



Fundamentals of Queueing Theory

By Donald Gross, John F. Shortle, James M. Thompson, Carl M. Harris



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Praise for the *Third Edition*

"This is one of the best books available. Its excellent organizational structure allows quick reference to specific models and its clear presentation . . . solidifies the understanding of the concepts being presented."

—*IIE Transactions on Operations Engineering*

Thoroughly revised and expanded to reflect the latest developments in the field, *Fundamentals of Queueing Theory*, Fourth Edition continues to present the basic statistical principles that are necessary to analyze the probabilistic nature of queues. Rather than presenting a narrow focus on the subject, this update illustrates the wide-reaching, fundamental concepts in queueing theory and its applications to diverse areas such as computer science, engineering, business, and operations research.

This update takes a numerical approach to understanding and making probable estimations relating to queues, with a comprehensive outline of simple and more advanced queueing models. Newly featured topics of the Fourth Edition include:

- Retrieval queues
- Approximations for queueing networks
- Numerical inversion of transforms
- Determining the appropriate number of servers to balance quality and cost of service

Each chapter provides a self-contained presentation of key concepts and formulae, allowing readers to work with each section independently, while a summary table at the end of the book outlines the types of queues that have been discussed and their results. In addition, two new appendices have been added, discussing transforms and generating functions as well as the fundamentals of differential and difference equations. New examples are now included along with problems that incorporate QtsPlus software, which is freely available via the book's related Web site.

With its accessible style and wealth of real-world examples, *Fundamentals of Queueing Theory*, Fourth Edition is an ideal book for courses on queueing theory

at the upper-undergraduate and graduate levels. It is also a valuable resource for researchers and practitioners who analyze congestion in the fields of telecommunications, transportation, aviation, and management science.

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Editorial Review

Review

"Despite its title, the book is rather advanced, so it is appropriate for practitioners, those in academia, and upper-class students. However, any reader will benefit from the concise introductions to the problems, the detailed descriptions supported with step-by-step formulas, the solutions provided by the manual, and the QtsPlus software." (Computing Reviews, 1 December 2011)

"This is an accessible and attractive book with good writing all the way through. It has the advantage of years of classroom testing. The exercises are extensive and creative." (*MAA Reviews*, March 19, 2009)

Review

"This exceptional book is a most welcome text for advanced university undergraduate and/or graduate students. It is built on the solid foundation of the three previous widely acclaimed editions since 1975 that have been among the few cornerstones of texts in the field. The new edition contains a superb blend of theoretical and contemporary real-world examples."

—**Dr. Percy Brill**, Department of Management Science and Department of Mathematics and Statistics, University of Windsor

From the Publisher

A graduate text and reference on queueing theory, covering everything from the development of standard models to applications. The focus is on real analysis of queueing systems applications and problem solving. The second edition has been expanded to include new material on statistical inference in queueing and updated to reflect changes in simulation languages and new results in statistical analysis of simulation output such as regenerative techniques. Contains a new section on the fundamentals of Markov processes, in addition to new chapters on advanced Markov Models, queueing networks, and bounds and approximations.

Users Review

From reader reviews:

Susan Rooks:

Reading a reserve tends to be new life style on this era globalization. With studying you can get a lot of information that will give you benefit in your life. Along with book everyone in this world may share their idea. Textbooks can also inspire a lot of people. A great deal of author can inspire their reader with their story or even their experience. Not only the story that share in the textbooks. But also they write about the information about something that you need example of this. How to get the good score toefl, or how to teach your sons or daughters, there are many kinds of book that you can get now. The authors in this world always try to improve their ability in writing, they also doing some exploration before they write to the book. One of them is this Fundamentals of Queueing Theory.

William Devine:

People live in this new day time of lifestyle always try to and must have the time or they will get great deal of stress from both way of life and work. So , whenever we ask do people have time, we will say absolutely sure. People is human not a robot. Then we inquire again, what kind of activity are there when the spare time coming to you actually of course your answer will unlimited right. Then ever try this one, reading publications. It can be your alternative in spending your spare time, the particular book you have read is definitely Fundamentals of Queueing Theory.

Gregory Rivera:

Playing with family in the park, coming to see the marine world or hanging out with friends is thing that usually you will have done when you have spare time, after that why you don't try thing that really opposite from that. One activity that make you not feeling tired but still relaxing, trilling like on roller coaster you are ride on and with addition associated with. Even you love Fundamentals of Queueing Theory, you could enjoy both. It is good combination right, you still want to miss it? What kind of hang type is it? Oh come on its mind hangout fellas. What? Still don't have it, oh come on its known as reading friends.

Sunny Weaver:

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