of important and interesting examples taken from a variety of fields. Almost every problem presents a new idea. The authors feel that knowing the various fields in which a model can help, the reader will gather more interest and incentive to know its theoretical and mathematical background and method of application. Additional examples at the end of each chapter are provided to test the reader's understanding of the subject matter.

Every effort has been made to present the subject in a easy, clear, lucid and systematic manner. References at the end of each chapter are given to cover more advanced extension of the topics presented.

The authors express their deep gratitude and thanks to Shri T.K. Kundra, Design Engineer, I.D.D.C., I.I.T., New Delhi for his inspiration, valuable suggestions, guidance and help every moment they sought.

The authors also deeply appreciate Shri Pritam Singh and Shri Bau Singh for the time, effort, excellent work and most of all, patience in typing the manuscript and preparing tracings respectively.

Suggestions for further improvement of the book will be gratefully accepted.

Er. Prem Kumar Gupta
Dr. D.S. Hira

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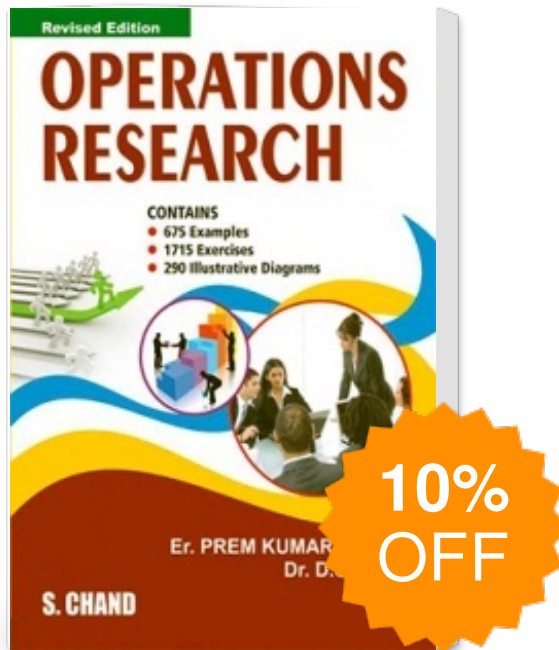
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